

# How Generative AI Is Changing the Global South’s IT Services Sector

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By Julian Jacobs | June 10, 2024

**The emergence of large language models (LLMs) has kindled discussions about the potential for artificial intelligence (AI) to increase productivity and boost economic growth. Although the economic effects of AI have been a topic of debate for the last decade, the growing adoption of LLMs creates a new urgency for understanding the technology’s impact.**

To date, most research on the economic effects of AI has centered almost entirely on the Global North, yet the diffusion of LLMs around the world economy may have significant implications—both auspicious and foreboding—for the Global South.<sup>1</sup> On one hand, the productivity-enhancing benefits of LLMs could greatly benefit industries in the Global South. On the other hand, uneven adoption of LLMs could exacerbate the digital divide and lead to an uneven distribution of the technology’s benefits.

Preliminary evidence suggests that LLMs are improving productivity across a variety of white-collar tasks, including writing, coding, and customer service. Such gains have been particularly concentrated in the IT sector.<sup>2</sup> IT services have played a growing role in the developing economies of the Global South, many of which export key digital services to the wealthier Global North. This includes telecommunication services, copywriting, gig work, and other forms of content generation. The efficiency gains ushered in by LLMs may be disruptive to the growth of these IT sectors, reshaping the balance and flow of international IT exports.

This report investigates the potential impact of LLMs on the Global South’s IT sector. It begins by contextualizing the growing role of IT in major Global South economies, and then highlights the kinds of IT occupations that are most represented in Global South countries. It concludes with a discussion regarding the impact of LLMs on the global flow of IT services and an assessment of current policy responses to AI by Global South countries.

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This report finds that growth in the IT sector's share of Global South employment and exports is likely to be disrupted due to the infusion of LLMs across the world economy. Although Global South countries experience comparatively low levels of LLM exposure due to smaller shares of IT services, the IT services that are most represented in Global South exports, growth, and employment tend to be ones with high levels of automation potential. In other words, the IT services in the Global South appear more likely to experience the displacing, as opposed to complementing, effects of AI. Given the potential for countries to reshore and automate previously outsourced IT occupations, the Global South's IT services appear vulnerable to LLM adoption. Many countries are aware of these risks and are moving rapidly to promote reskilling and develop diversified and more advanced IT sectors. Yet, existing policy responses may be insufficient to address these risks in the Global South.

To address these challenges, policymakers should take three key steps:

1. Policymakers in the Global South should support workforce development policies that provide workers with the new digital skills they will need for the AI economy. AI will reduce demand for some digital services but increase demand for others, and economies in the Global South will need to adjust.<sup>3</sup>
2. Policymakers in these countries should pursue widespread adoption of AI to boost productivity and competitiveness across their economies and develop domestic AI implementation skills and capabilities.
3. Policymakers should continue to pursue policies that facilitate digital free trade, such as by opposing restrictions on cross-border data flows, to ensure that their companies and workers have access to best-in-class digital services.

### **WHY STUDY LARGE LANGUAGE MODELS?**

There are two key reasons to study LLM's economic effects. The first is that LLMs have applications across the labor market, augmenting or automating skill sets across a diversity of occupations. This makes LLMs useful for comparative international studies where industry concentrations are heterogeneous. Second, LLMs appear to be creating observable increases in labor productivity within the global IT sector. Previous attempts to study AI's economic impacts have either been forward-looking or industry-specific (e.g., robot exposure in manufacturing).

Recent studies provide estimates of LLM exposure, automation potential, and complementarity based on real-world data, as opposed to speculation. One paper shows that ChatGPT reduced the average time taken to complete writing tasks by 40 percent while increasing output by 18 percent.<sup>4</sup> Similar productivity effects have been observed in other forms of

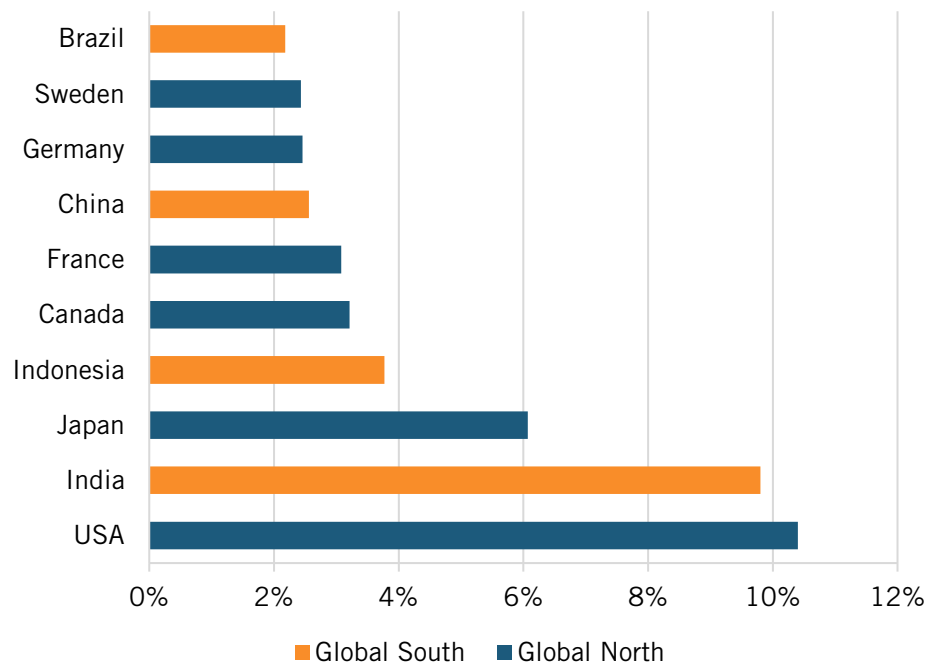
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content generation, including coding and advertising.<sup>5</sup> In addition, LLMs support improvements for call center operators, copywriters, and content generators more broadly. For example, one paper finds that LLMs improved the worker productivity of customer service agents by 14 percent.<sup>6</sup> Many of these IT occupations are over-represented in the Global South and comprise a significant share of those countries' IT exports.

This report's findings—about the Global South's IT sector LLM exposure—rely on leveraging public IT data from the International Monetary Fund (IMF), the International Labor Organization (ILO), and the Organization for Economic Cooperation and Development (OECD). We look at the representation of IT sector occupation categories within the Global South that are highly susceptible to LLM-enabled automation, defined as the weighted share of tasks within occupational categories that are susceptible to LLM substitution.

One limitation of this approach is the reliance on Global North evidence for LLM occupational exposure. It is possible, for example, that certain occupations that experience LLM-enabled productivity increases in the Global North will not experience such gains in the Global South. This could be due to a myriad of social, economic, policy, and cultural factors. Yet, the low cost of using most mainstream LLMs may indicate that experiences of occupational LLM exposure will eventually converge. Many Global South countries are heavily represented in the international ChatGPT user base (figure 1).<sup>7</sup> India, for example, has the second-highest share of global ChatGPT users, though it is also the most populous country in the world.

**Figure 1: Countries' share of global ChatGPT users, 2024**



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Another limitation of this report is that there is currently no available data on LLM-kindled inflows and outflows of IT activity in the Global South. The report therefore suggests what may soon happen to the Global South's IT sector, as opposed to what is currently taking place.

## **LARGE LANGUAGE MODELS IN THE GLOBAL SOUTH**

Today, there is only limited data on the Global South's experience with LLMs, including sparse data on direct LLM usage and granular IT occupation-level data. Despite these obstacles, there have been recent attempts to understand LLM usage in the Global South and its potential economic impacts.

A recent report from ILO examines the potential impact of LLMs on global labor markets.<sup>8</sup> The ILO findings suggest that LLMs are more likely to augment occupations than fully replace them, with this augmentation effect most pronounced in high- and upper-middle-income countries in the Global North. The paper argues that LLMs may therefore deepen existing global economic disparities. The methods they use to study LLM occupation exposure are novel—they involve querying LLMs about their capacity to perform particular tasks. Clerical work is, perhaps unsurprisingly, the most susceptible to LLM-enabled automation since it involves repetitive tasks such as typing, scheduling, and emailing. Much of those tasks can be performed—or at least significantly hastened—by LLMs.

Perhaps the most notable attempt to study the Global South's experience with LLMs comes from the IMF's "Gen-AI: Artificial Intelligence and the Future of Work" report.<sup>9</sup> The report examines the effects of AI on labor markets across the Global North and Global South countries, showing that the integration of AI technologies is more advanced in the Global North. This entails more significant shifts in the nature of work in the Global North in addition to higher potential productivity gains. The authors argued, however, that the Global North may experience challenges related to job displacement, the need for workforce reskilling, and inequality.

The IMF shows that the Global South, meanwhile, faces hurdles in accessing and implementing AI technologies due to infrastructure and education gaps. Such limitations could exacerbate existing economic disparities and limit the global potential benefits of AI-driven growth. In total, the IMF finds that high-income countries have a 5.5 percent employment exposure to LLM-enabled automation, as opposed to 0.4 percent in low-income countries. These findings represent a primary research point of comparison for this report.

## **LLM EXPOSURE IN GLOBAL SOUTH IT SERVICES**

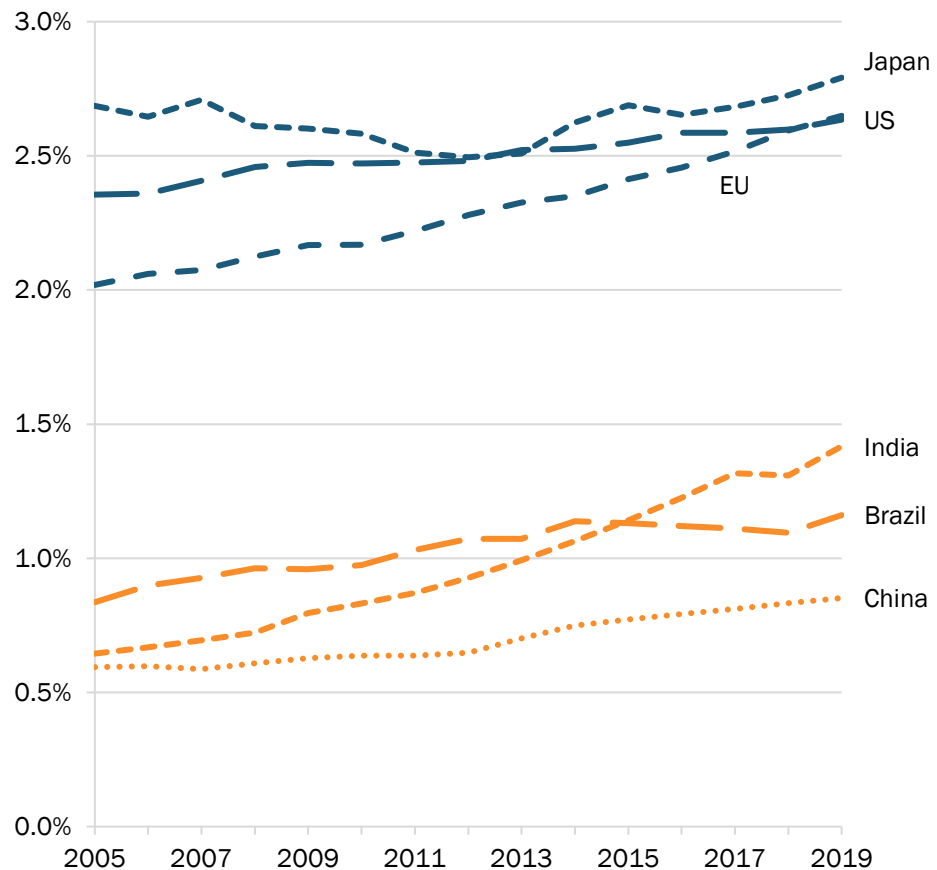
This study argues that, although the Global South tends to have smaller IT sectors than do the Global North, those sectors appear more exposed to the displacing impacts of LLMs, while the Global North experiences greater complementarity. Such displacing effects in the Global South may be

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further exacerbated by the potential for Global North countries to reshore IT jobs that had previously been outsourced to the Global South.

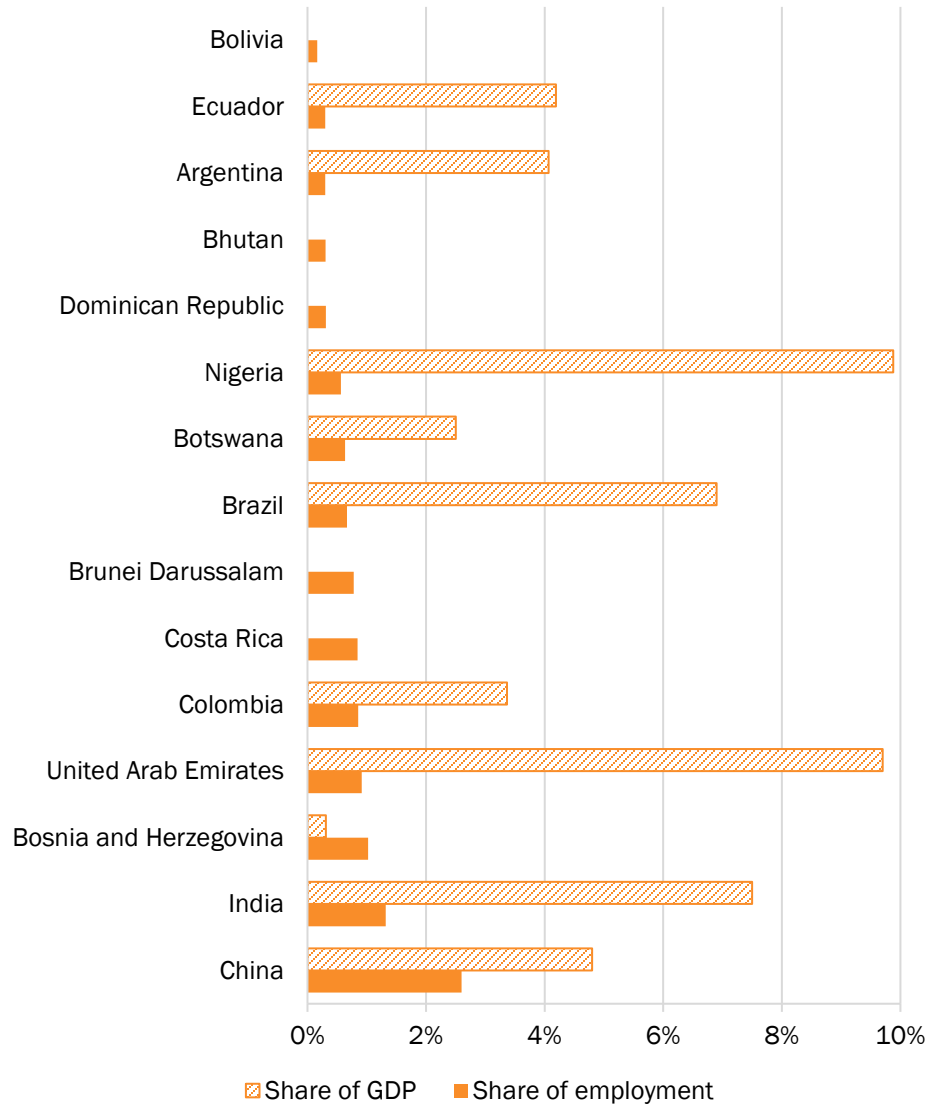
Using data from the ILO, we found that, on average, less than 1 percent of employment in China, India, and Brazil is in the IT sector (figure 2).<sup>10</sup> By contrast, over 2.5 percent of total employment in Global North countries is in the IT sector. Due to data limitations, the ILO averages include only Brazil, China, and India. Real IT employment in the Global South may be far lower than the 1 percent average presented here.

**Figure 2: IT sector share of total employment**



Turning to gross domestic product (GDP), countries' national data shows that IT's share of GDP is 7.5 percent in India and nearly 10 percent in Nigeria, as shown in figure 3. This is compared with the OECD average of 6 percent.<sup>11</sup> The United States' IT sector makes up roughly 10 percent of its GDP.<sup>12</sup> Such shares should be viewed as upper-bound, given the sizeable portions of GDP that occur in these countries' informal markets. The ILO, for example, found that 61 percent of the global workforce is employed in the informal economy, working in occupations and industries largely absent from macroeconomic data.<sup>13</sup> Yet, these results suggest a growing role for digital services in the Global South economy as well as an outsized role of IT in some countries' GDP, even relative to employment.

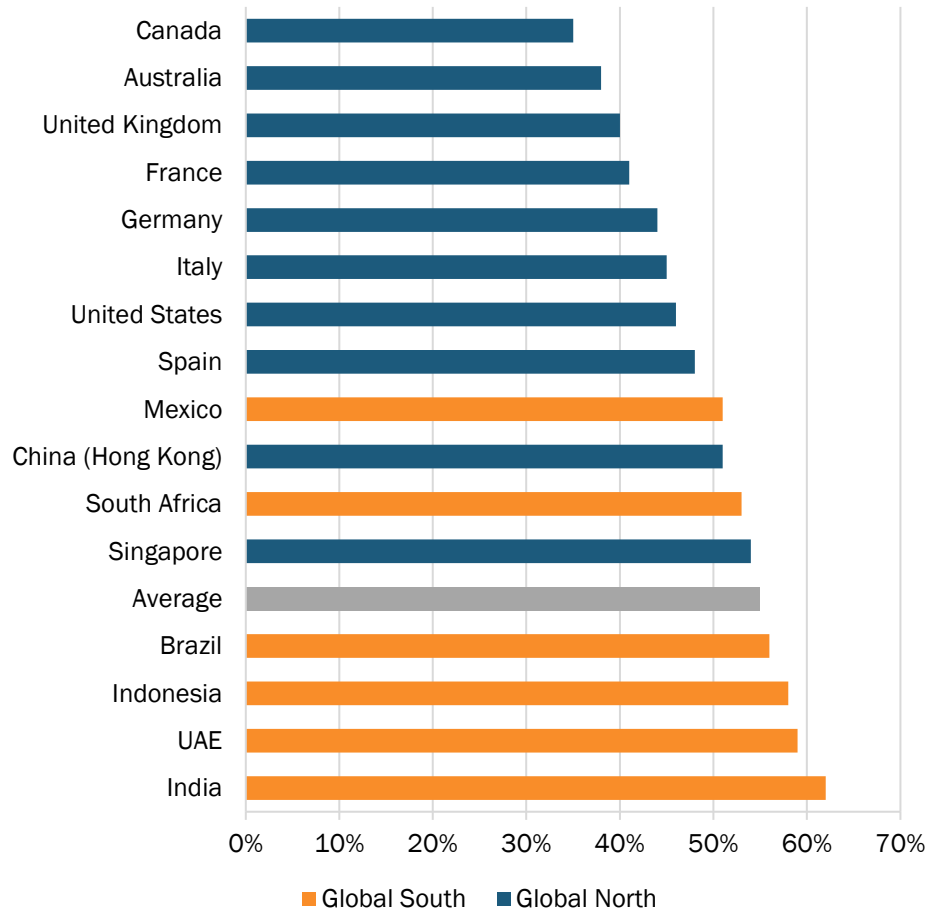
**Figure 3: IT sector share of employment and GDP**



Beyond this, recent survey data from management consulting firm Oliver Wyman suggests that LLM adoption is highest in several Global South countries (figure 4). India, the UAE, and Indonesia report the highest percentage of survey respondents adopting AI, with shares each at 50 percent or higher.<sup>14</sup> The report suggests that LLMs are becoming increasingly useful in several large Global South countries. The Oliver Wyman study does not use a randomized sample of survey respondents to control for self-selection bias, so these estimates may be inflated.

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**Figure 4: AI adoption scores (survey data)**



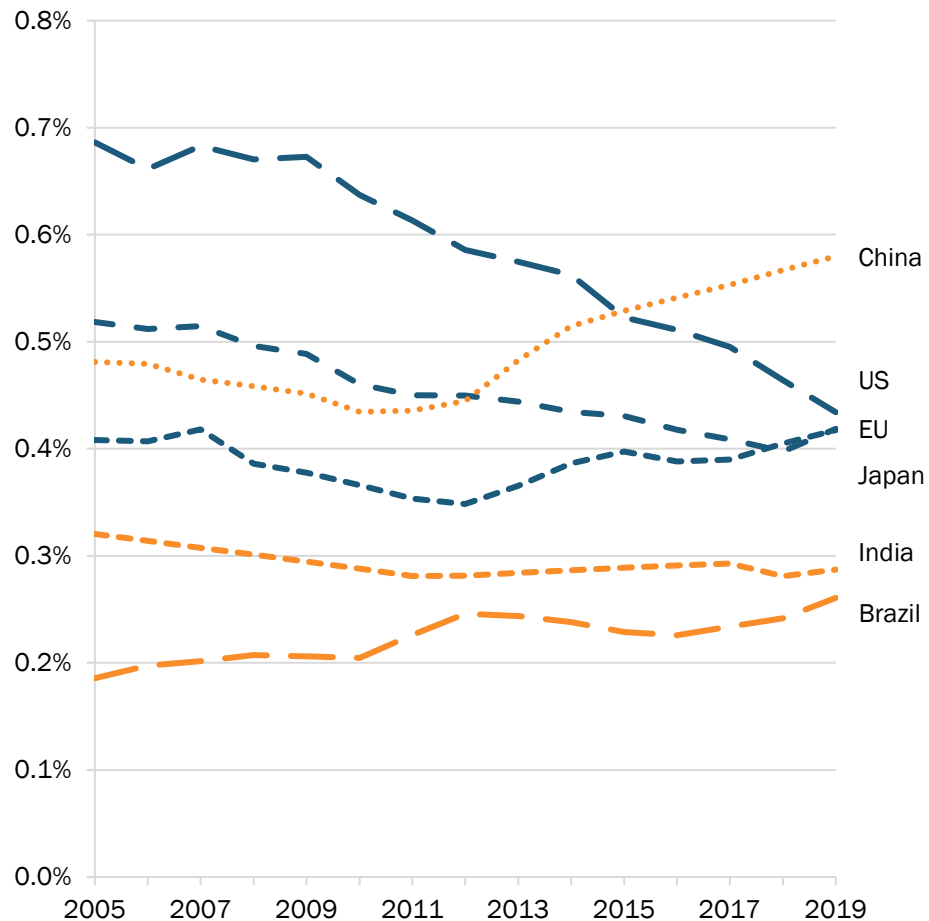
Oliver Wyman survey data offers a guess at potential AI use cases across occupations, not captured in official industry-level data. Yet, ILO estimates, which are in congruence with the IMF’s work, suggest that the Global North may continue to be more LLM exposed simply because the Global North has more expansive IT sectors.<sup>15</sup> Indeed, IT occupations are particularly exposed to LLMs, and previous research has argued that the higher average share of IT employment in the Global North entails a more significant LLM impact.<sup>16</sup>

Yet, the nature of LLM exposure can differ considerably based on the types of work represented in countries’ respective IT sectors. To better understand LLM’s impacts on the Global South’s digital service sector, it is therefore key to look at more granular sub-industry-level data. This is a challenge given the limited data at the sub-IT level in the Global South. To generate best guesses, this report looks at two occupations under the broader IT umbrella, for which there is good data: telecommunications and computer and related activities.

Here, telecommunications can be viewed as a proxy for LLM-enabled automatable work, whereas computer and related activities tend to have greater employment augmentation. Such estimates of “automation” and “augmentation” come from a 2023 World Economic Forum paper, which extrapolates from recent work on LLM-enabled productivity growth and defines augmentation as tasks wherein LLMs support worker productivity without removing the need for humans.<sup>17</sup> The paper defines automation as instances where the LLM can directly replace key tasks without requiring human input.

Telecommunications have a high estimated LLM exposure of 75 percent, driven heavily by automating effects. Using ILO data, we look at the employment share of telecommunications between the Global North and Global South. Figure 5 shows that 0.43 percent of the U.S. population is currently employed in telecommunications, compared with 0.29 percent in India and 0.58 percent in China. And telecommunications is growing as a share of employment in China and Brazil, while its share remains stable in India. Meanwhile, it is falling in the United States, Japan, and the EU.

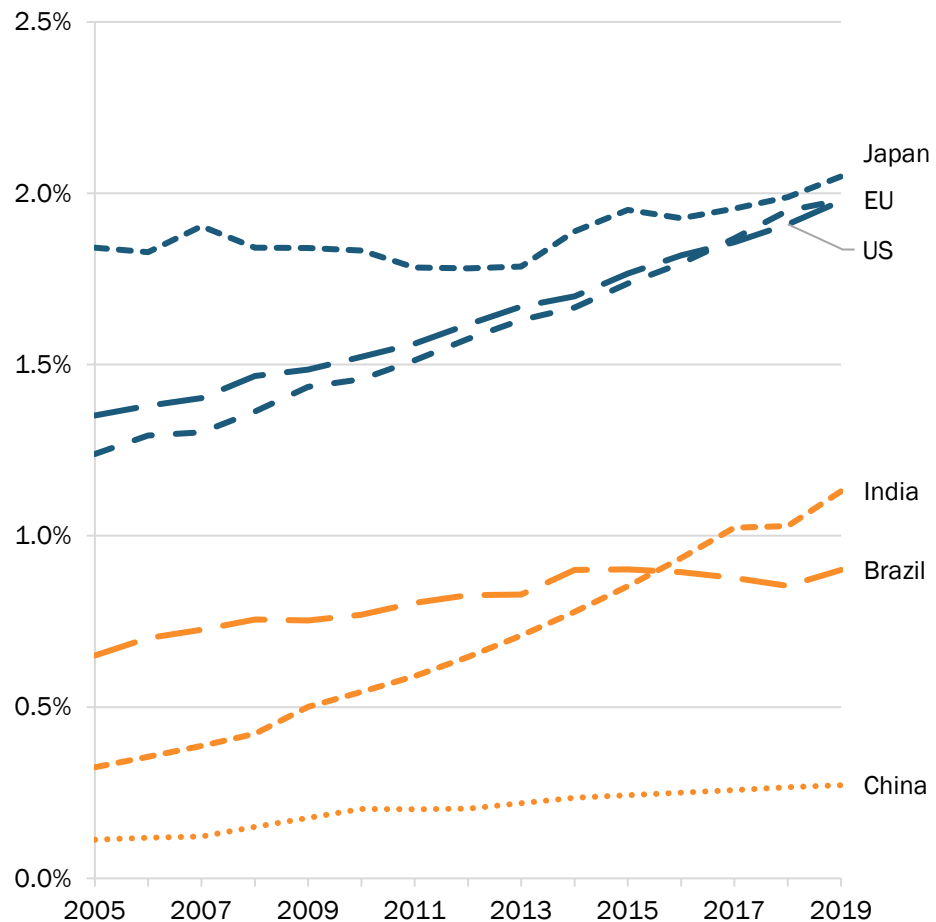
**Figure 5: Telecommunications’ share of employment**





To understand the potential divergences between the Global North and Global South IT sectors in greater detail, consider the growth of occupation categories with higher rates of LLM augmentation. Computer and related activities is a highly LLM-exposed category, but workers are also more likely to experience the augmenting (or complementing) effect of AI, in contrast to the case of telecommunications. As shown in figure 6, the Global North has higher and growing shares of employment in computer and related activities.

**Figure 6: Computer and related activities' share of employment**



Of course, these are just two occupation categories within IT services. But they do offer particular examples of IT sub-categories that have grown considerably as a share of many large Global South countries' IT sectors. And what existing data appears to suggest is that, although the Global North is more exposed to LLM employment effects, those impacts are more likely to be complementing compared with the Global South. Put another way, the Global South has a smaller percentage of IT service jobs being disrupted by LLMs, but those jobs that do exist are more susceptible to automation. Of course, given gaps in existing data, these findings should

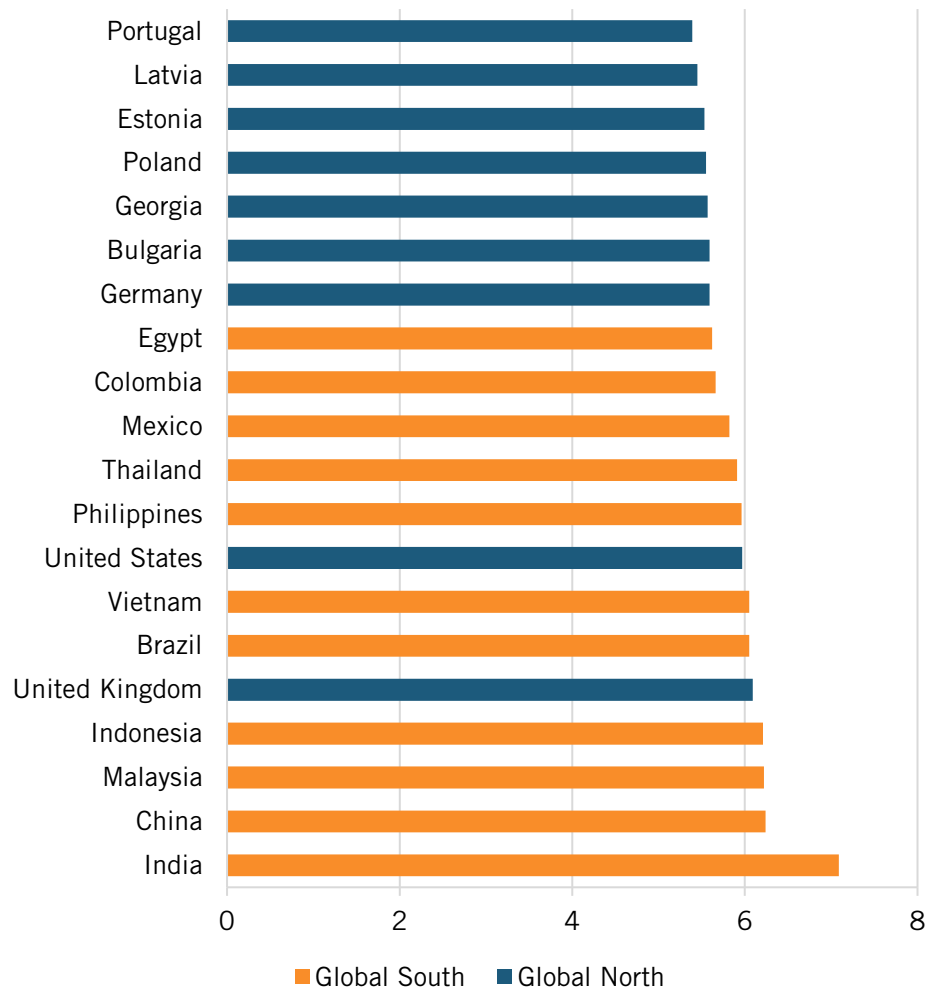
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be met with some caution. Additional research and data is needed to capture the relative digital service LLM exposure in the Global South.

### GLOBAL FLOWS OF DIGITAL SERVICES

LLM's effects on global IT sectors may also erode the Global South's growing role as an exporter of key IT services. To better understand the effects of LLMs on Global South digital services, it's worth considering international trade. The capacity to automate certain occupations domestically has a significant impact on the attractiveness of outsourcing particular services. And given the growing bend for protectionism and friendshoring among many countries, we have seen recent instances in which the automatability of particular kinds of work have led to reshoring of labor.<sup>18</sup> This occurred, for example, when the U.S. manufacturing sector began to automate jobs that were reshored under the Trump Administration.<sup>19</sup>

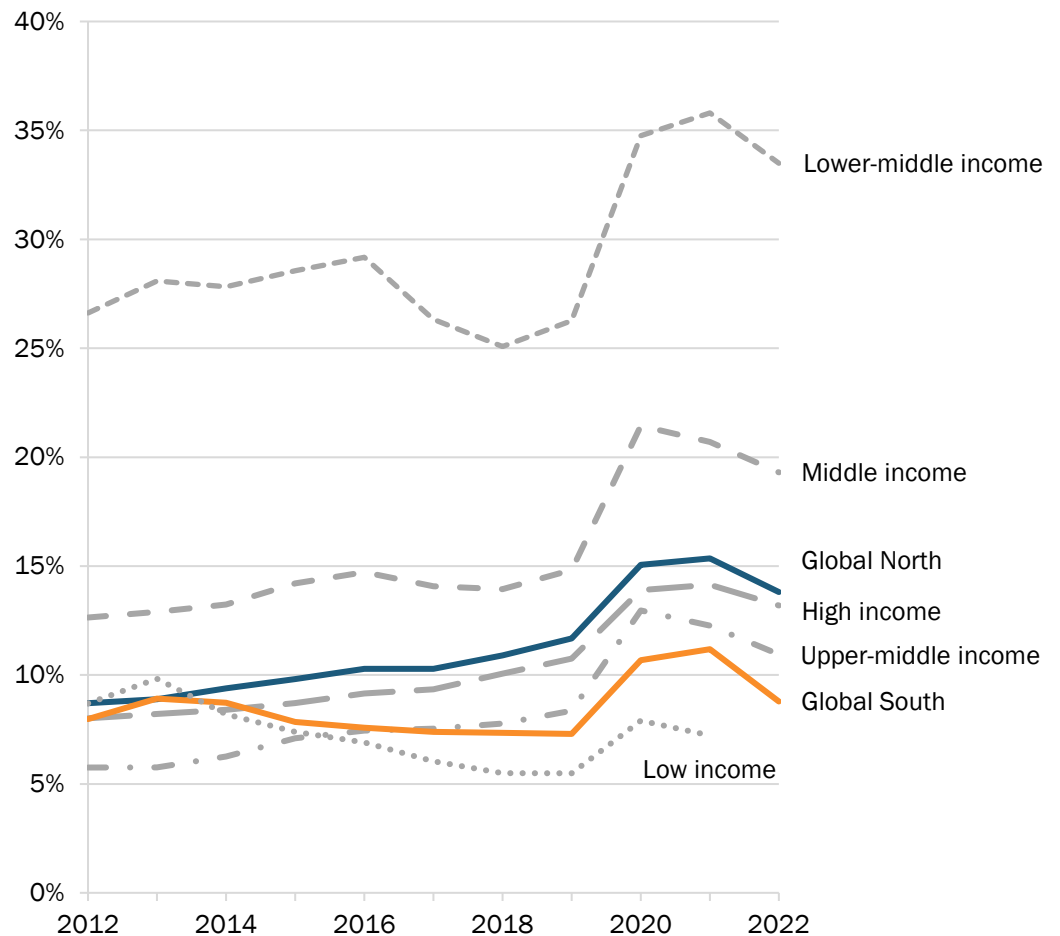
**Figure 7: Index scores for most desirable services' outsourcing destinations (indexed on a scale of 0 to 8)**



The risk to those Global South countries is that LLM-enabled efficiency gains lead to a reshoring of labor and business activity, at least in the short to medium term. For example, a firm in the United Kingdom may decide to use an AI-enabled online service in Canada for language translation or copyediting instead of outsourcing that job to a worker in the Global South. The adjustment to such a shift in trade flows could be damaging to emerging digital sectors in many Global South countries, depriving them of badly needed capital inflows. Indeed, as shown in figure 7, according to Statista’s estimates for leading countries to offshore business services, 8 of the top 10 countries are in the Global South.<sup>20</sup>

Data from the IMF and World Bank lays out the increasing role of IT service exports in the Global South.<sup>21</sup> For example, India and China are heavily represented in global IT service, with \$120 billion and \$51 billion in IT services exports, respectively. Overall, IT services make up a larger share of IT service exports for middle and lower-middle income compared with the Global North.

**Figure 8: IT share of service exports, by hemisphere and income**



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The emergence of digital gig work has also grown considerably in the Global South. Research by the World Bank finds that low-and-middle-income countries account for 40 percent of traffic to gig platforms, driven by India, the Philippines, Indonesia, Pakistan, Mexico, Brazil, and Nigeria.<sup>22</sup> For example, data from Fiverr, a popular gig work app, shows that Pakistan, Bangladesh, India, and Nigeria comprise four of the top five most active users.<sup>23</sup> At the same time, research by Statista shows that Brazil has the highest number of digital content creators in the world.<sup>24</sup>

The nature of these digital gig services can vary considerably. Call centers have grown as an employment and output share in major Global South countries, including India, Brazil, Argentina, Mexico, South Africa, and the Philippines.<sup>25</sup> And recent growth in content moderation roles has been heavily concentrated in many Global South countries. For instance, in Pakistan, such content moderation roles have grown in number as companies such as TikTok increase their reliance on exported moderator support.<sup>26</sup> Like the call center industry, content moderation jobs appear automatable with AI tools.<sup>27</sup> Given the recency with which content moderation roles have emerged, the substitution of this work through AI underscores the speed of current technological diffusion and global market adjustments.

## **THE FUTURE OF IT IN THE GLOBAL SOUTH**

LLMs may hurt the continued growth of IT as a share of growth, employment, and exports in the Global South. Despite promising signs of digital service sector development in the Global South, it appears much of that growth is occurring within the IT occupations at the most risk of LLM-enabled automation. This is true, for example, of the telecommunications sector, which has been growing as a share of Global South employment, GDP, and exports.

Meanwhile, the rapid expansion of the digital gig economy in the Global South is similarly defined by types of work that may be easily automated by LLMs. Previous research suggests that this work is dominated by repetitive digital tasks.<sup>28</sup> This includes data labeling (e.g., image tagging), content moderation, data entry, transcription, virtual assistance (e.g., virtual personal assistants), customer service, scheduling, software development, programming, graphic designs, video/audio editing, and writing and translation.

There are two main risks for Global South countries. First, there is the risk of stagnant IT sector growth if LLMs, developed in the Global North, are used to create digital services that are exported to the Global South, thereby disrupting existing industries. Second, Global North countries beginning to automate and reshore previously outsourced IT tasks may hurt the Global South's net IT exports and growth. In other words, using LLMs may become more efficient than outsourcing, creating potential

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downstream effects on the Global South through more sluggish IT trade export growth.

## RECOMMENDATIONS

How should policymakers respond to these trends in the use of LLMs? There are at least three main areas where policymakers should promote supportive policies: 1) workforce development, 2) AI adoption, and 3) digital free trade.

First, policymakers should pursue interventions that support workforce development to ensure workers have the digital skills necessary for the AI economy. In some cases, it means training workers on how to continue to provide existing IT services, such as IT support call centers, more efficiently using LLMs. Using LLMs to boost productivity would allow the Global South to continue providing IT services for tasks that remain hard to completely automate. However, Global South countries should also prioritize developing advanced digital skills, including those involving AI.<sup>29</sup>

Auspicious survey data from the World Economic Forum suggests that major Global South countries are prioritizing re-skilling in data science, advanced machine learning, and other high-skill IT work.<sup>30</sup> For example, the Brazilian National Strategy for Artificial Intelligence (EBIA), coupled with the country's newly passed AI Bill in 2023, commits to AI growth, including the need "to stimulate the retention of ICT-specialized talents in Brazil."<sup>31</sup> In a 2021 paper, the Indian government noted the "impact of automation on job creation and employment" as a key consideration.<sup>32</sup> The country's Ministry of Electronics and Information Technology, meanwhile, announced it would be developing "concrete steps for quick starting AI-related retraining."<sup>33</sup> Similar initiatives have emerged in Mexico.<sup>34</sup> These policies have the potential to strengthen domestic Global South IT sectors by generating new areas of innovation, business, and comparative advantage, making them more resilient and competitive in global markets.

Second, countries in the Global South should build domestic skills and capacity in AI and pursue widespread adoption of LLMs to improve productivity across their economies. For example, Brazil has inaugurated six Applied Research Centers in AI designed to facilitate collaboration among government bodies, academic institutions, and the private sector, aiming to enhance innovation and application of AI within the country. India, meanwhile, has set out a National AI Strategy of its own, focused on developing its domestic AI industry.

Policymakers in Global South countries should continue to pursue policies that support widespread adoption of AI, a technology that offers innovative solutions to longstanding development challenges across the Global South, with a broad spectrum of applications in sectors such as agriculture, healthcare, and education. In agriculture, initiatives to develop the AI industry range from using AI to detect banana diseases aiding farmers in the developing world to creating deep learning models for cassava disease

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diagnosis in East Africa and implementing advanced imaging systems for precision farming and forest conservation in Brazil.<sup>35</sup> In the healthcare sector, efforts include developing predictive models for engaging expectant mothers in rural India with telehealth programs, creating tools for managing antimicrobial resistance in Ghana, and applying AI to interpret fetal ultrasounds in Zambia.<sup>36</sup> Educational initiatives leverage AI to identify students at risk in Colombia, improve English proficiency among Thai learners, and support science education with AI teaching assistants in West Africa.<sup>37</sup> Adoption of AI throughout other sectors of the economy in Global South economies will support the domestic IT services industry.

Third, Global South countries should continue to pursue policies that facilitate digital free trade, such as by opposing restrictions on cross-border data flows and resolving questions about how to treat AI appropriately in existing trade agreements. Non-tariff barriers to trade in digital services, such as data localization requirements, can increase costs for businesses.<sup>38</sup> Similarly, laws and regulations may restrict the export of certain AI models, increase compliance costs for AI services, or limit the export or use of AI-enabled services. Given the widespread availability of open-source AI models, these trade barriers will not decrease the use of AI, but they may decrease access to best-in-class AI services, hurting domestic uses of AI and making other sectors of the economy less competitive in the global market.

## **CONCLUSION**

For decades, the Global South has provided important digital services. Preliminary evidence suggests that LLMs may threaten the Global South's ability to continue to provide those services if countries do not adapt. Amid the rise of the digital economy, many countries have identified areas of comparative advantage, even as many legacy industries have experienced technical automation—for example, industrial manufacturing, chemical production, and aerospace, among others.<sup>39</sup> Countries may once again need to identify these areas of comparative advantage now, in the age of AI.

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