B Trade and income convergence

The past quarter of a century has witnessed an unprecedented level of income convergence, accompanied by the integration of many developing economies into global markets. Despite this, some economies have been left behind. This chapter discusses how the participation of developing economies in global trade and investment flows can accelerate structural transformation and enhance productivity growth, thereby helping low- and middle-income economies to achieve the economic growth that ensures convergence with high-income economies. The chapter also examines why some economies have taken little advantage of globalization, and focuses on barriers to maximizing the gains from trade participation, such as trade costs and commodity dependence. Finally, the chapter discusses how recent trends in the global economy are shaping future opportunities and challenges for developing economies to leverage trade and foreign direct investment for economic growth, and which policies can help to achieve convergence in the upcoming decade.

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Key points

- Trade expansion during the period 1995-2020 led to 30 per cent faster income convergence of low-income economies. Despite this, their income convergence and integration into the global economy have been uneven, and some economies have been left behind.

- Developing economies and least-developed countries (LDCs) have high trade costs relative to high-income economies. Manufacturing and services trade is around 50 per cent more difficult for LDCs than for high-income economies.

- Commodity dependence exposes economies to high volatility and can negatively impact the development of other sectors, often hampering sustained growth.

- Foreign direct investment (FDI) can play an important role in helping economies to adopt new technologies and complex production processes, but middle-income economies remain relatively less open to FDI than high-income economies.

- Emerging global trends, such as geopolitical tensions, digital revolution and climate change, are reshaping trade-led development, presenting new threats to convergence, but also creating new opportunities.

- Developing economies can capitalize on future trade opportunities by tackling trade costs, promoting diversification based on comparative advantages, and maximizing trade growth dividends by improving domestic infrastructure and the business environment, and by facilitating technology adoption.

1. Globalization has led to income convergence, but some economies have been left behind

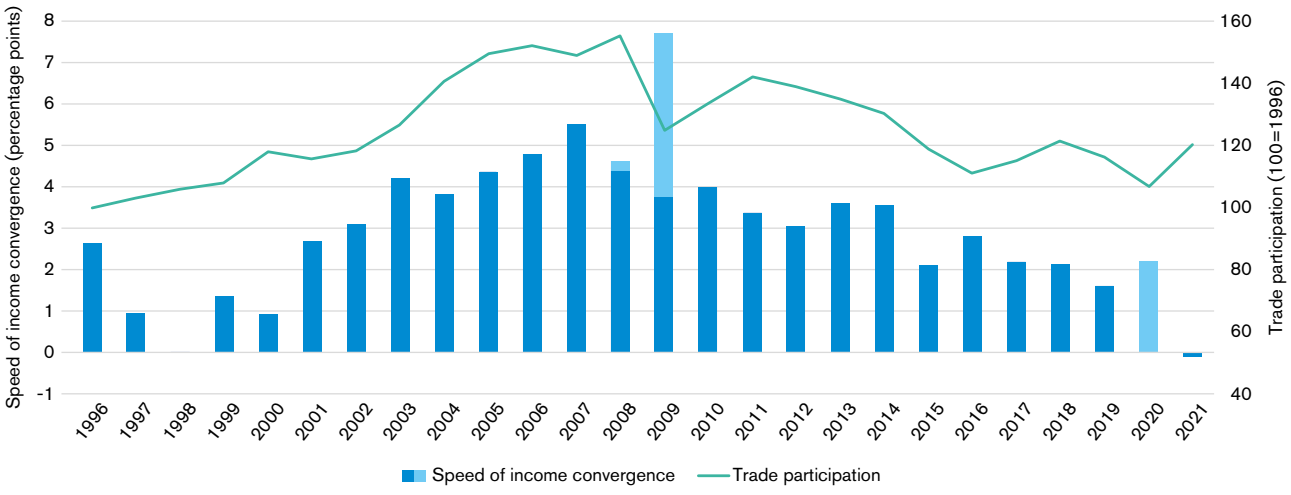
The world has become more equal over the past three decades. Until the 1990s, there was little evidence of poorer economies catching up with richer ones, a phenomenon known as unconditional convergence. However, since the mid-1990s, economic growth has been unambiguously characterized by unconditional convergence (Patel, Sandefur and Subramanian, 2021; Kremer, Willis and You, 2022). This has been due mainly to faster catch-up growth in poorer economies, although the simultaneous slowing of growth in richer economies has also contributed. Consequently, income inequality among economies has been decreasing for the last quarter-century. Only the shock of the COVID-19 pandemic ended this era of unconditional income convergence.

Richer economies have a lower poverty rate, higher levels of education and longer life expectancies. Although income per capita is an imperfect measure of development, it is correlated with several dimensions of human development. Thus, the era of global income convergence has been accompanied by a stark reduction in the global poverty rate[1] and has contributed to United Nations Sustainable Development Goals, such as those associated with education and health. According to data from the World Bank, the global share of people living in extreme poverty declined from 32.7 per cent in 1995 to 9 per cent in 2022, even though the global population rose by 38.7 per cent during the same period.

The period of unprecedented income convergence has been accompanied by a steep increase in trade participation (see Figure B.1). While part of this correlation may be related to the fact that economic growth leads to more trade and that other common factors can cause an increase in both income per capita and trade, a compelling set of empirical research suggests that more trade also leads to higher incomes (see Figure B.1) (Feyrer, 2019, 2021; Cerdeiro and Komaromi, 2021).[2] Comprehensive trade liberalization in developing economies has been shown to increase income growth by an average of 1.0 to 1.5 percentage points, resulting in incomes higher by 10 to 20 per cent after a decade (Irwin, 2024). Trade has been an essential component of high-growth episodes that typically involved a shift of capital and labour to the tradeable manufacturing sector and intensified imports of capital goods (World Bank, 2024a).

Low- and middle-income economies have become dominant in global merchandise trade. The increased trade participation of low- and middle-income economies has transformed the global trade

Figure B.1: Positive correlation between low- and middle-income economies' convergence speed and trade participation, 1996-2021



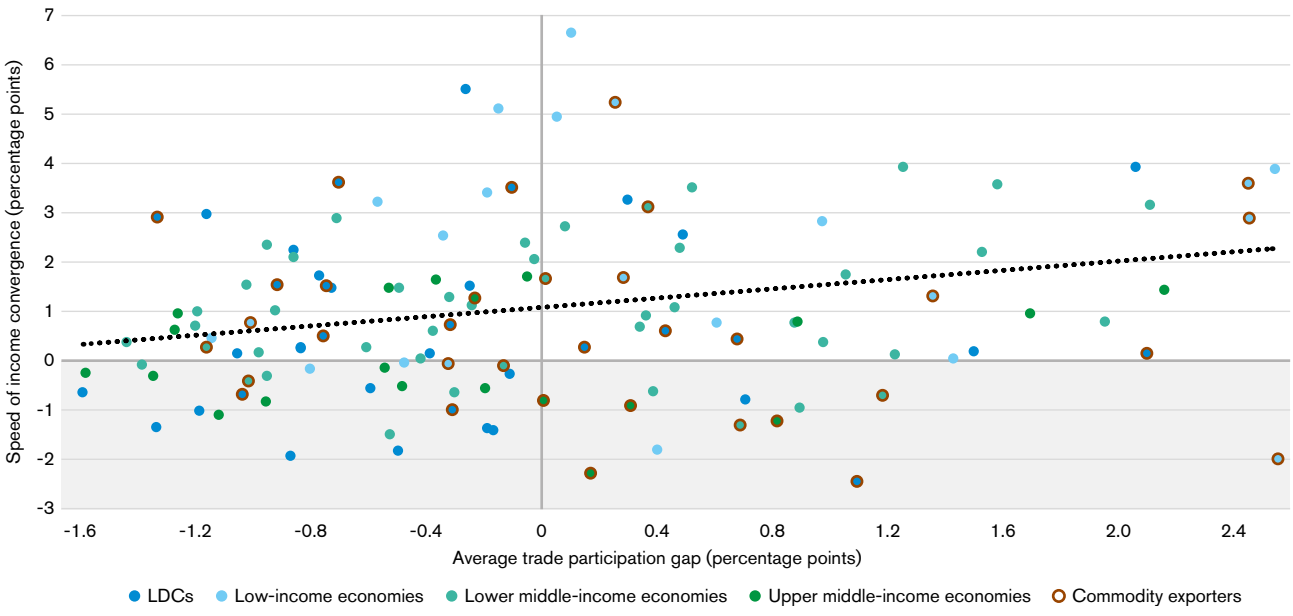
Source: Authors' calculations, based on World Bank data on nominal GDP and real GDP per capita and WTO data on trade in goods and commercial services.
Note: The figure displays the evolution over time of the population-weighted averages of trade participation and income convergence speed between 1996 and 2021. The trade participation index is the share of goods and commercial services trade in GDP, adjusted for country size. Speed of income convergence is expressed as the difference between the average real GDP per capita growth rate of low- and middle-income economies and the average growth rate in high-income economies. The light blue fill indicates a contribution of negative growth in high-income economies. The income groups are based on the 1995 World Bank classification.

landscape. In 1995, more than a half of merchandise trade flows were among high-income economies, and only 5 per cent of global merchandise trade was exchanged within the low- and middle-income group. By 2021, the latter figure had jumped to 19 per cent, while the share of merchandise trade among high-income economies had dropped to 32 per cent. Exchanges between the two groups of economies now dominate global merchandise trade.[3] The share of least-developed countries (LDCs) in global trade increased rapidly between 2000 and 2014, but has stagnated since then at around 1.2 per cent.

However, income convergence and integration into the global economy have been uneven, and some economies have been left behind. Figure B.2 shows the relationship between trade participation and income convergence over the past quarter of a century by country income group. First, it confirms that faster income convergence is typically associated with higher trade participation, as highlighted in Figure B.1. Second, although two-thirds of low- and middle-income economies experienced income convergence between 1996 and 2021, one third did not converge. These "diverging" economies account for 13 per cent of the global population, and they represented several income groups, as 43 per cent of them were low-income, 30 per cent were lower-middle-income and 27 per cent were upper-middle-income in 1995. Finally, many of the converging economies are catching-up very slowly. If they were to grow at the same pace as in the past three decades, a third of the low-income converging economies would not even reach middle-income status within the next three decades.[4]

Diverging economies are concentrated in certain regions, and many are LDCs. The Middle East and North Africa had the highest proportion of diverging economies (56 per cent), followed by sub-Saharan Africa (42 per cent) and Latin America and the Caribbean (40 per cent). All but one of the small Pacific Island states for which data are available also fell into this group,[5] while there were no diverging economies in Asia or Europe. The majority (71 per cent) of the diverging low-income economies were LDCs, compared to 56 per cent of the converging low-income economies. All of the LDCs that have graduated from their LDC status (except Vanuatu) were in the converging group, as well as the LDCs proposed for graduation in 2026.

Figure B.2: Many low- and middle-income economies are lagging behind, 1996-2021



Source: Authors' calculations, based on World Bank data on nominal GDP and real GDP per capita and WTO data on trade in goods and commercial services.
Note: The figure displays the correlation between trade participation and convergence speed of economies that were low- or middle-income in 1995. The trade participation gap is the share of goods and commercial services trade in GDP, adjusted for country size, expressed as a percentage difference from the income group average. Income convergence speed is the annualized real income per capita growth between 1996 and 2021 expressed as the difference from the average growth in high-income economies. Economies below the horizontal axis did not converge in their per capita incomes towards high-income economies. Economies on the left of the vertical axis had an average trade participation below their income group average. The income groups are based on the 1995 World Bank classification. The LDC group is based on the United Nations (UN) classification.

Three-quarters of diverging economies exhibited trade participation that was below the average of their income group. In some of the economies that have been left behind, economic activity, including trade, has been stunted by prolonged conflict and political instability.[6] In others, as discussed in Section B.3(a), participation in international trade is hindered by trade policies, poor infrastructure, remote geographical locations and institutional environments that weigh particularly heavily on foreign transactions.

The remaining quarter of diverging economies, mostly commodity exporters, saw slow income growth despite relatively high trade participation. Most of this high-trade but slow-growth group consists of commodity-dependent economies in which trade participation has not led to structural transformation and diversification. Income levels, together with the size of the economy, typically determine the degree of diversification. However, resource-rich economies often exhibit lower levels of diversification compared to their peers at similar income levels. Section B.3(b) further discusses how the failure to diversify and move into modern sectors can prevent economies from achieving sustained growth despite high trade participation.

There are significant differences in the degree and scope of trade participation between fast-growing economies and those lagging behind. Table B.1 summarizes the characteristics for the different groups of economies. It shows that economies that have lagged behind, e.g., diverging economies and LDCs, have had lower trade participation, were more likely to be commodity-dependent, and have had lower export complexity and a higher concentration of trade partners than their peers that started in the same income group. On the other hand, economies that grew fast enough to move to a higher income group had higher trade participation, were less likely to be commodity-dependent, and had higher export complexity and a lower concentration of trade partners than their peers that remained in the same group, as did economies that have graduated (or are scheduled for graduation in 2026) from their LDC status compared to the LDC group average.

Trade participation and diversification are intertwined with the production activity of multinational companies, which can be an important conduit for technology diffusion and economic upgrading (see Section B.2(c)). It is therefore not surprising that the group of diverging economies and LDCs cited above have also received considerably less foreign direct investment (FDI) compared to peers that started in the same income group (see Table B.1). Indeed, FDI inflows to low- and middle-income economies in the Middle East and North Africa and in sub-Saharan Africa, where diverging economies are concentrated, lag behind other regions. Even within sub-Saharan Africa, there is high disparity, with Congo, Ghana, Mozambique, Nigeria and South Africa receiving more than 50 per cent of the FDI flows to the region.

Table B.1: Differences between fast-growing economies and those lagging behind

	Diverging economies	LDCs	Economies graduated from LDC status	Economies reaching a higher income group
Trade participation	-15%	-14%	8%	17%
Commodity dependence	+2.5 p.p.	+3.5 p.p.	-17.5 p.p.	-3.2 p.p.
Export complexity	-65%	-48%	+46%	+23%
Partner concentration	+12%	+18%	+28%	-10%
FDI participation	-35%	-16%	+18%	+14%

Source: Authors' calculations, based on UNCTAD data on inward FDI flows, World Bank data on nominal GDP, real GDP per capita and the Herfindahl-Hirschman index of imports and exports, WTO data on trade in goods and commercial services, and Harvard Growth Lab data on export complexity.
Note: The table compares different metrics of diverging economies, LDCs and economies that reached a higher income group to the average of their 1995 income group over the period 1995-2021. Economies that have graduated from LDC status (including those proposed for graduation in 2026) are compared to the average of the LDC group. "Commodity dependence" refers to the share of commodity-dependent economies in the group, defined as having more than 50 per cent of exports concentrated in one commodity in any given year. "Export complexity" is the average complexity of products in which the economy has revealed comparative advantage. "Partner concentration" is the average Herfindahl-Hirschman index of imports and exports. "FDI participation" is the average share of FDI inflows in GDP. The income groups are based on the World Bank classification. The LDC group is based on the United Nations (UN) classification; "p.p." refers to percentage points.

2. How did the integration of low- and middle-income economies into global markets boost income convergence?

Sustained and inclusive income growth is driven by continuous improvements in economy-wide labour productivity. This can be achieved by investing in human and physical capital, and by adopting new technologies. With the exception of a few economies rich in natural resources, there are no examples of low-income economies that have successfully become high-income economies without improving their production technology levels (Cirera, Comin and Cruz, 2022). Moreover, achieving sustained growth in the early stages of economic development requires productivity growth in activities that are labour-intensive and that underpin the transition from a subsistence economy to an economy characterized by specialization and the smooth exchange of goods and services, both domestically and with other economies. Hence, the typical path of a fast-growing, initially poor, economy between 1990 and 2018 involved a fast productivity increase in four sectors: manufacturing, wholesale and retail trade, transport, and business services (Herrendorf, Rogerson and Valentinyi, 2022).

Structural transformation that shifts employment to more productive sectors and firms can be another important source of economy-wide labour productivity growth. In the early stages of economic development, structural transformation typically means a shift from subsistence agriculture to industry and commercial services, from the informal to the formal sector, and from state-owned to private (often foreign-owned) firms (McCaig and Pavcnik, 2013; Gollin and Kaboski, 2023). It is estimated that labour reallocations between broad economic sectors accounted for one half of productivity growth in low-income economies between 1995 and 2017, and for four-fifths of productivity growth in sub-Saharan Africa, specifically (Dieppe, 2021; Erumban and de Vries, 2021).[7]

Outward-oriented development strategies have underpinned the success of most fast-growing developing economies that have undergone structural transformation in the past three decades. Successful development strategies have combined access to international markets, know-how and financing with investment in infrastructure and education, friendly and stable business environments, and capable administration. Rather than using protectionist trade policy to develop indigenous modern sectors by sheltering domestic firms from foreign competition, fast-growing economies have gained access to modern production technologies by attracting foreign investment, providing incentives to improve firm productivity and facilitating access to foreign markets (Juhász, Lane and Rodrik, 2023).

Openness to international trade and investment can boost structural transformation and productivity growth through several channels. Trade and investment liberalization have accelerated structural transformation in many economies by drawing workers from less productive to more productive activities. Globalization also increased productivity within sectors by increasing the size of the markets that firms can access, thus fostering economies of scale and boosting the incentive to innovate, by intensifying competition in the domestic economy and facilitating access to foreign technology, knowledge, know-how and to a larger variety of intermediate inputs of higher quality or at cheaper prices. FDI, especially in the context of global value chains, has played an important role in the diffusion of new technologies, innovation and production upgrading, particularly in middle-income economies. A study of 27 emerging economies shows that both competition from foreign firms and linkages with foreign firms, as buyers or suppliers, increase product innovation, the adoption of new technologies and quality upgrading (Gorodnichenko, Svejnar and Terrell, 2010).

(a) Export-led structural transformation increases aggregate productivity

By accelerating structural transformation that draws workers into more productive firms and activities, specialization according to comparative advantage can give rise to export-led growth. A typical characteristic of low-income economies is that a large share of employment is in informal subsistence farming and household businesses, which tend to have lower productivity and pay lower wages than the formal sector. A recent study provides causal evidence that the reduced trade policy uncertainty following China's WTO accession accelerated the structural transformation of the Chinese economy by stimulating investment and output in both manufacturing and service sectors (Erten and Leight, 2021). Their estimates suggest that the resulting shift of workers from agriculture to the more productive manufacturing sector led to an increase in economy-wide labour productivity in the range of 10 to 38 per cent between 2002 and 2013.

Evidence from several developing economies suggests that export-driven labour shifts from

informal to formal businesses can improve productivity, even within the exporting sector. In Viet Nam, the 2001 trade agreement with the United States helped to accelerate Viet Nam's structural change by propelling its exports of manufactured products, such as footwear and textiles (see Box B.1). While two-thirds of manufacturing workers were still employed in informal household businesses in 2002, the improved access of manufacturing exporters in Viet Nam to the US market led to the expansion of formal employment opportunities. This reduced informal employment in Viet Nam's manufacturing sector by around 7.5 per cent in the first two years following the trade agreement, increasing labour productivity within the sector by 1.5 to 2.8 per cent per year (McCaig and Pavcnik, 2018). During this adjustment period, the influx of new entrants was critical in generating formal manufacturing, with foreign firms playing an important role (McCaig, Pavcnik and Wong, 2023). Similar export-led shifts of workers into formal employment have been documented in Bangladesh, Botswana, Brazil and Cambodia (Costa, Garred and Pessoa, 2016; Goutam et al., 2017; McCaig and McMillan, 2020; Tanaka and Greaney, 2024).

While export-led growth can foster the formal sector in developing economies, certain factors may also cause informal jobs to persist. When exporting firms are highly capital-intensive, their expansion generates few new employment opportunities and therefore has limited impact on aggregate labour productivity improvements. In Ethiopia and Tanzania, in 2008-16 and 1996-2017, respectively, large formal manufacturing businesses expanded and increased the share of manufacturing value added in GDP. However, these large firms did not expand their employment, while informal manufacturing and services firms did (Diao et al., 2021). In Bangladesh, exports more than doubled in real terms between 2002 and 2010, boosting formal employment. Yet, the formal share of employment remained nearly constant at around 15 per cent during that period because informal employment also expanded. This may be because the indirect demand generated through domestic supply chain linkages and through higher incomes raised the consumption of local services (Goutam et al., 2017).

Export-driven expansion helps to improve productivity in exporting firms by enabling economies of scale and incentivizing the adoption of new technologies. Small market size and low purchasing power in poor economies can hinder the adoption of new technologies. The larger scale of production enabled by exports raises revenues from innovation and technology adoption, motivating firms to incur the costs of implementing new technology or investing in research and development (R&D), thereby increasing productivity (Aw, Roberts and Xu, 2011; Bustos, 2011). Furthermore, the effect of market expansion can ripple through the economy along the supply chain. When an exporter increases its production, its suppliers can benefit from the larger scale as well (Linarello, 2018). Based on data from 94 economies over the period 1981-2015, Goldberg and Reed (2023b) argue that, without access to the

Box B.1: Viet Nam's export-driven structural transformation and FDI-driven export upgrading

Viet Nam's economy in the 1990s was based on agriculture, fishing and food products. Like many poor economies, Viet Nam was characterized by large differences in productivity across sectors, especially between agriculture and manufacturing and some services (McCaig and Pavcnik, 2013).

During the 1990s and 2000s, Vietnamese workers moved out of low-productivity agriculture toward higher-productivity manufacturing and services. These movements accounted for more than a third of the aggregate productivity growth during this period. Resource reallocation within sectors also contributed to labour productivity improvements, as workers moved from less productive household businesses toward more productive registered firms in the enterprise sector, and from state-owned enterprises toward more productive private domestic and foreign-owned firms.

Viet Nam's trade agreement with the United States in 2001 significantly boosted its labour-intensive manufacturing exports, such as footwear and textiles. The trade policy certainty resulting from the integration of Viet Nam into the multilateral trading system paved the way for inward FDI, which has grown exponentially since 2006 and has driven the rapid rise of Viet Nam's comparative advantage in more complex manufacturing, such as electronics, especially mobile phones (Samsung) and computer chips (Intel). At its peak in 2018, Samsung accounted for a quarter of Viet Nam's exports, providing an example of how important multinational enterprises (MNEs) can be for an economy's trade capacity and composition.

global market, the average low- or middle-income economy would not have a large enough domestic market to achieve sustained poverty reduction. Finally, information exchange with large foreign buyers (often trade intermediaries) can provide the know-how for technology upgrading. Coupled with the potential for large orders from a market that values high quality, these interactions can lead to improved quality and productivity (Atkin, Amit and Osman, 2017; Bold et al., 2022).

(b) Better access to imported products and import competition can enhance firm-level productivity

Improved access to imported intermediate inputs can enhance productivity within domestic firms and industries. By incorporating high-quality materials, components, services and technologies from abroad, businesses can streamline their production processes, improve product quality and reduce costs. This not only strengthens the competitiveness of domestic industries on the global stage, but can also foster innovation and efficiency improvements. Several studies from developing economies show that firm productivity and competitiveness increases with imports of intermediate inputs, especially those with high technology content (Kasahara and Rodrigue, 2008; Topalova and Khandelwal, 2011; Gopinath and Neiman, 2014; Halpern, Koren and Szeidl, 2015; Boehm, Levchenko and Pandalai-Nayar, 2023). Cheaper access to foreign intermediate inputs also raises the relative return to using modern technologies which incentivizes their adoption. A recent study focusing on the agriculture sector suggests that reductions in the trade costs of agriculture inputs, such as fertilizers, machinery and pesticides, led to significantly higher shares of land farmed using modern technologies, especially in middle-income economies (Farrokhi and Pellegrina, 2023). Finally, access to a larger variety of intermediate inputs helps firms to introduce new products (Goldberg et al., 2010; Fieler, Eslava and Xu, 2018).

Import competition may also lead to higher productivity and increased innovation. In theory, increased competitive pressure from imports erodes the profits of domestic firms which, depending on the underlying market conditions, either reduces their innovation and productivity by shrinking their resources and motivation to innovate, or increases their innovation and productivity by motivating them to escape or adapt to the competitive pressure (Aghion et al., 2005). Empirical studies have found that, on balance, productivity and innovation may increase with increased import competition (Amiti and Konings, 2007; Topalova and Khandelwal, 2011; Shu and Steinwender, 2019). The positive effects of foreign competition on innovation by domestic firms have been found for both manufacturing and service sectors and seem to not depend on the underlying degree of competition in the industry (Gorodnichenko, Svejnar and Terrell, 2010) Evidence from Colombia also shows that tariff liberalization had a strong positive impact on the productivity of firms facing import competition, particularly benefiting larger firms and those in less competitive industries (Fernandes, 2007). Furthermore, import competition forced the least productive firms to exit the market, which had a large positive impact on aggregate productivity (Eslava et al., 2013).

(c) Participation in global value chains and FDI facilitate the diffusion and adoption of new technologies, improve productivity and drive export upgrading

Participation in global value chains (GVCs) can be a powerful channel for technology transfer. By integrating into GVCs, firms in developing economies can gain access to technology not only embodied in imported inputs, but also directly transferred by the headquarter firms. Since outsourcing involves a high degree of interdependency in terms of production in different economies, headquarter firms are more willing to transfer the know-how, management practices and technology required for an efficient and seamless production of the outsourced inputs. Empirical evidence suggests that GVC participation has strong positive effects on productivity growth in the formal manufacturing sector in low- and middle-income economies (Pahl et al., 2022). The impact of GVC-related knowledge spillovers may go beyond a one-off boost to productivity by spurring domestic innovation that is key to sustained growth, especially in middle-income economies (Piermartini and Rubínová, 2021).

FDI can play an important role in accelerating the host economy's growth and its adoption of more complex production processes. Foreign firms bring intangible assets, such as new production processes, management know-how and established brand names. They also bring skills, and help the diffusion of knowledge through employee training and interactions with local buyers and suppliers. Finally, the global production networks of MNEs provide access to major markets and to imported intermediate inputs. Through all these channels, FDI has the potential to increase productivity and innovation in the

host economies, helping them to achieve sustained economic growth and avoid the middle-income trap – a situation when middle-income economies fail to shift from growth strategies based on cheap labour and capital accumulation to strategies driven by R&D investment and innovation (Gill and Kharas, 2007).

Diversification and export upgrading in many developing economies has been driven by MNEs. Individual firms can play a pivotal role in determining the comparative advantage and specialization of economies. Empirical evidence shows that most of the top five exporters in developing economies are MNEs, and that they accounted for almost half of export growth and for a third of export expansion into new products and/or markets in the 2000s and early 2010s (Freund and Pierola, 2020). Examples of economies in which MNE investment led to a shift in revealed comparative advantage, from relatively low-skill products to new complex ones, include Costa Rica, Malaysia, Morocco and Viet Nam (see Box B.1 on Viet Nam and Box B.2 on Costa Rica). The respective economy's comparative advantage in these cases was shaped by local characteristics, such as the availability of specific human capital, infrastructure or trade openness, and combined with the know-how, technology and management brought by MNE investments in that economy (Freund and Moran, 2017).

Foreign-owned firms can further help to boost economic performance by improving the productivity of their locally owned buyers and suppliers. Evidence suggests that MNEs in upstream sectors may offer local buyers more diverse and higher quality intermediates and capital goods, thereby boosting their productivity, export quality and product scope. Moreover, vertical linkages with local suppliers encourage the adoption of international best practices and management techniques, as well as creating possibilities for cooperation on the development of new and better quality products.[8] As domestic firms enter MNE supply chains they may also acquire the knowledge and skills essential for exporting, and often start exporting to the economies in which the MNE is headquartered, has affiliates or has established customers. These experiences can lead to significant productivity gains, driven by an improved ability to acquire new buyers (Carballo, Ottaviano and

Box B.2: FDI-driven economic diversification and upgrading in Costa Rica

Costa Rica's economic landscape has undergone a remarkable transformation over the past three decades, marked by a policy focus on attracting sustainable FDI. This shift propelled the country from reliance on tropical fruit exports and tourism to a diversified economy anchored in high-tech manufacturing and service sectors. Costa Rica's income per capita growth was on average 2.4 per cent between 1995 and 2021, moving the economy into the upper-middle-income group.

The economic transformation is reflected in the evolution of Costa Rica's revealed comparative advantage. In the 1990s, the economy specialized predominantly in agricultural products and tourism, but since the 2000s, it has been increasingly shifting into complex manufacturing sectors and high-skill services. Notably, after 2015, comparative advantages in manufacturing medical and surgical equipment and in providing professional, scientific and technical services have grown exponentially, underlining Costa Rica's transition to a diversified modern economy.

FDI has played a catalytic role in this economic shift. A pivotal moment for the Costa Rican economy came in 1998, with the establishment by the technology firm Intel of an assembly and testing facility for computer chips, which increased Costa Rica's attractiveness to technologically advanced manufacturers. The medical devices sector followed suit, with major players like Boston Scientific, Allergan, ICU Medical and Baxter establishing or scaling up operations (Martinez and Padilla, 2017). Intel's investment in the training of its employees and collaboration with public universities has built up Costa Rica's absorptive capacity, creating a fertile environment for knowledge transfer and for the further creation of new business opportunities (Rodríguez-Clare, 2001).

Although Intel moved its manufacturing production to Asia in 2014, the medical devices sector has continued its evolution from low-cost manufacturing to specialized processes and has become Costa Rica's main manufacturing specialization. Moreover, Intel has continued to rely on its investment into Costa Rica's workforce by setting up an R&D facility and a corporate services centre for its global operations, driving the economy's exports of scientific, professional and technical services.

Volpe Martincus, 2018; Alfaro Ureña, Manelici and Vasquez, 2022).

Even local firms outside MNE supply chains can benefit from better supplier bases and from hiring workers with skills acquired in MNEs. As discussed above, local suppliers of MNEs improve their productivity as well as product quality and variety. These improvements also benefit local firms that share suppliers with MNEs, leading to product scope expansion and higher productivity. Further, either by observing the foreign firms or by means of hiring former MNE employees, local firms can learn about procedures that improve the quality and standardization of their products, their marketing skills, and the reliability of their shipments. When domestic managers work at MNEs and gain exposure to high-quality management practices, they can transfer this knowledge to new workplaces when they switch jobs (Poole, 2013; Bloom et al., 2020; UNCTAD, 2021c).

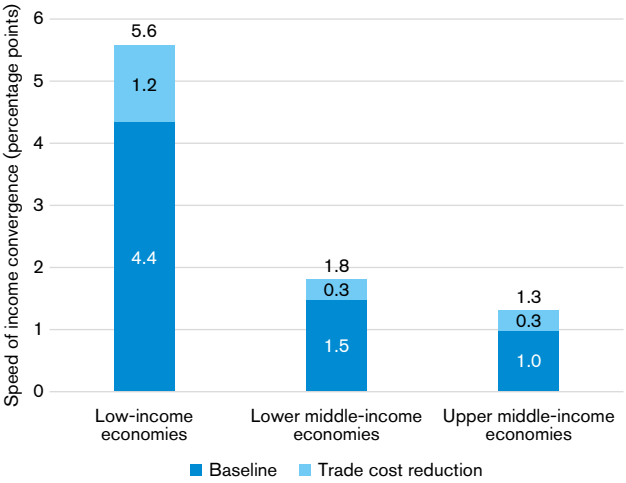
Yet, the mere presence of or connections to MNEs may not guarantee the spillover of tacit knowledge such as management practices. While significant spillovers of management knowledge often occur within firms, improvements can be short-lived and easily reversed when managerial turnover takes place (Bloom et al., 2020). Moreover, language barriers can be a critical obstacle to the spread of foreign managerial practices to domestic managers. Using randomized controlled trials in firms in Myanmar, one study found that reducing language barriers through subsidized English lessons can enhance the transfer of management knowledge (Guillouet et al., 2024).

Technology transfer is facilitated by the presence of an adequate institutional environment, openness and investment into education and research. To exploit a new foreign technology, firms need to have sufficient absorptive capacity to enable them to learn how to use it, as well as, potentially, to adapt a technology developed abroad to local conditions. Adoption of new technologies requires high-skilled workers and high-quality inputs. However, these may be scarce and expensive for firms in developing economies, and this may limit technological progression (Alfaro-Serrano et al., 2021). Firms in low-income economies may find technologies from high-income economies too advanced to adopt; an important reason for this is inconsistent access to electricity, which has prevented many low-income economies from completing previous technology revolutions, therefore also making it difficult for them to adopt the latest technologies (Cirera, Comin and Cruz, 2022). In addition, the quality of education, the number of skilled workers and the resources spent on public research are important factors in improving absorptive capacity in an economy (Augier, Cadot and Dovis, 2013; Piermartini and Rubínová, 2021). Collaboration between industry and research institutions is also crucial to adapt foreign technologies to domestic conditions (see Box B.2).

(d) Trade costs reduction have helped to accelerate income convergence

Trade cost reductions and the resulting trade expansion have significantly contributed to income convergence. A simulation analysis using the WTO Global Trade Model suggests that trade cost reductions between 1995 and 2020 led to around a 6.8 per cent increase in global real GDP over the period, with low-income economies growing by around 33 per cent. In the model, reductions in import costs increase productivity thanks to specialization according to comparative advantage, improved access to intermediate inputs, and the diffusion of ideas through imports of intermediate inputs from economies with higher levels of technology. The low- and middle-income groups saw larger reductions in trade costs over the period than the high-income group and, consequently, they grew faster. Moreover,

Figure B.3: Faster income convergence due to trade costs reduction, 1995-2020



Source: Authors' calculations, based on WTO Global Trade Model.
Note: The figure displays the estimated contribution of trade costs reduction to average income convergence by income group between 1995 and 2020. Speed of income convergence is expressed as the difference between the average annualized real GDP per capita growth rate of an income group and the average growth rate in high-income economies between 1995 and 2020. The baseline component is the predicted speed of convergence if trade costs remained at their 1995 level. The trade costs reduction component is the additional speed of convergence due to the observed reduction in trade costs. The income groups are based on the 1995 World Bank classification.

less technologically advanced economies have a higher potential to benefit from the diffusion of ideas facilitated by trade, which also contributes to convergence. For low-income economies, the diffusion of ideas accounted for around two-thirds of the effect of lower trade costs on their income growth. Overall, the analysis shows that the trade costs reductions led to between 20 and 35 per cent faster income convergence of low- and middle-income economies (see Figure B.3).

3. Why have some developing economies gained little from globalization?

Economies in which growth has remained slow or stagnant typically show low trade participation, are heavily dependent on commodity exports, and receive little FDI. As discussed in the previous section, many developing economies have taken advantage of globalization to reinforce the impact of domestic economic reforms on their economic growth. They have done so by reducing importing and exporting costs, and by leveraging access to foreign consumers, products, capital and technology to accelerate structural transformation and diversify their production towards modern sectors. On the other hand, as shown in Section B.1, economies that have lagged behind remain at the margins of global trade and investment flows, typically due to high trade costs, commodity dependence and poorly functioning domestic markets.

(a) Barriers to trade participation hinder economic convergence

There are still important gaps between the trade costs of high-income economies and those of the rest of the world. The rapid expansion of global trade in the 1990s and 2000s was fuelled by declines in transportation, communications and transaction costs, as well as in trade policy barriers. However, this decline in trade costs slowed after 2012, especially in middle- and low-income economies (WTO, 2023c). The WTO Trade Cost Index,[9] a measure of all the frictions that remain in international trade relative to domestic trade, shows that the remaining gap between trade costs in high-income economies and in low- and middle-income economies remains particularly large in manufacturing and services (see Figure B.4). The group of low- and lower-middle-income economies has manufacturing trade costs 34 per cent higher than those in high-income economies, and the gap reaches 47 per cent in LDCs. There is a similar disparity in the services sector, as it is 50 per cent more difficult to trade in services with LDCs than with high-income economies.

In Africa and the Middle East, trading with partners within the region is more difficult than trading with partners from other regions. This is in contrast to other regions in the world, where intra-region trade usually incurs lower import and export costs due to closer geographical proximity and shared cultural or institutional similarities. This has been confirmed by estimates of the WTO Trade Cost Index, which suggest that trade costs within regions are 20 to 40 per cent lower compared to trade costs between regions. However, the region of Africa and the Middle East is an exception, with intra-regional trade costs 20 per cent higher than extra-regional trade costs.

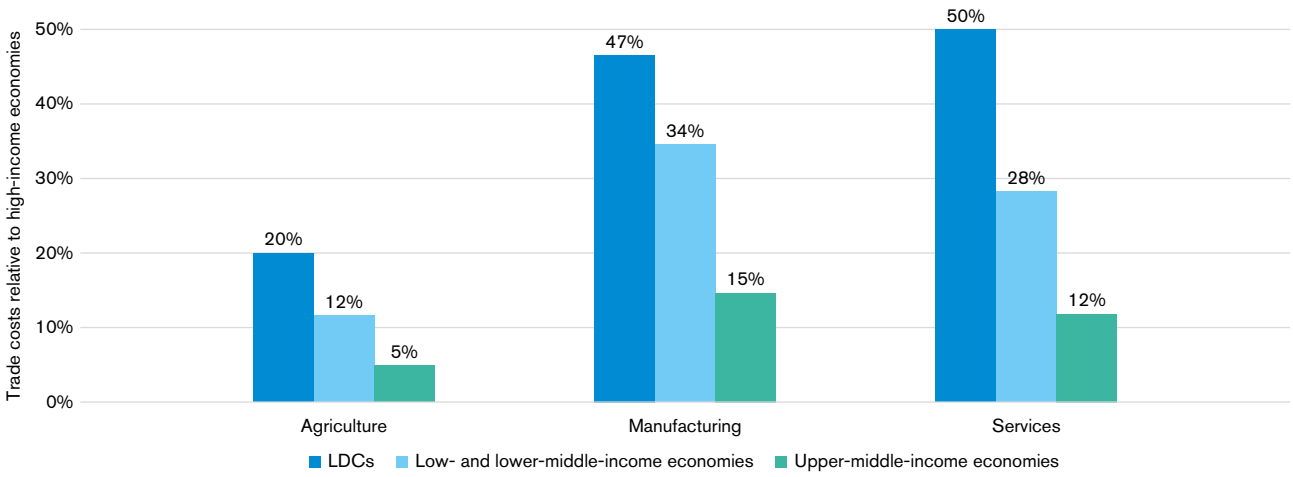
Trade policy barriers and regulatory differences are still an important component of overall trade costs. Despite relatively low levels of applied tariffs and the expansion of regional trade agreements (RTAs), trade policy and regulatory differences are as important as geographical distance in explaining trade costs variation of low- and middle-income economies (Rubínová and Sebti, 2021). This points towards the salience of non-tariff measures in constraining trade growth in developing economies.

(i) Economic development can be hindered by some trade policies faced by developing economies

Developing economies, and especially LDCs, are granted preferential access to many markets. The Generalized System of Preferences (GSP), currently granted by 16 economies, consists of non-reciprocal sets of measures designed by each granting economy, where most schemes contain lower preferential tariffs (including duty-free) for LDCs and developing beneficiaries (UNCTAD, 2023a). An additional eight economies grant duty-free treatment for LDCs, while several high-income economies complement their GSP schemes with region-specific preferences, such as the African Growth and Opportunity Act.[10]

However, compliance costs limit the use of LDC preferences. The degree to which LDC exporters make use of preferences varies substantially across sectors (Richtering and Verbeet, 2020). Figure B.5 shows the relationship between the average LDC preference margin, that is, the difference between the tariff applied under (the best) LDC preferential treatment and the MFN tariff, and the average share of LDC exports that make use of the preference. The highest preference utilization, above 90 per cent, is in the categories “Coffee, tea, cocoa and spices”, “Clothing”, “Fish and fish products” and “Beverages and tobacco”. Preference utilization

Figure B.4: Higher trade costs in lower-income economies relative to high-income economies, 2020



Source: Authors' calculations, based on the OECD trade in value added (TIVA) database and WTO trade cost index methodology.
Note: The figure illustrates the average trade costs in low- and middle-income economies compared to high-income economies in 2020 by sector. The analysis covers 71 economies, including 34 low- or middle-income economies and five LDCs. The income groups are based on the 2020 World Bank classification. The LDC group is based on the United Nations (UN) classification.

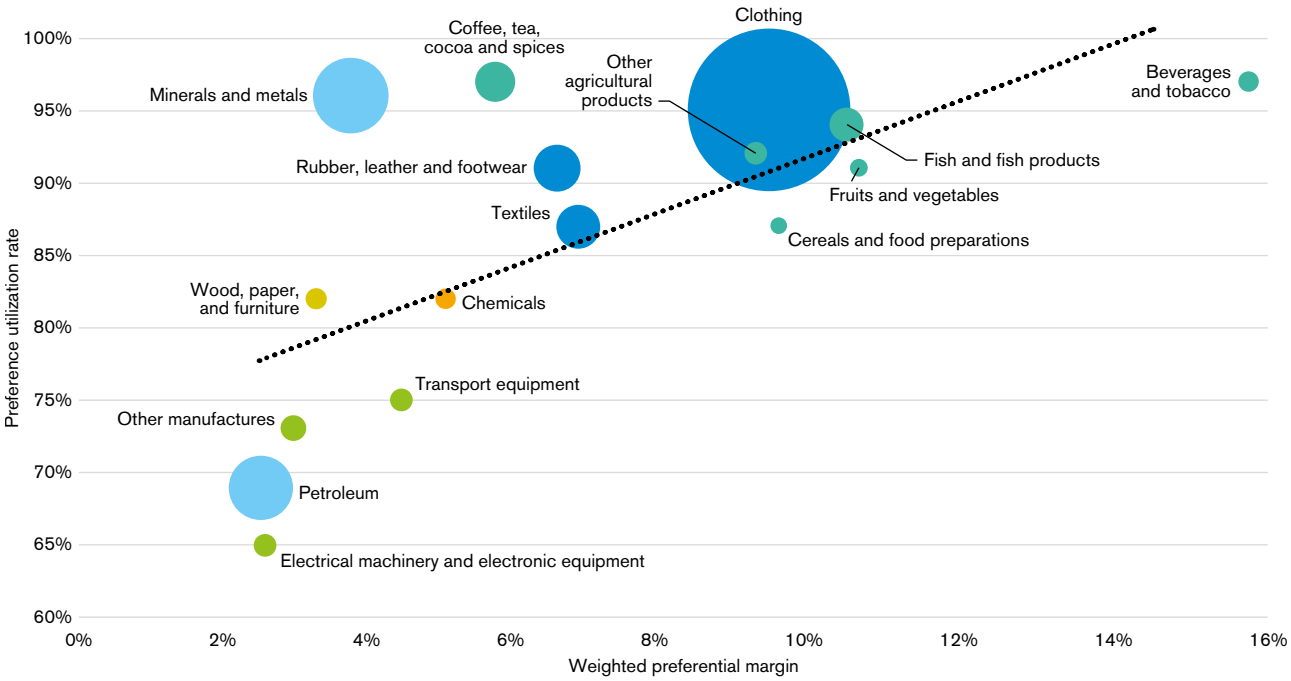
is positively correlated with the size of the preference margin, suggesting that exporters only use preferences when the benefit (i.e., the preference margin) outweighs the costs of preference utilization. Factors influencing this trade-off include the stringency of rules of origin and bureaucratic requirements for importers, such as expensive audited paperwork per shipment, as well as the size of exports for exporters (Bekkers and Cariola, 2024).

Simplifying rules of origin leads to higher preference utilization. Rules of origin are the criteria used to determine the provenance of a product and thus its eligibility for preferential treatment. Evidence from the Dominican Republic-Central America Free Trade Agreement indicates that simple rules that require exported products to have a different tariff classification from imported inputs lead to higher preference utilization due to lower compliance costs. Conversely, more complex rules, requiring compliance with technical requirements and prohibiting the use of certain imported inputs alongside tariff classification changes, are associated with lower preference utilization (Lee and Cunha, 2024). Evidence from the simplification of rules of the European Union's GSP also shows a positive impact on preference utilization (Tanaka, 2021; Tanaka and Fukunishi, 2022).

Standards may have positive impact on exports from developing economies, but the impact depends on the cost of compliance. Regulatory measures such as technical barriers to trade (TBT), and sanitary and phytosanitary (SPS) measures have proliferated over the past three decades. These standards affect trade through two opposing forces. On the one hand, they typically raise producer costs by requiring investment in upgrading production techniques, packaging, labelling and other compliance expenses. On the other hand, regulatory policies such as TBT and SPS measures can redress information asymmetries between consumers and sellers and thus serve as catalysts for trade participation for producers from developing economies (Maertens and Swinnen, 2009; WTO, 2012). Moreover, quality and safety standards can increase product values, incentivize technology transfers and affect the distribution of profits along the value chain, potentially to the benefit of small firms (Swinnen, 2016). The overall impact on trade volumes therefore depends on the balance between the two forces, which varies across consumers (according to their preferences) and producers (according to their ability to comply).

Producers in poor economies may face high costs of compliance with standards. The impact of standards depends on the ways in which these policies are implemented. For example, inspections at borders and other formalities to assess conformity with regulations can increase trade costs and distort trade to various degrees. Compliance with standards, or even the demonstration of compliance, may be particularly burdensome for producers in poor and small economies, because investments in compliance, as well as many conformity assessment-related costs, do not vary with quantities of sales, and therefore represent much higher obstacles to trade for small exporters and for those with limited access to financing.

Figure B.5: Positive correlation between LDCs' preference utilization and preference margin size, 2022



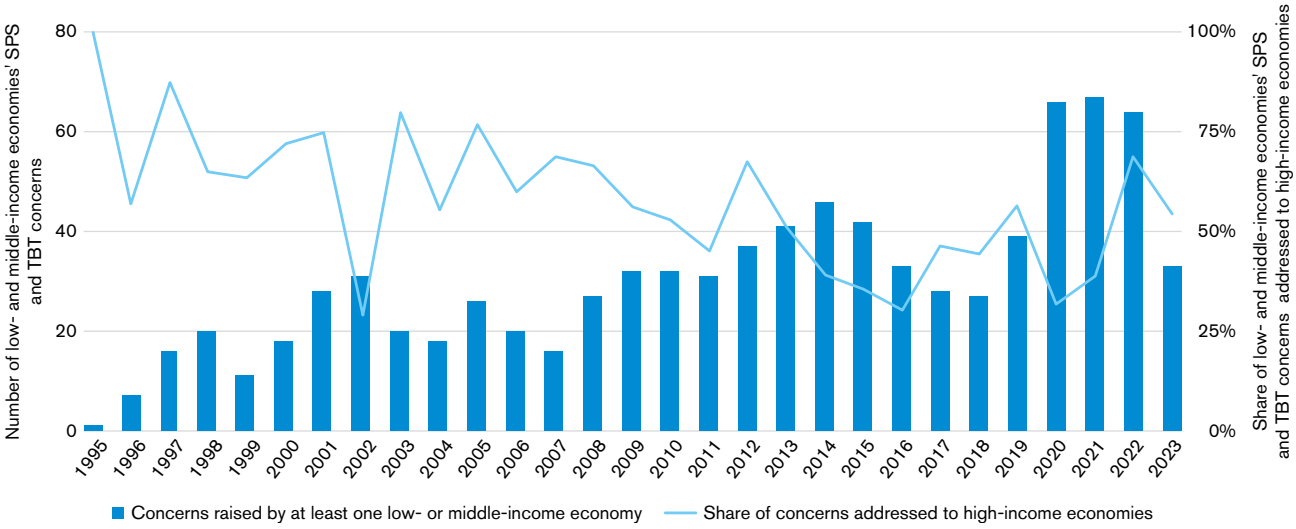
Source: Authors' calculations, based on WTO data on preferential tariffs and related trade flows.
Note: The figure shows the correlation between the weighted preferential margin and preference utilization rate in 2022. The analysis covers the imports from LDCs to the European Union, Iceland, Norway and the United States. The size of each circle corresponds to LDCs' total exports of the product category.

The number of concerns raised by developing economies with regard to regulatory measures has increased. TBT and SPS measures that may excessively distort trade can be gauged from the specific trade concerns raised by WTO members about other members' measures.[11] The number of concerns raised or sponsored by low- and middle-income economies has increased over the years (see Figure B.6). Until 2016, this increase was driven by a rise in concerns about other low- or middle-income economies' measures, but since then the proportion addressed to high-income economies appears to have risen again. Concerns increased markedly in the three years after the outbreak of the COVID-19 pandemic, returning to pre-pandemic levels only in 2023.

Subsidies can suppress international prices and contribute to the inefficient and unsustainable allocation of scarce resources. Subsidies can distort international trade by boosting the competitiveness of domestic producers relative to their competitors abroad, and these distortions can manifest as an erosion of market access commitments in the domestic economy or as an increase in exports that displaces other producers in foreign markets. Subsidies can therefore harm net exporters of subsidized products while benefiting net importers. The overall impact on low-income economies and LDCs may vary, nevertheless, depending on their status as net importers or exporters. Modelling studies find that both import barriers and producer subsidies in the agriculture market reduce global economic welfare and agricultural trade, while also contributing to global inequality and poverty (Anderson, 2013). Import market access distortions, such as tariffs and regulatory measures, tend to have a greater market-distorting effect than domestic support, accounting for less than one-tenth of the welfare effects (Anderson, Martin and Valenzuela, 2006).

The impact of industrial subsidies is potentially more complex than that of agriculture subsidies. Industrial sectors typically make up a part of long international supply chains, and therefore subsidies to producers in one industry can have pronounced effects on foreign producers not only in the same industry, but also in upstream sectors, through increased demand for inputs, and in downstream sectors, through cheaper costs of intermediate inputs supplied by the subsidized industry. Moreover, some subsidies, such as those for green technologies, can have positive spill-over effects and benefit other economies.

Figure B.6: Growing number of concerns about SPS and TBT measures raised by low- and middle-income members, 1995-2023



Source: Authors' calculations, based on WTO data on SPS and TBT trade concerns.
Note: The figure displays the evolution of the number and share of trade concerns raised by low- and middle-income members in the SPS and TBT committees over the period 1995-2023. The income groups are based on the 1995 World Bank classification.

Agriculture producer subsidies used to be concentrated in high-income economies, but in the past decade large middle-income economies have accounted for almost half of global agriculture subsidies. There are important gaps in the available knowledge about subsidy practices; most of the data that are available for a broad scope of economies and sectors refer only to counts of measures and have important shortcomings (IMF et al., 2022). Agriculture is one exception where systematic evidence on quantities of subsidies exists, having been collected by the Organisation for Economic Co-operation and Development (OECD). At their peak in 1999, subsidies to agriculture producers in high-income economies reached 8.4 per cent of global agriculture production value. These subsidies declined rapidly in the 15 years following, and they have remained at between 3.6 and 4.2 per cent of global agriculture production value since 2014.[12] Large emerging economies, on the other hand, saw rapid increase in agriculture production subsidies between 1999 and 2008, which have remained at 3.0 to 3.8 per cent of global agriculture production value since then.

(ii) Some trade policies in developing economies can hold back their economic development

Import tariffs remain relatively high in low-income economies and LDCs, while services trade barriers are relatively high in the group of lower-middle-income economies. As discussed above, many of the channels through which openness fosters growth relate to imports. Higher tariffs act from this perspective as a barrier to growth. In fact, applied tariffs[13] have remained relatively high in low-income economies and LDCs over the past decade, at around 8 per cent on average, compared to 5 per cent in middle-income economies and 3 per cent in high-income economies. If we consider the group of diverging economies (as defined in section B.1), they apply higher average tariffs compared to other economies in their income group, and this difference has only increased in the past decade. Barriers to services imports, on the other hand, show, on average, little difference between developing and high-income economies. An exception is the lower-middle-income group, in which services trade restrictions are, on average, 17 per cent higher than in high-income economies.[14]

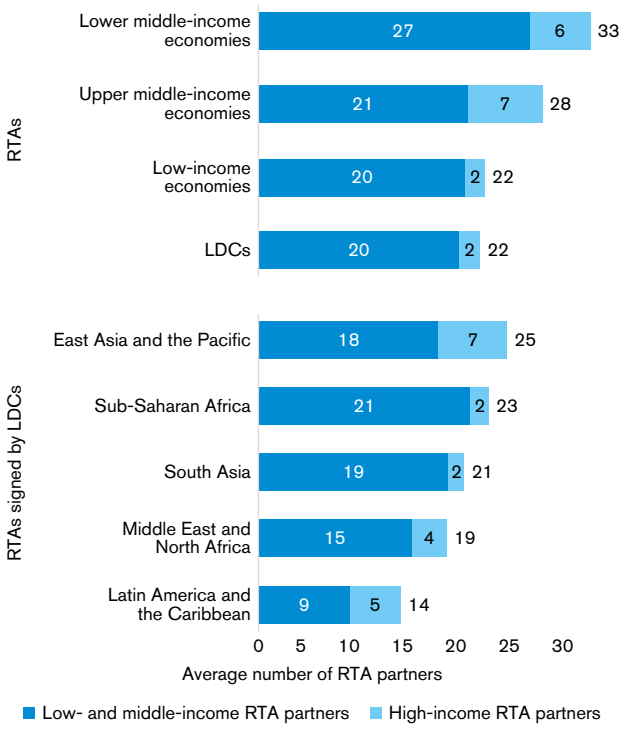
While GSP schemes may offer developing economies access to consumers in high-income economies, reciprocal trade agreements still offer significant potential to boost trade. Economic integration with nearby economies provides opportunities to increase market size, and thus to achieve economies of scale and attract imports and FDI. For Africa, the African Continental Free Trade Area could be an important step forward in this regard. Integration with high-income economies has the additional potential benefit of stimulating technology transfers by facilitating GVC participation and providing access to sophisticated consumers

with strong purchasing power (as discussed in Section B.2). However, while non-reciprocal trade arrangements, such as GSP schemes, may provide the access to consumers in high-income economies, they are subject to regular government reviews and can be easily withdrawn, which generates high policy uncertainty and thereby hinders long-term investment into trade relationships (Handley and Limão, 2022; Tanaka, 2022).

Low-income economies and LDCs have signed fewer RTAs with high-income economies. They also tend to have fewer RTA partners than middle-income economies (see Figure B.7). Moreover, most of this disparity stems from the lack of RTA partners that are high-income economies. This is particularly striking for LDCs in South Asia and sub-Saharan Africa, which may, at least partly, be a reflection of the remoteness of these regions from global centres of economic activity.

Low- and lower-middle income economies have made the least progress in implementing measures and technologies that facilitate international trade. Since the conclusion of the WTO Trade Facilitation Agreement (TFA), there has been substantial progress in the implementation of measures and technologies that facilitate international trade (see Figure B.8). These include measures covered by the TFA, such as transparency, institutional arrangement and cooperation, and formalities and transit facilitation, as well as technology adoption such as paperless trade measures that make the communication between government agencies and traders, and among government agencies, easier (UN-ESCAP, 2023). However, progress has been relatively slow in low- and lower-middle income economies.

Figure B.7: Fewer trading partners in RTAs signed by lower-income economies, 2023



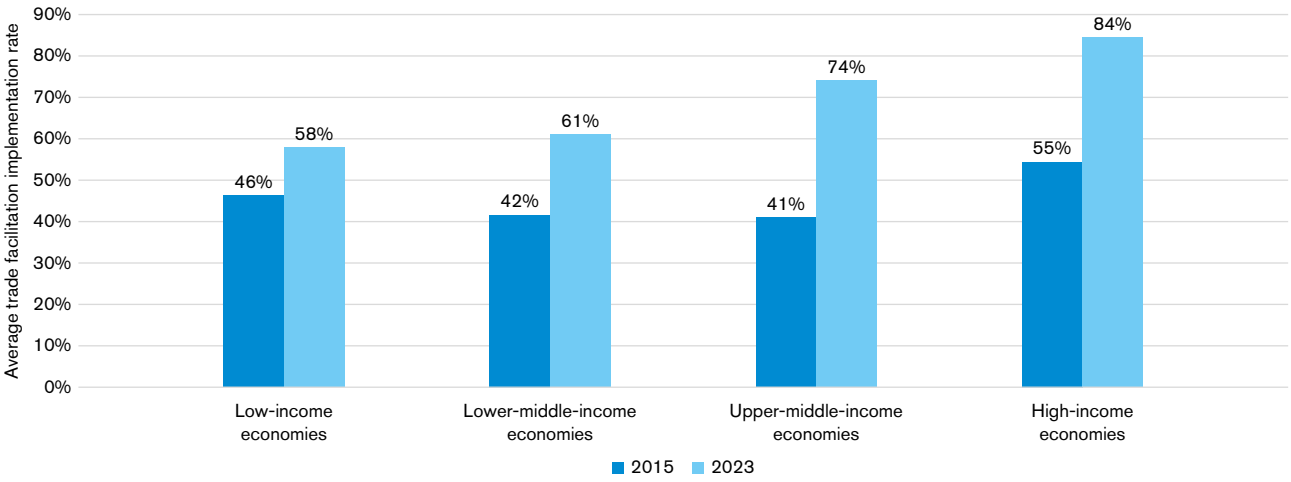
Source: Authors' calculations, based on WTO data on notified RTAs.
Note: The figure shows the average number of RTA partners by income group in 2023. The analysis cover 120 low- and middle-income economies. The income groups are based on the 2023 World Bank classification.

(iii) Under-developed infrastructure and geographical challenges impede sustained economic development

Physical and digital infrastructure and the distribution sector play an important role in the ability of firms to participate in and benefit from trade. Size can prove an obstacle for small developing-economy firms wishing to achieve the necessary economies of scale to be internationally competitive and to pay the fixed costs associated with exporting or importing. But even in larger economies that could potentially achieve enough scale, high internal trade costs coupled with poverty lead to small and segmented markets, distort production and reduce the potential gains from trade-opening (Coşar and Fajgelbaum, 2016; Leone, Macchiavello and Reed, 2021). For instance, empirical evidence shows that the marginal costs associated with distances in Ethiopia and Nigeria are four to five times higher than in the United States, and this difference is only partly explained by the poor quality of transport infrastructure (Atkin and Donaldson, 2015). This points to the importance of complementing physical infrastructure with competitive infrastructure services, such as electricity, transport and telecommunications. Moreover, an uncompetitive distribution sector can also drive a wedge between local producers and foreign customers. For instance, cashew farmers in Mozambique saw little benefit when the government removed export restrictions on cashews, as trade intermediaries that connect farmers to the export markets retained most of the ensuing price increase (McMillan et al., 2003).

There is a large gap between low-income and high-income economies in terms of the liberalization of electricity and telecommunication services, data from the International Monetary Fund's (IMF) Structural Reform Database show. This gap widened in the 2010s, suggesting limited improvement in the provision of these infrastructure services, which are essential not

Figure B.8: Limited trade facilitation implementation in lower-income economies, 2015 and 2023



Source: Authors' calculations, based on UN-ESCAP survey data on trade facilitation.
Note: The figure shows the average rate of trade facilitation implementation in 2015 and in 2023 by income group. The income groups are based on the 2023 World Bank classification.

only for overall productivity improvements, but also for connecting sellers with buyers and accessing information through digital tools, thereby reducing the need for middlemen and facilitating trade participation. Moreover, while information and communications technology (ICT) penetration (measured by mobile and fixed-line telephone and internet subscriptions) converged in most of the world between 2000 and 2018, sub-Saharan Africa and South Asia were two regions where it has diverged (Saba and David, 2020).

Lack of financial infrastructure and of interoperable regulatory systems hinders cross-border payments. Cross-border payment systems are crucial for the smooth operation of cross-border transactions. The lack of financial and digital infrastructure, combined with limited competition among financial service providers, increases the costs of international payments and thus the transaction costs associated with international trade. These shortcomings also increase the costs of transferring remittances, i.e., the money that migrants send to their home countries (see Box B.3).

Landlocked developing economies face particularly high trade costs due to poor infrastructure connectivity and regulatory hurdles associated with crossing multiple borders. Estimates based on the WTO Trade Cost Index methodology show that export and import costs in agriculture and manufactured products in landlocked developing economies are around 30 per cent higher compared to coastal developing economies (WTO, 2021a). Transit delays, infrastructure bottlenecks, missing links in highway networks and regulatory hurdles have a considerable impact on trade performance, especially in Africa (Djankov, Freund and Pham, 2010; Freund and Rocha, 2011; Hallaert, Cepeda and Kang, 2011). With 16 landlocked economies accounting for about 30 per cent of Africa's total population, solving issues associated with trade facilitation and transit corridors linking landlocked economies to seaports is essential for the continent's trade integration. Services trade policies that enhance access to infrastructure services, particularly in telecommunications and air transport services, are also important to enhance connectivity of landlocked nations (Borchert et al., 2017).

Small island developing states incur high transportation costs. Geographical position off the main trading routes and small scale of trade lead to high shipping costs for traders in remote small island economies. According to the latest estimates from UNCTAD, small island developing states pay 60 per cent more than other developing economies for transporting their exports.[15]

(iv) Weak rule of law and contract enforcement hamper economic development

International trade relationships are particularly sensitive to weak contract enforcement. A defining feature of many developing economies is that they have weak institutions, with weak rule of law perhaps being the most obvious manifestation of this (Atkin et al., 2022). While, of course, institutions matter for domestic transactions, international transactions typically incur larger monetary and time costs between

Box B.3: The role of remittances for development

Remittances – funds transferred by migrants to their home countries – are vital for development. In 2023, 76 per cent of remittance flows, totalling US$ 656 billion, went to low- and middle-income economies (World Bank, 2024c). In recent years, these financial flows to developing economies have exceeded the combined sum of FDI and official development assistance, and this gap is growing wider. Remittance flows and cross-border payments have shown resilience and steady growth, contrasting with the cyclical adjustments of private capital flows. Due to increasing migration pressures, remittances are expected to grow in the coming years.

With 200 million people sending money and 800 million family members receiving these funds, remittances provide essential support for household consumption, including food, housing, education and healthcare. They also provide capital for small business development, spurring entrepreneurship and new business ventures, offering opportunities for diaspora investments in home countries and reducing information asymmetries regarding new trade and investment opportunities in both the country of origin and the country of destination. These financial inflows can also contribute to national economic stability by boosting foreign exchange reserves and financing public infrastructure projects.

While increased competition, improved digital infrastructure, use of digitalized financial channels, and enhanced financial literacy have contributed to lowering the cost of remittances, to a world average of about 6.2 per cent in 2023, this cost reduction has plateaued in recent years (World Bank, 2024b). Regionally, South Asia has the lowest average cost of remittances, at 5.2 per cent, while sub-Saharan Africa has the highest, at 7.7 per cent. Cash remains the primary method for sending remittances, predominantly through the costliest channels, namely banks, post offices and money transfer operators. Factors such as high foreign currency exchange fees, costly agent management, limited competition among service providers, small remittance corridors, and a lack of interoperable regulatory frameworks and payment systems all contribute to high remittance costs. In some regions, such as sub-Saharan Africa, informal channels are still used for remittances, and this leads to higher costs. In many developing economies, particularly in rural areas, poor digital and financial inclusion infrastructure hinders migrants from accessing and utilizing cost-effective digital alternatives to send remittances.

United Nations Sustainable Development Goal target 10.c ("Reduce inequality within and among countries") aims to reduce migrant remittance transaction costs to less than 3 per cent, and to eliminate remittance corridors with costs exceeding 5 per cent by 2030. Achieving a 3 per cent cost target would result in an additional US$ 32 billion in annual remittances (Kpodar and Imam, 2024). Reducing the cost of remittance services could be achieved through various strategies, such as by enabling competition through clear and proportionate regulations that accommodate diverse financial services providers, by developing national money payment systems, by expanding digital public infrastructure, or by ensuring regulatory convergence and cross-border payment interoperability. Enhancing financial and digital literacy could also contribute to reducing information asymmetries and to empowering migrants to make informed financial decisions and use cost-effective digital alternatives.

production and delivery, and require contracting across jurisdictions. This increases the risks associated with not delivering or not paying when trading with partners in economies with weak rule of law. For instance, a study of cross-border transactions of a US-based poultry exporter found that only firms in importing economies characterized by weak rule of law are required to pay the exporter cash in advance (Antràs and Foley, 2015). For cash-constrained importers in developing economies, these cross-border payment terms represent a substantial barrier to international trade (Ahn, Amiti, and Weinstein, 2011).

Trade finance can help to mitigate the risks associated with weak contract enforcement but firms in many developing economies have limited access. Many studies have documented the ways in which firms try to overcome contract enforcement risks when sourcing from developing economies, such as establishing long-term relationships with suppliers that help to incentivise behaviour which might otherwise be difficult to contract upon or incorporating suppliers in their ownership structure (Hansman et al., 2020; Boudreau, Cajal-Grossi and Macchiavello, 2023). However, these strategies require investment, which

Box B.4: Availability of trade finance in West Africa and in the Mekong region

The availability and cost of trade finance vary greatly across economies and levels of development. According to two recent joint reports by the WTO and International Finance Corporation (IFC), the share of trade supported by trade finance stood at 15 per cent in Senegal and 20 per cent in Nigeria and in Viet Nam, while it was only 3 per cent in Cambodia and in Lao PDR (IFC and WTO, 2022, 2023). In contrast, the average share of trade supported by trade finance in the African continent – including emerging markets such as Egypt, Morocco and South Africa, hosting some of the continent's largest banks – was 40 per cent. According to the Bank for International Settlements (2014) and WTO (2016), the share of trade supported by trade finance in developed economies appears to be equal or superior to 60 per cent.

The availability of trade finance in developing economies can be gauged from the rate of rejections by banks of trade finance requests from exporters and importers. While statistics on rejection rates are not available for all economies, existing surveys indicate that rejections rates by banks for trade finance applications are high in low-income regions. For instance, the rejection rate in West Africa is 25 per cent of the value of requests, against 12 per cent for the African continent (AfDB and Afreximbank, 2020; IFC and WTO, 2023).

A part of these rejections can be justified on grounds of lack a creditworthiness of firms, a motive that can also be found in developed economies; but another part of these rejections can be attributed to supply and demand factors more specific to developing economies. These include poorly documented applications, lacking or insufficient correspondent banking relations and lines of credit, insufficient access to foreign currency and lack of scale for local banks, preventing them from financing higher value trade transactions, and shortages of low-cost funding (IFC and WTO, 2022, 2023). Moreover, while traded merchandise is used as collateral for trade finance, in low-income economies, further collateral is often sought by banks due to doubts that legal enforcement mechanisms would allow them to take ownership of the merchandise in case of default. Thus, it is the lack of collateral and high perception of the applicant risk that top the list of banks' motives for rejections of trade finance applications in West Africa.

Given that trade finance is normally short-term, low-risk finance, it is available at low prices in developed economies. In contrast, trade finance prices can significantly exceed global emerging market benchmarks in low-income economies. Costs can be exacerbated by poor supplies of foreign exchange in a specific market, as the majority of trade finance transactions are denominated in foreign currency, notably in US dollars and euros.

A counterfactual analysis suggests that raising the share of trade supported by trade finance from 25 per cent to 40 per cent in both the West African and Mekong regions, and reducing the cost of trade finance to advanced emerging economies' benchmarks, would increase annual trade flows in those regions by 8 per cent on average (Auboin, Bekkers and de Quarti, 2023). In both regions, intra-regional trade would be boosted significantly, supporting locally-owned economic sectors and supply chains.

makes them viable only for large volumes of transactions, meaning that they are often not possible options for smaller traders. Trade finance, where available, can help to mitigate the transactional and financial risks related to the time gap between production and payment; however, firms in many developing economies have limited access to trade finance instruments (see Box B.4).

Weak rule of law possibly magnifies distortions from tariff policy, weighing especially heavy on smaller traders. Inconsistent tariff policy application by customs officials, who regularly hold up importers by demanding additional fees to clear transactions, has been found to create uncertainty that can act as an additional trade barrier (Sequeira and Djankov, 2014; Atkin et al., 2022). Empirical evidence further shows that some firms in low-income economies are willing to double their transport costs to avoid bribery risks, that tariff revenue losses due to tariff evasion are highly concentrated among a few firms with the largest shipments, and that two-fifths of importers report in a way that increases their tariff liability (Sequeira and Djankov, 2014; Anne et al., 2023). This indicates that customs reporting can represent a large burden for smaller importers. Electronic customs declarations, auditing and addressing incentive structures within customs departments could reduce the administrative burden, as well as tariff evasion and underreporting of imports and exports (Finan, Olken and Pande, 2017; Carballo et al., 2022; Chalendard et al., 2023; Laajaj, Eslava and Kinda, 2023).

The enforcement of intellectual property (IP) rights can be particularly important to foster imports of innovative products, and could also stimulate export growth, especially in large and middle-income economies. Empirical evidence shows that the implementation of the WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) can considerably increase trade in innovative products by developing economies, including both increasing imports of these products from the most innovative economies and increasing exports of some innovative products such as biopharmaceuticals and chemicals (Ivus, 2010; Delgado and Kyle, 2022). The positive impact on exports can be driven by more patent applications in the local market by foreign companies, incoming FDI and increased intra-firm trade in high-technology intermediates (Maskus and Yang, 2018). However, this impact has mostly been found in large and middle-income economies, with little evidence from small low-income economies that lack the absorptive capacity to incorporate high-technology inputs in their production and operationalize technologies developed in high-income markets (Branstetter and Maskus, 2022).

(b) Specialization in primary commodities production without sustained and inclusive gains impedes economic convergence

Economies that depend on a single commodity as their main source of exports often struggle to achieve sustained growth. Although some resource-rich economies have achieved rapid convergence through commodity exports, many others have lagged behind. As discussed in Section B.1, dependency on primary commodity exports (whether extractive or agricultural commodities) is a common characteristic of economies that have experienced slow growth despite relatively high trade participation. In addition, agriculture commodity-dependent exporters, some of which are small and vulnerable economies, tend to have both low trade participation and slow growth.

Commodity price volatility and a lack of diversification can be obstacles to economic growth in resource-rich economies. Commodity dependence can be detrimental to growth and convergence, as it can expose an economy to commodity price volatility. While an increase in an export commodity price can have a positive impact on income per capita, there is evidence that volatility has a negative impact on long-term growth (WTO, 2003; IMF, 2011; UNCTAD, 2023b). The impact of commodity exports on other sectors of the economy can also lead to low levels of diversification and slow down structural transformation that is necessary for sustained growth.

Commodity dependence may increase inequality in an economy, and consequently hinder economic growth. There is a negative relationship between inequality and growth, and the impeding effects are particularly pronounced at low-income levels (Amini and Bianco, 2016; Shen and Zhao, 2023). Extractive commodities are typically capital-intensive and limit the creation of employment for the broader population. Moreover, revenues from these commodities tend to benefit only a small segment of the population. In such an environment, even a positive price shock would hardly translate into broad-based and growth-sustaining higher demand. As a result, low-income commodity-dependent economies face significant challenges in building a sustained middle class needed to achieve broad-based economic growth and sustained poverty reduction. A robust middle class – typically characterized by a relatively high material standard of living – increases domestic consumer demand for goods and services, creating a larger and more stable market (Goldberg and Reed, 2023b). This demand can encourage the growth of diverse industries beyond extractive commodities, fostering economic diversification. The middle class can further contribute to economic stability through more consistent consumption patterns and investment in housing, education, and healthcare.

(i) Commodity price volatility hampers economic development

Commodity price volatility hinders investment and innovation. Volatility is often considered to be one of the reasons behind the "resource curse" – when an economy rich in valuable natural resources, such as minerals, oil, gas and fertile land, nevertheless underperforms economically (Van Der Ploeg and Poelhekke, 2009). The direct positive effect of natural resources on growth and long-term development is swamped by the indirect negative effect of volatility, which leads to significant income uncertainty. This negative effect occurs mainly because of a lack of investment into physical and human capital, which stifles productivity growth and innovation and, ultimately, the capacity to diversify into modern sectors. Moreover, price volatility in agricultural commodities can exacerbate poverty, as food prices disproportionally impact poorer rather than richer economies, and the poor rather than the rich within those economies. This is because agricultural revenues are the main sources of income among the poorest populations, and expenditure on food

represents a relatively large share of the budget in the poorest households.

The pro-cyclical nature of commodity price fluctuations can further undermine macroeconomic stability. The prices of commodities that are widely used in industrial processes, such as copper or oil, fluctuate according to the business cycle. During economic downturns, prices decrease due to reduced global demand. This aggravates the economic conditions of economies that rely heavily on revenues from exporting these commodities. One commodity that differs in this respect is gold, the price of which typically increases during global crises and periods of economic uncertainty, as investors often turn to gold as a safe investment asset (Chiang, 2022; Sharma, 2023). The peculiar characteristics of this commodity may explain the mixed performance of gold-exporting economies.[16]

Governments in resource-rich economies often struggle to manage the volatile revenue from resource exports. In the absence of appropriate fiscal management, even rising prices of export commodities can be detrimental to an economy. In fact, sudden increases in natural resource wealth can lead policymakers to escalate public spending in a way that can become unsustainable once resource revenues decline (Marioli and Vegh, 2023). Large revenues from oil exports can also dampen commitments to long-term investments and growth strategies (Venables, 2016).

Financial market development is essential to mitigate the negative consequences of commodity price volatility. In economies with well-developed financial sectors, the resource curse tends to be less pronounced (Van Der Ploeg and Poelhekke, 2009). A more financialized commodity market dampens the effect of price volatility on real exchange rate fluctuations and hence improves macroeconomic stability. In addition, access to financial instruments or technologies can help commodity producers to insure their revenues against price fluctuations and thus reduce their income uncertainty. Export taxes that soften the impact of rapidly rising world prices in the domestic market are another instrument used by governments to insulate their economies from price volatility and raise revenues, which can benefit domestic consumers. Nevertheless, many natural resource economists would argue that this is a second-best way of addressing income instability problems, to be used only where the first-best option of developing efficient financial markets is not attainable (WTO, 2010).

Enhancing the resilience of public finances and adopting a long-term perspective is crucial to leverage commodity exports sustainably in the development process. The resilience of public finances in commodity-dependent developing economies can be enhanced by broadening and diversifying the tax base, adopting forward-looking budgetary practices, and implementing fiscal rules. The commonly held view is that revenues should not be spent immediately during periods of high commodity prices, but should be put into liquidity funds to accumulate savings that would help to protect exporters and the economy during periods of low prices. For economies rich in depletable resources, investing revenues in commodity-based sovereign wealth funds can help to spread the benefits across generations and support long-lasting sustainable growth. Chile, for example, combined fiscal rules and sovereign wealth funds to manage external shocks, particularly those related to copper price volatility. It has successfully reduced GDP growth volatility since 1990, maintaining relatively stable growth even after the 2008-09 financial crisis (Céspedes, Parrado and Velasco, 2014; Solimano and Guajardo, 2018). However, successful implementation of these measures hinges on achieving social consensus, which can be challenging in economies with low institutional capacity.

(ii) Lack of diversification can impede economic growth

Over-reliance on exports of a single commodity can have an indirect negative impact on other sectors of the economy and inhibit diversification. This phenomenon is commonly known as the Dutch Disease. It describes the negative impacts of a rapid increase in revenues from natural resource exports, such as oil, gas or minerals, on other sectors of the economy, particularly manufacturing and agriculture, and is named after the experience of the Netherlands following the discovery of natural gas reserves in the 1960s. Similarly, in the context of low-income economies and LDCs heavily reliant on one specific sector, the Dutch Disease can also manifest when a sudden increase in commodity export revenues, including agricultural products, leads to appreciation of the exchange rate. This, in turn, makes production and exports of other products less competitive on the global market, hindering diversification efforts and leading to over-reliance on a single sector (WTO, 2010). In addition, the influx of revenue can lead to neglect of other sectors crucial for long-term economic development and employment generation, such as manufacturing and services.

Furthermore, the market power of large global commodity buyers can hinder diversification

into higher-quality products by limiting the gains from trade for small producers. About 80 per cent of global farms are owned by smallholders. Large intermediaries connect these small farmers to global crop markets and thus reduce their high export barriers. Nevertheless, a rising concentration among intermediaries, such as multinational agribusinesses, also leads to relatively lower gains from exports for farmers. Empirical evidence from three low-income economies suggests that when global prices increase, intermediaries retain most of the higher gains with less than a third of those gains benefiting farmers directly (Dhingra and Tenreyro, 2020). As a result, farmers lose out in relative terms, despite gaining in absolute terms, and have fewer incentives to invest in better technology or to diversify into high-quality, high-yield crops.

Finally, tariff escalation in export markets can limit the ability of developing economies to diversify into processed, higher value-added products. Tariff escalation refers to a situation in which tariffs are lower for primary commodities and increase as products undergo processing. This reduces the incentive to industrialize in commodity-exporting economies, and it acts as a disincentive to diversify production (WTO, 2010). Based on most recent applied tariffs data, the tariff schedules of large agriculture importers still show signs of tariff escalation. Of the top ten agricultural importers, seven impose higher average tariffs on minimally processed or processed food products than on raw products.[17] On the other hand, none of these economies' tariffs increase consistently with the degree of processing.

In the long term, diversification away from the natural resources sector is essential to support economic development. Diversifying away from the natural resources sector can help to mitigate the risks associated with dependence on a single sector and can enhance overall economic resilience. Such broader diversification becomes even more necessary if resources are depletable. Moreover, where commodity extraction and production are highly capital-intensive, diversification can deliver few positive spillovers in terms of employment, and little potential for aggregate labour productivity growth. Diversification can address this issue by fostering the development of other productive sectors, including labour-intensive manufacturing and services.

There is growing evidence of the role of governments in helping economies to diversify towards modern sectors. Learning-by-doing spillovers that increase an industry's competitiveness as it grows are frequently used to rationalize the use of industrial policies (Harrison et al., 2010; Choi and Levchenko, 2021). Another prominent issue is the presence of cost-discovery externalities whereby the experiences of firms pioneering a new industry or a new technology generate valuable public information. Without public incentives, no producer can enter such activities, and this can delay the adoption of new technologies or diversification into new sectors (Hausmann and Rodrik, 2003; Harrison et al., 2010). Similarly, coordination failures can inhibit growth in industries relying on the development of a complementary network of firms, or those relying on innovative activities (Rodrik, 2007; WTO, 2020b).

Governments use a wide array of inward- and outward-oriented policies to steer the economy towards certain sectors and activities. Industrial policies range from subsidies, tax credits, trade policy measures and infrastructure projects to education reform. A key feature of contemporary industrial policy is addressing the information asymmetry between the private and public spheres, and ensuring that policies are designed to be compatible with private sector incentives relating to profitability and competitiveness, which require strong state capacity. In practice, the role of industrial policies in combatting market failures and redirecting economic activities is inherently difficult to assess, and the evidence remains mixed (Juhász, Lane and Rodrik, 2023).

Export promotion can help domestic firms to expand into new products and markets. Diversifying from commodity exports into more complex goods represents a challenge for producers in developing economies because information frictions are more severe in products whose quality and characteristics can differ widely across producers. Reducing these information frictions between foreign buyers and domestic producers, and helping the latter to better understand foreign consumer demand and regulations through export promotion programmes, can contribute to diversification into more complex products and higher value-added activities (Volpe Martincus and Carballo, 2008). Digital connectivity and access to the internet play a crucial role in these efforts. Analysis based on 60 developing economies found that digital connectivity through submarine cables increased export complexity, especially in sub-Saharan Africa (Cariolle and da Piedade, 2023).

Export restrictions appear to be an ineffective diversification policy. For fiscally constrained governments in economies that are important global suppliers of a raw material, export restrictions on the raw material can appear to be an attractive policy to redirect the domestic economy towards processed, higher value-added products. Economic theory predicts that

the imposition of an export tax will lower the domestic price of the taxed resource compared to global prices. Thus, domestic downstream producers can access the targeted resource at a lower price, effectively reducing their cost of production. Rigorous empirical evaluation of the effects of export restrictions on downstream sectors is scarce, but case studies of mineral export restrictions in several African economies suggest that they are not an effective tool to promote industrial upgrading (Fliess, Idsardi and Rossouw, 2017). The evolution of exports and revealed comparative advantage in downstream sectors shows little correlation with the presence of export restrictions, and is accompanied by negative consequences for the comparative advantages of targeted primary industries.

Successful industrial policies tend to hinge on the complementarity of various domestic policies. Among the factors influencing the feasibility of domestic value addition are the capacity of downstream sectors, or the incentives to increase this capacity over time (Warwick, 2013; Juhász and Steinwender, 2023). In the case of poor but resource-rich economies, a lack of skills, unstable power supplies and insufficient levels of transport infrastructure can create obstacles to the development of local processing capacity, while political instability and uncertainty about the business environment can hamper international investment (Mobbs, 2011; Ouédraogo, Ouédraogo and Lompo, 2020). Overall, implementing market reforms and policies that facilitate the movement of workers and capital between firms and sectors, improve the business environment, and help to attract foreign investment and technology, can help to develop a more diversified economy and can maximize the gains from trade participation, as discussed in the next section.

(c) Different domestic barriers can hinder the maximization of the gains from trade

Domestic institutions and policies that reduce economic efficiency and slow structural transformation also reduce the potential of trade to accelerate economic growth. Capital and labour market frictions that hamper an efficient allocation of resources can slow the economy's adjustment to trade and reduce the gains from trade. Domestic policies that improve the business climate, infrastructure quality, the skills of the workforce and the competitiveness of local firms can increase domestic investment and productivity. The benefits can be amplified in an open economy in which these reforms also encourage FDI and maximize the gains MNEs can bring in terms of technology diffusion, economic upgrading and access to global markets.

(i) Poorly functioning capital, labour and land markets impede adjustment to trade openness

Poorly functioning capital, labour and land markets slow economic adjustment and structural transformation. Besides trade frictions that make commerce with foreign buyers and suppliers more difficult, an economy's ability to take advantage of trade also depends on its ability to adjust. If capital and workers cannot easily move between firms, sectors and regions, then the economy cannot adjust to trade – import-competing firms cannot shrink, while exporting firms cannot grow. The economy's adjustment to lower trade costs is therefore constricted and the growth of imports and exports dampened.

Capital frictions are a prevalent issue in developing economies, and prevent the efficient allocation of investment among firms. While low-income economies reached similar levels of domestic capital market liberalization to upper-middle-income economies, they still lagged behind high-income economies (Djankov, McLiesh and Shleifer, 2007; IMF, 2019). This type of obstacle can have important industry and aggregate implications for how firms and economies respond to trade shocks. When there are significant obstacles involved in downsizing and closing down firms, import-competition shocks can lead to temporary aggregate productivity losses (Lanteri, Medina and Tan, 2023). On the flip side, capital stranded in import-competing firms limits the ability of exporting firms to expand. Hence, reducing capital frictions would improve the ability of firms in developing economies to adapt to new market conditions and help them better realize the gains from trade liberalization. Underdeveloped financial markets can also prevent firms from selling to and sourcing from foreign markets. Importing and exporting requires paying substantial fixed costs up front, and to fund these fixed costs, firms often rely on external financing (Das, Roberts and Tybout, 2007; Manova, 2013; Foley and Manova, 2015). Credit constraints can therefore limit the ability of otherwise competitive firms to expand into new markets.

Migration frictions and skills mismatches can significantly hinder labour mobility in developing economies, slowing economic adjustment to trade. While formal labour market institutions are not a major obstacle to labour mobility in most developing economies, empirical studies from large emerging economies point to substantial migration obstacles that prevent workers from moving away from regions with declining labour demand towards expanding

regions (Topalova, 2010; Kovak, 2013; Bell et al., 2015; Dix-Carneiro and Kovak, 2017; Erten, Leight and Tregenna, 2019). As discussed in Chapter C, workers face important mobility costs when switching sectors. These costs vary significantly across economies, but tend to be larger in economies that are poorer and have less developed labour market institutions (Dix-Carneiro, 2014; Artuç, Lederman and Porto, 2015). The factors that constrain labour mobility, especially in developing economies, are not yet well understood. Besides migration frictions and labour market institutions that reduce flexibility, workers may face high costs of searching for employment opportunities, and difficulties in adjusting their skills to the demands of growing sectors. Empirical evidence also suggests that a combination of migration frictions and imperfect capital markets can exacerbate the distributional effects of trade. This is further discussed in Chapter C.

Labour cost distortions in low-income economies are higher for firms using modern technologies, which slows down trade-induced technology adoption. As discussed in Section B.2, better access to intermediate inputs incentivizes the adoption of modern, intermediate input-intensive technologies, thereby raising aggregate labour productivity. Based on firm-level data from the World Bank Enterprise Survey, a recent study suggests that distortionary regulations and taxes on labour are more prevalent in developing economies, especially for larger firms (Farrokhi, Lashkaripour and Pellegrina, 2024). Since the adoption of modern technologies is typically driven by large firms, these labour market distortions hamper productivity gains from trade-induced technology adoption. Using a quantitative model, the study suggests that labour market distortions erode, on average, one-third of the potential labour productivity gains from trade among low-income economies.

An additional barrier to trade adjustment and productivity growth, which affects mainly smallholder farmers, is related to land rights and land acquisition. Expanding production and improving productivity in the agriculture sector can involve investment in technology and in high-value and high-quality product varieties. However, inadequate land registries and weak legal systems are often cited as one of the institutional barriers that hinder investment in agriculture-dependent LDCs. This issue is particularly severe in post-conflict regions where, due to forced displacement and the loss of title deeds, customary and statutory land tenure systems may not coincide. Without clear land titles, smallholders are often unable to secure financing to improve and scale up production. By establishing a clear legal framework for land policy and enforcing land rights, governments could address this issue and support productivity growth and diversification.

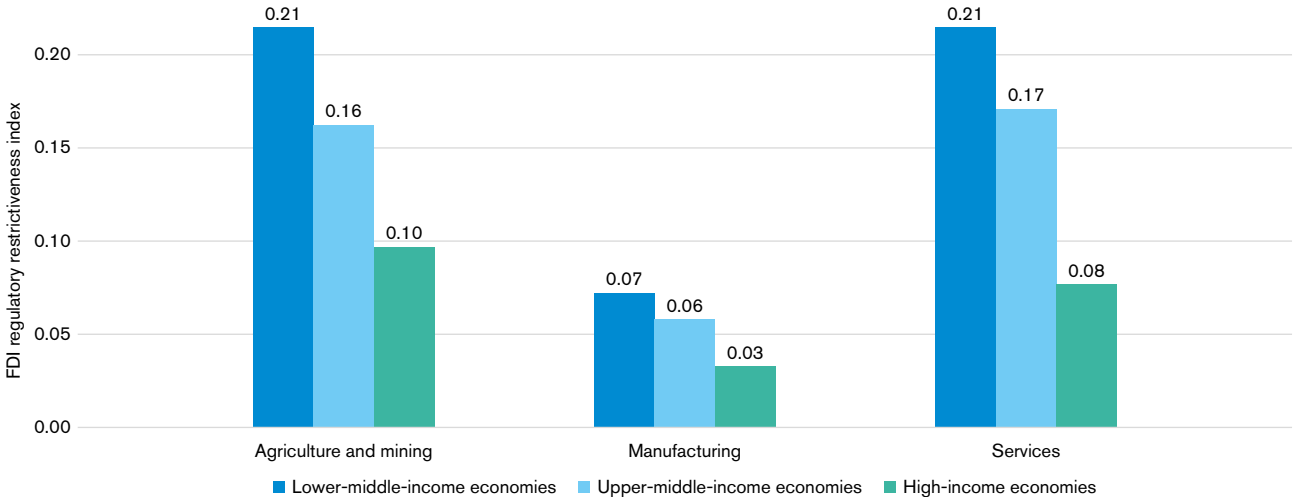
(ii) Barriers to FDI and technology transfer can impede productivity growth and innovation

Trade and FDI are inherently linked, and so are trade and investment policy. MNEs set up foreign production activities for various economic reasons – to be closer to a large consumer base, to access natural resources or technology, or to increase the cost efficiency of their production process. But irrespective of the main driver of FDI, MNEs engage more in importing intermediate inputs and in exporting their products than their local counterparts. Openness to trade and economic integration with regional partners are also therefore major determinants of FDI, which in turn drives participation in GVCs and economic upgrading.

FDI restrictions in manufacturing are relatively low compared to other sectors. The OECD FDI regulatory restrictiveness index provides a glimpse into the degree of statutory restrictions on FDI across all sectors of the economy, including foreign equity limitations, discriminatory screening or approval mechanisms, restrictions on the employment of foreigners as key personnel, and other operational restrictions, such as restrictions on capital repatriation or on land ownership by foreign-owned enterprises. Based on information for 39 high-income, 25 upper-middle-income and 16 lower-middle-income economies, the FDI index shows that restrictions in the secondary sector (especially in manufacturing) are relatively low compared to agriculture, mining and service sectors (see Figure B.9).

Middle-income economies remain relatively less open to FDI than high-income economies. The FDI index also shows that restrictions on FDI inflows decrease with income level. That is despite significant progress in liberalizing FDI regulations between 2014 and 2020 in lower-middle-income economies, which lowered the group's average restrictiveness index by 20 to 30 per cent. Restrictiveness in upper-middle-income economies, on the other hand, declined little during that period. A drawback of the FDI index is that it lacks data for low-income economies. Some information for this group can be gauged from the World Bank-WTO services trade restrictions index which scores barriers to establishment of foreign presence for a range of services sectors. The index shows that, on average, low-income economies have a similar level of restrictions to that of the lower-middle-

Figure B.9: Higher FDI regulatory restrictiveness in lower-income economies, 2020



Source: Authors' calculations, based on OECD data on FDI regulatory restrictiveness.
Note: The figure shows the average FDI regulatory restrictiveness index in 2020 by sector and income group. The regulatory restrictiveness index varies between zero and one. The analysis is covers 80 economies, including 25 upper-middle-income and 16 lower-middle-income economies. The income groups are based on the 2020 World Bank classification.

income group, but LDCs, which are in both income groups, exhibit the highest level.

Improving local workforce skills, infrastructure, the business climate and the competitiveness of local supply chains helps to attract FDI and maximize its benefits to the local economy. Aside from the size of the market and direct barriers to FDI, other factors are important for attracting investment. Evidence suggests that foreign investors are more concerned with improvements to transport and logistics, access to skilled workers, technicians and managers, and business climate reforms than with direct subsidies, tax breaks or subsidized inputs. Moreover, promoting entrepreneurship to create competitive supply chains of local firms in the host economy generates both incentives for MNE establishment and the potential for positive spillovers from MNE activity (Freund and Moran, 2017). Foreign firms will only transfer advanced technology to their subsidiaries if the skills of the local workforce and the level of sophistication of their local suppliers and customers make such transfer profitable. Furthermore, they will invest in capabilities of local suppliers only if the technology gap is not too large (Branstetter and Maskus, 2022). Local content requirements that aim to foster linkages with domestic firms have a mixed record, often discouraging foreign investment rather than maximizing its benefits, especially in small markets without the skills and expertise that can substitute for imported products (World Bank, 2020). Finally, measures targeting coordination failures within sectors, information asymmetry between foreign and local investors and complementary policies like financial market development are essential for promoting, attracting and maximizing the benefits of FDI (Harrison et al., 2010; Bilir, Chor and Manova, 2019).

A robust IP regime can also attract FDI by providing multinational corporations with the confidence that their investments will be protected. Companies are more likely to invest in economies where their IP rights are enforced, as this reduces the risk of unauthorized use or imitation of their technologies and products (Maskus, 2000). Moreover, Branstetter et al. (2006) found that patent law changes in emerging economies with US affiliates led to a rise in royalty payments to US parent firms due to increased volume of technology sales and a significant increase in R&D investments at local subsidiaries, particularly in high-technology industries.

Investment facilitation has become an important policy tool for attracting FDI. To enhance their attractiveness to FDI, developing economies have been adopting measures that improve the business environment, simplify administrative procedures and help investors access information. Investment facilitation policies have become a complementary tool to help economies to achieve their investment objectives, including by reducing information asymmetry, lowering transaction costs for investors

and undertaking the aftercare of investors (Sauvant, 2015; OECD, 2018). Investment promotion agencies can play an important role, for example by monitoring and actively working to improve an economy's investment climate (de Crombrugghe, 2019). However, analysing the effectiveness and impact of investment promotion agency activity remains challenging (López and García, 2020).

Where improving infrastructure and regulatory environment at the country level requires a leap, special economic zones (SEZs) can serve as a stepping stone. SEZs have been used successfully to diversify exports and stimulate economic activity by circumventing business environment challenges and experimenting with new policies (UNCTAD, 2021b). They provide special incentives and infrastructure to attract foreign direct investment and improve the competitiveness of local firms. Policy incentives typically include import/export duty exemptions, streamlined customs procedures and low tax rates (Monga, 2017). For instance, Costa Rica's 2010 reform of the Free Trade Zone Regime was undertaken with the aim of enhancing foreign investment and promoting productive linkages, particularly in sectors like medical equipment and devices (Salazar Xirinachs, 2022). The reform was accompanied by a proactive stance on FDI through institutional support, workforce training programmes and R&D collaborations (Martinez and Padilla, 2017; Monge-González, 2017). Costa Rica's export and investment promotion agencies have played crucial roles in attracting and assisting companies, offering comprehensive support and strengthening local supplier integration. However, while several SEZs in Southeast Asia have also been an integral part of successful outward-oriented policies, in many African economies they have failed to deliver similar results (see Box B.5).

Box B.5: The challenges of using SEZs to improve trade participation and attract FDI in Africa

While African economies have historically been considered latecomers to the adoption of SEZs, the continent is now witnessing a widespread proliferation of these zones, with Kenya, Nigeria, Ethiopia and Egypt leading the way, and East Africa emerging as a hotspot for SEZs (UNCTAD, 2021b). Despite this growth, the experience with SEZs in Africa has been mixed. Many African SEZs host only a few firms and make limited contributions to national employment, except in economies like Djibouti, which are strategically located along major trade routes (UNCTAD, 2021b). Furthermore, most African economies have struggled to achieve significant structural transformation through SEZs, with limited benefits in technology transfer and skills upgrading (Farole, 2011; Farole and Moberg, 2017).

Due to limited government financial resources and poor institutional design, SEZs in Africa often fail to tackle the broader economic challenges of high factor and transaction costs, the lack of basic infrastructure and ineffective policies (Monga, 2017). In addition, political capture and rent-seeking, resulting in suboptimal location choices and firm selection, further exacerbate the underperformance of these zones.

Solutions proposed in the literature include aligning development and SEZ strategies with potential comparative advantages, promoting competitive firms with effective backward linkages, and developing cluster-based industrial parks where economies of scale, intra-industry knowledge spillovers, shared supplier and customer bases, good supply chains and logistics, and other agglomeration effects can be achieved (Farole and Moberg, 2017; UNCTAD, 2021b; Malindini, 2022). Success hinges on effective institutional arrangements, infrastructure development, and policy improvements that foster industry clusters and enhance vertical integration. Drawing lessons from the successful experiences of economies such as Ireland and the Republic of Korea, African economies could enhance their SEZ performance by improving the productivity of local suppliers through improved administration of duty-free access to imported inputs (Monga, 2017).

Overall, political commitment to good governance and effective policy implementation at the highest levels of government is essential to signal to potential investors that constraints on doing business in SEZs are being addressed. The implementation of the African Continental Free Trade Area, addressing both rules of origin and economies' flexibility concerning SEZ regulation (Chi, 2021), may further help to capitalize on the opportunities of enhanced regional integration in Africa.

4. Future opportunities for economic convergence lie in strategies to keep trade open and supported by complementary policies

(a) Future economic convergence faces risks from emerging global trends

Emerging global trends such as geopolitical tensions, digital revolution and climate change are reshaping the landscape of trade-led development. While these trends may threaten future economic convergence, they may also present new opportunities for re-globalization, or increased global cooperation. The lessons from the past three decades provide important insights for the future. Notably, technological innovations can reduce costs in services trade and lead to more efficient and sustainable production methods, and global efforts to combat climate change can foster international cooperation and green investments. The future of trade-led development will hinge on policy choices that manage these risks while leveraging new opportunities to foster inclusive and resilient economic growth.

(i) Geopolitical tensions pose challenges for economic convergence

The rise in geopolitical tensions and trade fragmentation has been a prominent feature of recent years. The global economic dynamics have been impacted by various events, such as the China-United States rivalry, the war in Ukraine and conflicts in the Middle East. This period has also marked an increase in trade sanctions and the appearance of new forms of trade weaponization (i.e., interference with open trade for geopolitical reasons), undermining the relative stability that underpinned economic growth in the past three decades. Increasingly, trade and economic policies are influenced by national security concerns, characterized by "friend-shoring" policies, export controls, restricted trade and technology flows (including through export control), discriminatory sectoral and security-motivated trade agreements and calls for self-sufficiency.

Geopolitical tensions pose significant challenges for economic convergence. WTO simulations indicate that, in a decoupling scenario, if all economies were to align themselves either to an Eastern or to a Western self-contained trading bloc, global trade could drop by 13 per cent and technological spillovers could be hindered (WTO, 2023c), potentially resulting in losses exceeding 5 per cent of GDP, with developing economies and LDCs projected to bear the brunt of the impact (Goes and Bekkers, 2022). A decoupled global economy could also reduce market scale, discourage investment and hamper knowledge exchange, posing significant demand-side constraints for sustained economic growth and poverty reduction, especially for low- or lower middle-income economies that do not have domestic markets large enough to experience sustained poverty reduction (Goldberg and Reed, 2023a).

Furthermore, geopolitical tensions threaten established GVCs, leading to efficiency losses and increased production costs. Research suggests that a full shutdown of GVCs, with no international trade in intermediate goods, could reduce welfare in all economies by between -3 and -68 per cent, with small, highly integrated economies experiencing the largest welfare losses (Eppinger et al., 2021). Finally, geopolitical tensions can undermine collective efforts to address major global challenges, such as climate change and food security, and the risks of conflict escalation resulting from these tensions exacerbate humanitarian crises.

While efforts to diversify can benefit certain economies, achieving global convergence remains elusive in light of geopolitical tensions. Recent data reflecting trade tensions between China and the United States also suggest reallocation within global supply chain activities. While direct sourcing from China by the United States has declined, there has been a noticeable uptick in import shares to the United States from low-wage regions such as Viet Nam, as well as from nearshoring alternatives, notably Mexico (Alfaro and Chor, 2023). Trade tensions between China and the United States have led to trade being displaced to other economies, and export growth was stronger, on average, in economies with larger shares of their exports governed by strong trade agreements, and in economies with more FDI (Fajgelbaum et al., 2021). These findings suggest that some economies may benefit from geopolitical tensions. However, these benefits are insufficient for achieving long-term economic convergence. Simulations based on the WTO Global Trade Model show that, in a "partial rivalry" scenario where some developing economies and all LDCs remain neutral and do not impose higher trade costs on either bloc, on average there would be a 2.8 per cent loss in world GDP in 2050 relative to 2019. Although LDCs might benefit from avoiding alignment, their GDP growth would still fall short of achieving significant global economic convergence due to limited knowledge diffusion and productivity growth in the long term (Métivier et al., 2023).

(ii) Digital revolution enables new opportunities for services trade-led development

The increased capital and skill intensity of modern manufacturing has reduced the scope for manufacturing-led growth in low-income economies. Historically, economic growth has been accompanied by a transition from agriculture to manufacturing, and then eventually from manufacturing to services (Herrendorf, Rogerson and Valentinyi, 2014). The labour-intensive nature of manufacturing in the past played a significant role in economic growth. Manufacturing provided jobs for many, including a relatively unskilled workforce, driving urbanization and reducing rural unemployment. The labour-intensive nature of manufacturing also facilitated skills development, increased wages and stimulated consumer demand, further fueling economic growth and diversification. However, although today's large formal manufacturing firms account for a sizeable share of manufacturing production, they represent only a small share of manufacturing employment in many low-income economies. This reflects the trend in modern manufacturing towards higher capital and skill intensity, and therefore much less low-skilled employment. This represents an increasingly salient obstacle to manufacturing-led growth in low-income economies (Rodrik, 2013; 2016; Diao et al., 2021).[18]

Services trade can enable new trade-led development opportunities for low-income economies. Qualities traditionally associated with manufacturing, such as scalability and innovation, are increasingly found in certain services sectors, making them pivotal for development (WTO, 2019). As a result, labour productivity in services has been shown to exhibit unconditional convergence during the period 1975-2012 in large number of economies (Kinfemichael and Morshed, 2019). It has been argued that the future of developing countries is in services as that that is where the jobs will be (Rodrik and Sandhu, 2024).

The rise of digital technologies has transformed the trade landscape, making services more tradable. Digital technologies can reduce trade costs by optimizing logistics and reducing translation and searching costs. In particular, ICT technologies are making it possible for services to be delivered even when service providers and consumers are not in proximity. Consequently, trade costs in some services sectors are now comparable to those in the manufacturing industry (Gervais and Jensen, 2019). Within the services sector, professional, scientific, technical, ICT, financial and insurance services have seen their export value added increase significantly since 2005, and these services also exhibit strong domestic linkages, facilitating productivity spillovers (Nayyar, Hallward-Driemeier and Davies, 2021). Transportation, telecommunications, finance and business services are increasingly utilized as intermediate inputs in goods production and export. This makes services exports a particularly attractive pathway for developing economies.

Trade in digitally deliverable services, in particular, has seen accelerated growth, including in low-income economies. Digitally deliverable services include services that can be traded through computer networks, such as the internet, apps, emails, voice and video calls, and digital intermediation platforms. Although some low-income economies are still lagging behind in exports of digitally deliverable services, several economies have registered significant growth. Ghana, Morocco and South Africa were responsible for more than half of African exports of digitally deliverable services in 2022, and in these three economies, along with Madagascar, growth since 2015 has surpassed that of the global average, primarily driven by business process outsourcing and IT services (World Bank and WTO, 2023b).

Furthermore, services and digital technologies can facilitate structural transformation and technology diffusion. Digital technologies can help to overcome information gaps associated with employment or financial transactions, thereby improving labour efficiency and the promotion of technology spillovers. For example, several studies have found that digital economy policies in China have helped regional industrial structure upgrading (Wu and Shao, 2022; Yang, 2023). Similarly, business consultancy services from a large international consulting firm have been found to substantially help factories in developing economies to reduce product defects and inventories and to increase output (Bloom et al., 2013). Learning systems driven by artificial intelligence (AI) can accelerate the development of fundamental human skills by enabling individualized learning at relatively low cost (Muralidharan, Singh and Ganimian, 2019).

Quantitative analysis shows that digitalization can lead to substantial trade growth, especially in low-income and lower-middle-income economies. A quantitative analysis using the WTO Global Trade Model offers insights into how three key trends in digitalization could shape long-term trade patterns by 2040: (i) AI-driven productivity

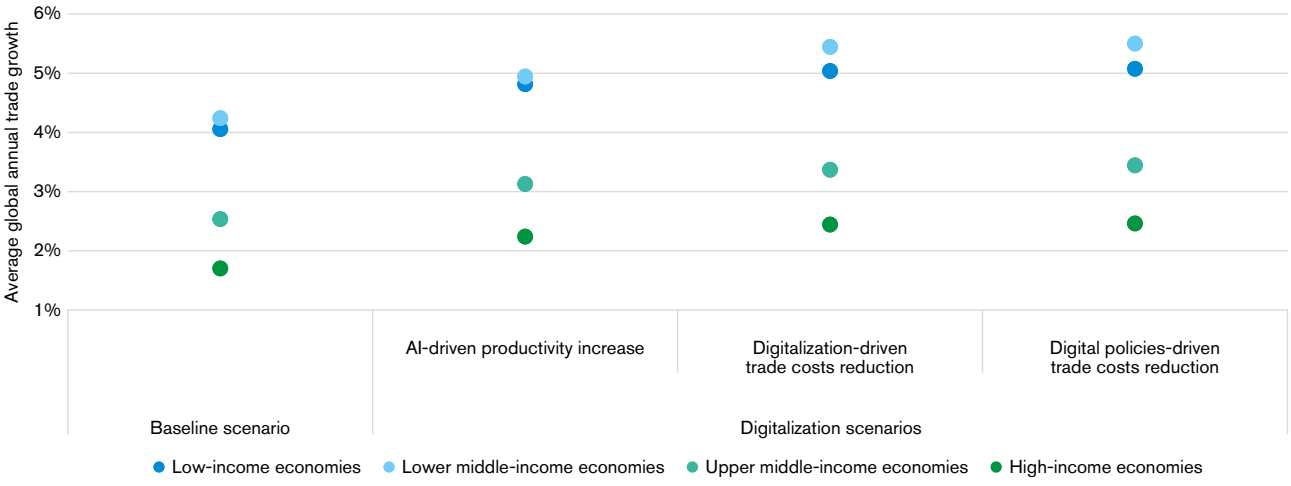
increases; (ii) lower trade costs due to digitalization, including streamlined customs procedures, better logistics, language translations technologies, online sales (e-commerce) and less need for face-to-face interaction; and (iii) changes in trade costs related to data policies (Bekkers, Kalachyhin and Teh, 2024). As shown in Figure B.10, AI-driven productivity increases and reductions in trade costs could have significant impacts on trade growth, especially in low-income and lower middle-income economies.

New digital technologies offer significant opportunities for global trade. Developing economies can leverage digitalization to adopt new technologies and reduce trade costs to levels similar to those in developed economies, particularly in logistics and digital connectivity. By enabling cross-border trade for services that have traditionally needed face-to-face interaction, digital technologies are likely to reduce the cost of trading in services, allowing low-income economies to better exploit their cost advantages in digitally deliverable services. In addition, international cooperation in data policies to balance data flow and safeguards would allow some developing economies to lower their trade costs and enhance their participation in global production.

However, several factors may impede the developmental benefits of digital technologies, requiring policy responses. The existence of a digital divide in infrastructure and skills threaten the ability of low- and middle-income economies to engage fully in these new opportunities (see opinion piece by Landry Signé). AI-related productivity growth depends on an economy's readiness for implementation, and high-income economies are generally better prepared due to their existing digital infrastructure and skilled labour force. Moreover, automation, robotics and other labour-replacing technologies risk devaluing the sources of comparative advantage of many developing economies, and deteriorating their terms of trade, potentially contributing to divergence (Korinek and Stiglitz, 2021). In this context, the share of trade based on labour-cost arbitrage, particularly in labour-intensive manufacturing, dropped from 55 per cent in 2005 to 43 per cent in 2017 (Lund et al., 2020). Furthermore, geopolitical tensions could lead to more restrictive data policies, increasing trade costs and hindering trade integration in data-related goods and services.

Policies can play a crucial role in enabling low-income economies to catch up in driving projected trade growth in digitally deliverable services. To illustrate the trade impact of different policy choices, the quantitative analysis distinguishes between two scenarios: (i) a convergence scenario, which features greater productivity growth and trade cost reductions for low-income economies; all economies adopt "open safeguard" data policies,[19] and (ii) a core scenario with uniform productivity and trade cost changes across all economies and restrictive data policies in transactions between economies in different geoeconomic blocks. Under the convergence scenario, the average annual trade growth of digitally deliverable services in low-income economies is projected to be

Figure B.10: Positive impact of digitalization on global average annual trade growth, 2017-40



Source: Authors' calculations, based on Bekkers, Kalachyhin and Teh (2024).
Note: The figure shows the global average annual trade growth by 2040 by income group under four scenarios. The analysis, based on the WTO Global Trade Model, considers (i) a baseline scenario without digital technologies, (ii) a scenario assuming AI-drive productivity increase; (iii) a scenario with digitalization-driven trade cost reduction scenario; and (iv) a scenario assuming changes to trade costs related to data policies. The income groups are based on the 2022 World Bank classification.

Leveraging trade to foster a more inclusive digital economy in Africa

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The spread of emerging and digital technologies, also called the Fourth Industrial Revolution, is drastically affecting trade, economic competitiveness and development, including in Africa (Signé and Ndung'u, 2020; Signé, 2023a). Global exports of information and communications technology (ICT) services increased at an average annual rate of 8 per cent between 2005 and 2016, and revenues for e-commerce, another prominent feature of the digital economy, reached US$ 25.6 trillion in 2018. A striking feature of e-commerce trade is its uneven distribution across countries: China alone makes up 23 per cent of total e-commerce trade, while the top 10 advanced economies made up 75 per cent of the total. In contrast, more than 75 per cent of the world's adult population has no access to e-commerce (UNCTAD, 2017).

African economies and populations face a significant digital divide that limits their participation in the globalizing digital economy. Less than one-third of Africans have access to internet connections (ITU, 2019). The costs of this digital gap were apparent during the recent COVID-19 pandemic, when African economies struggled to sustain remote working and virtual schooling. In Nigeria, for example, virtual education proved infeasible during the period of lockdown, with only one third of the country's primary and secondary school students engaging in virtual education.

Africa's digital divide could further widen with the inevitable maturity of disruptive digital technologies including artificial intelligence, cloud computing, big data, the Internet of Things, high-speed broadband, blockchain, autonomous vehicles and 3D printing (Signé and Ndung'u, 2020). African countries have a narrowing window of time to bridge the digital divide and strengthen their competitiveness to capitalize on the opportunities offered by the growing digital economy (Signé, 2020). Among other things, this will require fixing the continent's digital skill gap and mismatch, and building its digital competitiveness to international standards (Signé, 2023b).

To unlock Africa's digital economy, it is necessary to foster the enabling environment and to leverage physical, digital, human, agility, perception and technology capitals. African countries therefore have the unique opportunity to leverage trade and trade policies to foster a more inclusive digital economy.

Trade facilitates access in Africa to emerging and digital technologies and to the infrastructure needed for an inclusive digital economy, as most of these are produced outside of Africa.

Trade policies and agreements can offer specific mechanisms to help bridge the digital divide. For example, they can advance an inclusive digital economy by including provisions that facilitate trade in areas related to the digital economy, and by removing barriers to digital products and services that facilitate the adoption of digital infrastructure and measures. Removing such barriers would lower the cost of goods and services (e.g., internet infrastructure, access to networks, digital devices, information and communications technology equipment), which could help to accelerate the development of African digital economies.

Such provisions can also help unlock investment to facilitate physical, technological, socio-demographic and cognitive access for African economies to digital technologies, thus allowing a sustained digital presence and effective and productive usage of digital technologies. This is particularly important given the variation of levels of education, income and access to information, technology literacy and resources that leave some people and economies excluded from full participation in the digital economy.

Another example is the adoption of provisions that enhance flexibility for digital measures, affirming the policy space to adopt digital measures. The African Continental Free Trade Area Protocol on Digital Trade provides an illustration of such mechanism. It aims to harmonize digital trade in Africa, with provisions related to market access, consumer trust, facilitating digital trade, treatment of digital products, and data governance, and it is inclusive of provisions guaranteeing duty-free digitally delivered services within Africa. The Protocol also allows for the creation of exceptions from trade-restrictive provisions implemented for legitimate digital objectives; for example, it allows for not implementing duties on digitally delivered services from third-party economies under certain circumstances, subject to rules of origins, in order not to slow the development of an inclusive digital economy, for example by harming smaller businesses.

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11.7 per cent, compared to 7.0 per cent under the core scenario (see Figure B.11). Nonetheless, the growth rate of digitally deliverable services remains higher in low-income economies compared to middle and high-income economies in both scenarios.

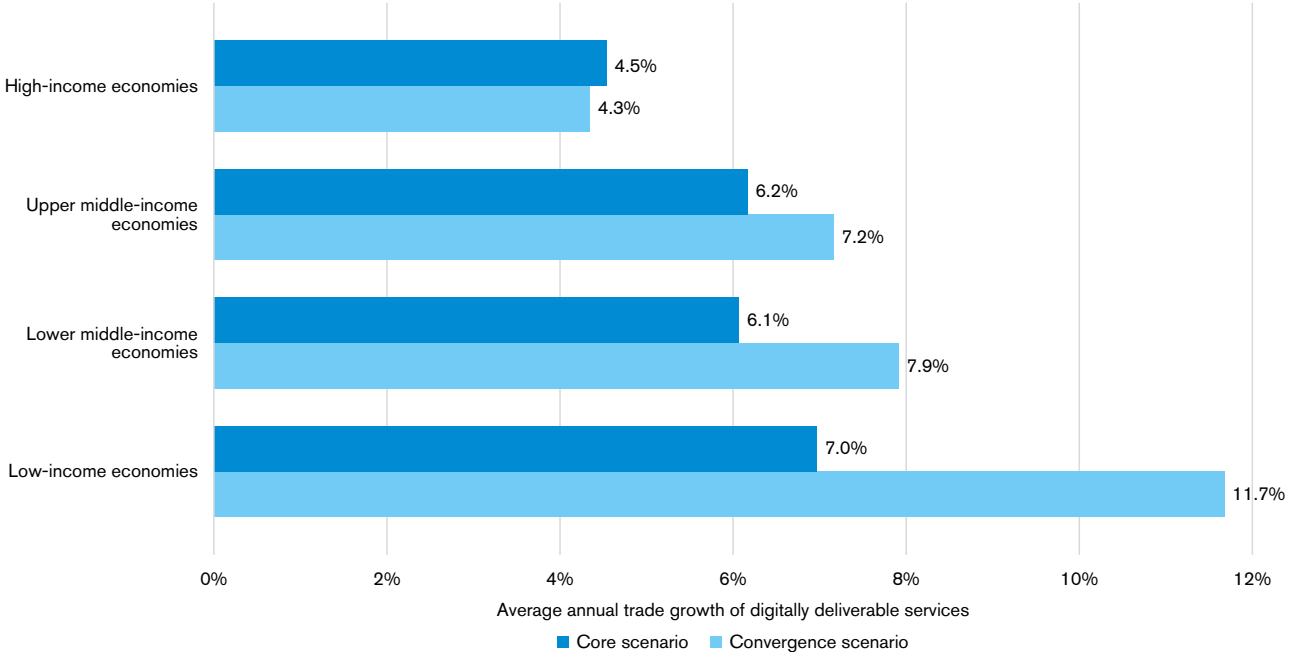
Thus, although digitalization offers substantial opportunities for developing economies through service exports, it also presents challenges. Developing economies have already made important inroads in leveraging services trade, but much remains to be done to fully realize the sector's development promise. Moreover, international cooperation is essential to provide greater transparency and predictability to services trade regimes, mitigate identified drawbacks such as winner-takes-all dynamics and data flow restrictions, to ensure inclusive access to digitalization and its benefits for developing economies (World Bank and WTO, 2023a).

(iii) Climate change is a threat to convergence, but new opportunities are emerging from the green transition

Climate change and other environmental challenges can significantly impact income convergence, primarily through their disproportionate effects on certain geographic regions. Low-income economies that already face economic hardship may encounter exacerbated challenges due to diminished productivity resulting from rising temperatures and climate-related natural disasters. These events can disrupt livelihoods, damage infrastructure, and impede growth prospects (WTO, 2022). Empirical evidence suggests that, while the productivity of wealthy economies may not be severely impacted by temperature rise, the same factor causes macroeconomic productivity declines in poorer economies (Dell, Jones and Olken, 2012). Recent research indicates that the world economy faces a 19 per cent income reduction over the next 26 years, regardless of future emission choices, with the greatest damage in regions already experiencing higher temperatures and greater economic vulnerability (Kotz, Levermann and Wenz, 2024). In addition to economic costs, climate change can also exact a direct human toll, and could potentially cause 6 million more deaths per year by 2100 if the emission trajectory is not altered, a figure which exceeds all current deaths from infectious diseases combined (Carleton et al., 2022).

Furthermore, climate change can influence income convergence by reshaping the economic

Figure B.11: Higher export growth in digitally deliverable services under a convergence scenario, 2017-40



Source: Authors' calculations, based on Bekkers, Kalachyhin and Teh (2024).
Note: The figure shows the average annual growth rate of trade in digitally deliverable services by 2040 by income group under two scenarios. The analysis, based on the WTO Global Trade Model, considers: (i) a core scenario with uniform productivity and trade cost changes across all economies and restrictive data policies, and (ii) a convergence scenario featuring greater productivity growth, trade cost reductions for low-income economies and "open safeguard" data policies.

structure of regions. Industries dependent on natural resources, such as agriculture, forestry and fisheries, may experience decreased productivity or heightened risks due to climate change impacts. Conversely, regions specializing in climate-resilient sectors like renewable energy may see opportunities for economic growth.

Meanwhile, climate change and the green transition offer opportunities for low-income economies. Many low-income economies are situated in geographical regions with significant renewable energy potential, such as solar power, presenting an avenue to generate and export renewable energy or energy-intensive goods and service. For instance, Kenya has leveraged its abundant geothermal energy to attract investment to build a low-carbon data centre (Anton, 2024b). In addition, the increasing demand for clean energy goods for the green transition is expected to boost demand for critical minerals. Over the past two decades, annual trade in energy-related critical minerals, such as cobalt, copper, lithium, nickel and rare earths, has surged from US$ 53 billion to US$ 378 billion (WTO, 2024b). Many developing regions possess reserves of these critical minerals. Africa accounts for over 40 per cent of global reserves of cobalt, manganese and platinum – key minerals for batteries and hydrogen technologies. The Democratic Republic of the Congo, Mozambique and South Africa have a significant share of global production today, but many other economies may hold undiscovered deposits (IEA, 2022).

Uncoordinated trade policies addressing environmental concerns can present cost challenges for exports from developing economies. Without coordinated climate policies, governments may resort to imposing border adjustment measures to address carbon leakage and competitiveness concerns (WTO, 2022). Several studies find that carbon border adjustment mechanisms could reduce exports from developing economies and lower their income (UNCTAD, 2021a; AFC and Firoz Lalji Institute for Africa, 2024). In addition, many governments are implementing policies to enhance trade sustainability, including regulations mandating that imports meet specific sustainability standards, which can involve extensive diligence along the value chain. Some WTO members argue that such due diligence standards are costly to comply with and prohibit small enterprises from participating in trade.

The proliferation of green subsidies, while accelerating the green transition, could disadvantage lower-income economies. As advanced and emerging economies introduce subsidies in green industries to promote sustainable practices and technologies, these measures can leave lower-income economies at a disadvantage due to their limited financial capacity to provide equivalent support. This disparity may make lower-income economies less attractive as investment destinations. There is concern that, like agricultural subsidies that have traditionally depressed prices and distorted markets, extensive subsidies in green and other industrial sectors could similarly hinder development opportunities in the future. Unless the diffusion of the green technologies driven by support measures in advanced and emerging economies spread to lower-income economies, the gap in access and adoption of sustainable solutions may widen.

(b) Various strategies can contribute to enhance trade-led development in the future

In light of the global trends, re-globalization can be an important driving force for future economic convergence. Re-globalization entails extending trade integration to more economies, people and issues. The diversification of GVCs would allow economies a chance to engage in globalization more extensively. As mentioned above, digital technologies can allow economies with strong connectivity and skills to use emerging opportunities in services trade to drive development, and economies endowed with renewable energy and natural resources stand to gain from trade prospects arising from the green transition.

To seize development opportunities amid these trends, a comprehensive approach entails implementing various domestic and trade policies. As summarized in Table B.2, and following the lessons from the past discussed above in this chapter, a range of strategies can help developing economies capitalize on future trade opportunities by tackling trade costs, promoting diversification based on comparative advantages, and maximizing trade growth dividends by facilitating technology transfers.

(i) Open trade is essential to enhance resilience and technology diffusion

Keeping trade open is essential to mitigate the risks of trade fragmentation and promote economic development. For low-income and small open economies, keeping trade open and avoiding geopolitical alignment are necessary to maintain the benefits of trade. Multilateral mechanisms are vital to avert trade conflicts and guarantee lasting economic security. As elaborated in Chapter D, prioritizing the reinforcement of the multilateral trading system is the

Table B.2: Opportunities, challenges and strategies to enhance trade-led development

Opportunities and challenges	Strategies
Geopolitical tensions pose significant challenges for economic convergence, putting at risk past achievements as well as the prospects for those who have been so far left behind.	Keeping trade open is essential; support for diversification of supply chains can enhance resilience, foster technology diffusion and help overcome demand-side constraints in developing economies.
New digital technologies offer significant opportunities for global trade, especially in services. Development opportunities hinge on economies' digital readiness and policy choices.	Overcoming trade costs requires addressing the digital infrastructure and skills gap, open services trade policy and enhancing regulatory capacity.
Climate change and other environmental challenges can significantly impede income convergence, while the green transition can offer new export opportunities.	Developing economies abundant in renewable energy sources and critical materials underpinning the environmental transformation may leverage their comparative advantage to enter green supply chains, but also need robust institutions to avoid the "Dutch Disease".

most effective path toward nurturing sustainable and inclusive long-term development.

Open trade also bolsters economic resilience against shocks from policy changes and natural disasters. Trade helps to diversify access to global goods and services, enabling economies to pivot to alternative suppliers amid disruptions from policy changes, natural disasters or other unexpected shocks. Diversification, in terms of cultivating a broader and more varied network of trading partners, promotes overall economic resilience, albeit at the expense of higher costs. Furthermore, firms engaged in trade, and particularly exporters, are more likely to survive economic downturns due to their higher average productivity and access to diversified markets compared to non-exporters (WTO, 2021b). Thus, maintaining open trade is essential to address disruptions that could escalate due to geopolitical tensions and climate change.

Outward-oriented policies aimed at attracting investment and participation in GVCs can help technology absorption and diffusion. Open trade and investment policies enable the global deployment of renewable equipment and essential technology, leading to infrastructure, technology and workforce skill improvements to meet international standards. This, in turn, drives productivity enhancements and innovation within domestic industries. Equally crucial is fostering widespread technology adoption within the domestic economy. Firms play a central role in adopting advanced technologies and diffusing them across the wider economy. Policies facilitating technology adoption include disseminating information about available technologies, such as through learning from other firms via GVCs (Comin and Mestieri, 2013; Cirera, Comin and Cruz, 2022).

(ii) Harnessing new services trade opportunities requires addressing trade costs and implementing relevant complementary policies

In order to reduce trade costs in the digital age, economies are required to tackle the digital infrastructure and skills gap through significant investments. Numerous studies have highlighted the positive impact of the internet on export growth (Freund and Weinhold, 2002, 2004; Herman and Oliver, 2023; López-González, Sorescu and Kaynak, 2023). For example, the gradual introduction of submarine internet cables in Africa has been shown to yield substantial positive effects on employment, particularly in higher-skill occupations, with a portion of these employment gains attributed to an increase in direct exports (Hjort and Poulsen, 2019). Government spending on digital infrastructure also spurs private investment, with faster internet connections correlating with greater benefits on digitalization (EIB, 2024). To bridge the digital skill divide, educational and training systems must integrate a balanced mix of core and technical skills into early education and sustain this development throughout lifelong learning endeavours (ILO, 2021a).

Strong institutions and regulatory capacities are important in harnessing the opportunities by the digital revolution. Open and robust

government regulations in digital markets can facilitate more effective utilization of digital technology for development purposes. Effective regulations can create an environment conducive to innovation and competition, fostering the growth of digitally enabled industries and ensuring fair market practices. Research shows that a robust regulatory framework that ensures trust in digital markets and fosters open access to digital infrastructure, services and data amplifies the impact of digital connectivity, enabling economies to fully capitalize on the advantages of digital trade (Bellucci, Rubínová and Piermartini, 2023). A deepened commitment to supportive domestic business environments and to trade openness in services form an important part of the comprehensive growth-enhancing policy agenda (World Bank and WTO, 2023a).

Government policies are needed to address the challenges posed by the digital revolution. To tackle competition and job displacement in the digital economy, government strategies may involve encouraging larger firms in services to create lower-skill jobs, facilitating access to productivity-enhancing investments for smaller enterprises, and investing in technologies that complement low-skill workers in service sectors (Rodrik and Stiglitz, 2024). While prioritizing infrastructure and education, targeted government support can also spur digital industrial development. For instance, Manelici and Pantea (2021) noted that Romania's income tax break for software programmers in the early 2000s effectively stimulated the information technology sector, contributing to economic growth. However, effective government support policies must be carefully designed and accompanied by strong institutions to prevent misuse of subsidies and distortions in the economy. Robust policies aimed at curbing industrial concentration and promoting competition are important to effectively address winner-take-all dynamics, especially within the digital industry.

(iii) Robust institutions, complementary policies, and investment are key determinants for sustainable growth in resource-rich developing economies

Leveraging the green transition for trade-led development necessitates significant investment. Mineral-rich economies can prioritize efficient extraction and processing of resources, investing in sustainable mining practices to mitigate environmental impact and ensure a stable supply of raw materials. These economies can further enhance value by directing investment into downstream manufacturing processes, refining minerals into higher-value intermediate or finished products, such as battery cells or electric vehicle components, thereby fostering the creation of skilled jobs. Exporting renewable energy requires significant infrastructure upgrading in these economies, to establish the technological capabilities for capturing, storing and transmitting energy over extended distances. Scaling up climate action in emerging and lower-income economies would require an additional 2 per cent of their GDP per year by 2025, and 4 per cent of GDP per year by 2030 (Songwe, Stern and Bhattacharya, 2022).[20]

To harness trade opportunities, economies must establish regulatory capacity to meet certification requirements for sustainable exports. As many economies are implementing sustainability regulations, meeting these standards becomes pivotal for future trade-led development. This entails developing robust quality infrastructure systems comprising institutions and legal and regulatory frameworks that are needed for ensuring compliance with environmental standards and certifications, as well as facilitating the monitoring and enforcement of sustainable practices throughout the production and supply chains. Advanced economies must ensure that environmental standards and compliance mechanisms are harmonized to avoid creating a spaghetti bowl of complex and contradictory regulations. Establishing mutually recognized standards and enhancing regulatory capacity is crucial not only for enhancing market access for environmentally friendly products, but also for safeguarding against greenwashing and maintaining credibility in global markets.

Robust institutions and complementary policies are necessary to foster wide economic development in resource-abundant economies. While the green transition offers export opportunities for resource-abundant developing economies, harnessing the benefits of extractive industries for broader economic development can pose challenges. Addressing the "Dutch Disease" requires investing in institutions to manage natural resource revenues and stimulating the manufacturing, agriculture and services sectors for long-term growth. Strengthening institutions can involve enhancing transparency, accountability and anti-corruption measures in revenue management, along with establishing robust legal frameworks for resource extraction. In the past three decades, many developing economies, particularly commodity exporters, have adopted fiscal rules and established sovereign wealth funds to build buffers during commodity price booms and to prepare for price slumps (Marioli and Vegh, 2023).

5. Conclusions

International trade has contributed significantly to the unprecedented global income convergence of the past three decades. International trade creates opportunities for developing economies to overcome their relatively small economic size and achieve economies of scale, to enhance the competitiveness of their domestic markets, to gain access to technology through imported products and interactions with foreign firms, and to produce complex products, or their components, by participating in multinational production networks.

Some economies have, however, experienced limited economic growth. Trade costs remain high in developing economies, especially in low-income economies and LDCs. Trade policy plays an important role in the overall level of these trade costs, as low-income economies and LDCs still apply relatively restrictive trade policies, but also face higher trade policy barriers in their export markets due to their lower capacity to comply with foreign policies and regulations. In addition to trade policy, other structural and institutional factors weigh on the foreign trade of some developing economies. Poor-quality and highly-priced infrastructure services, often exacerbated by services trade restrictions, result in high costs of transportation and distribution, as well as in limited access to electricity and telecommunications, which can slow down the adoption of new technologies.

Some economies, despite relatively high levels of trade participation, have not succeeded in diversifying into higher-productivity sectors or activities, and their economic growth remains slow. Specialization in commodity extraction and production can create a number of challenges, including exposure to high price volatility and negative effects on the competitiveness of other sectors. In the case of highly capital-intensive extractive activities, these challenges also include low positive spillovers to the broader economy, with potential implications for increased inequality. This can negatively affect growth prospects, as more unequal societies with a small middle class lack a source of domestic demand that can drive sustained growth.

Factors that slow structural transformation and reduce technology diffusion also diminish the potential of trade to accelerate economic growth. Improving the functioning of domestic capital, labour and land markets facilitates the economic adjustment needed to realize the gains from trade. The benefits of structural reforms are, in turn, enhanced by outward-oriented development strategies that help to attract FDI and maximize the benefits that MNEs can bring in terms of technology diffusion, economic upgrading and access to global markets.

Rising geopolitical tensions, digital revolution and climate change are shaping future opportunities for trade-led development. These three trends not only threaten future income convergence, but also past achievements: geopolitical tensions can lead to increased obstacles to trade and investment and to fragmentation of the international trading system; new technologies facilitating automation may undermine the prospects for traditional labour-intensive manufacturing-led growth in low-income economies; and climate change disproportionately threatens livelihoods in these economies. On the other hand, new opportunities for developing economies arise from efforts to diversify global supply chains, from reductions in trade costs through digitalization, which are creating new opportunities for services-led growth, and from efforts to de-carbonize the global economy, which are creating new sources of comparative advantage in regions abundant in renewable energy sources, and are increasing the demand for certain critical minerals, deposits of which can be found in developing economies.

Reducing trade costs and ensuring that gains from trade are widely shared across the economy will be key. Keeping trade open is crucial to seizing new opportunities and minimizing risks. However, obstacles to trade arise not only from restrictive policies, but also from inadequate infrastructure, geographical remoteness and institutional challenges. Going forward, high trade costs in services, the digital divide between more and less developed economies, and regulatory capacity and compliance issues all need to be addressed to enable economies to take full advantage of new opportunities. As will be discussed in chapter D, international cooperation is essential to achieve an effective and predictable policy environment in these areas.

Endnotes

1 Economic growth has been found to lead to an almost one-to-one rise in the real income of the poor (Dollar, Kleineberg and Kraay, 2016). Some recent studies estimate that a 1 per cent increase in GDP per worker is associated with a 0.2-0.26 percentage point reduction in the US$ 1.90-a-day headcount poverty ratio (Erumban and de Vries, 2021; Benfica and Henderson, 2021).

2 To measure trade participation, an adjusted trade share of GDP was used. One drawback of the standard trade share of GDP is that smaller economies appear to trade more than large economies. The trade participation index applied in this instance is adjusted for this economy-size bias. Specifically, the trade share of GDP for each economy and year is regressed on the economy's geographical size. The trade participation index is constructed by deducting the part predicted by this variable from the trade share of GDP. Geographical size was chosen over population size because it has better predictive power.

3 For a consistent comparison over time, these figures are calculated based on a sample of country pairs for which data are available throughout the entire period, and the income groups composition is fixed in 1995. If all the country pairs available in 2021 are considered, and the income classification in 2021 is used, the share of trade among high-income economies remains at 32 per cent, but the share of trade between high-income and the rest increases to 52 per cent, while the share of trade among low- and middle-income decreases to 16 per cent.

4 The income groups are based on the 1995 World Bank classification. The middle-income benchmark chosen is the real GDP per capita of Egypt in 1995, the year it reached lower middle-income status.

5 Fiji, Papua New Guinea, Solomon Islands, Tonga and Vanuatu did not converge while Samoa converged.

6 According to the Global Peace Index, diverging economies had 22 per cent lower political stability than the average in their income group.

7 In advanced economies, most productivity growth happened within sectors, while in emerging and developing (middle-income) economies, between-sector reallocation accounted for two-fifths of productivity growth between 1995 and 2017 (Dieppe, 2021). In developing Asia, productivity growth accounted for one quarter of all productivity growth between 1990 and 2018 (Erumban and de Vries, 2021).

8 For a detailed summary of the empirical evidence, see Blanga-Gubbay and Rubínová (2023).

9 See http://tradecosts.wto.org/ for more details and methodology.

10 See http://ptadb.wto.org/ptaList.aspx for the list of preferential trade arrangements.

11 The multilateral review of trade concerns in the SPS and TBT committees at the WTO helps to shed light on potentially problematic measures, and encourages WTO members to avoid unnecessarily trade-restrictive measures that exceed benchmarks or do not follow best practice (WTO, 2012).

12 The OECD producer support estimates consist of two components: market price support and payments; only the payments component has been referred to here. Income groups are based on World Bank classification in 1995. The low- and middle-income group includes 16 emerging economies that were either low- or middle-income economies in 1995 and remained middle-income economies until 2021.

13 Governments sometime apply tariffs as infant industry policies. This involves government support for new and emerging industries to help them become competitive vis-à-vis established foreign competitors. Economists are divided on their efficacy. Proponents argue that these policies are essential for fostering innovation, creating jobs, and diversifying the economy, as nascent industries often lack the scale and experience to compete initially. Critics, however, contend that such protectionist measures can lead to inefficiencies, dependency on government support and complacency, ultimately harming the economy. The effectiveness of these policies largely depends on their design and implementation and on the broader economic context within which they are applied (Krugman, Obstfeld and Melitz, 2014).

14 The analysis is based on the World Bank-WTO Services Trade Restrictions Index for 2020 (or the latest available) and covers 134 economies, including 35 LDCs.

15 Based on the indicator "Transport cost intensity, in US$ per ton-km". See https://unctadstat.unctad.org/datacentre/dataviewer/US.TransportCosts.

16 For example, there is no evidence of a positive effect of net gold exports on growth in South Africa (Ziramba, 2011). Meanwhile gold-dependent regions in Peru experienced more stable exports and growth in the 21st century (Orihuela and Gamarra Echenique, 2019).

17 The analysis is based on the product classification from UNCTAD (2024b). Raw products include unprocessed, fresh, chilled and frozen products; minimally processed products are cooked, steamed or dried, and include crude oils; processed products are fermented, smoked, sweetened, salted or brined.

18 Rodrik (2013) highlights that manufacturing's relatively small size in some poorer economies cannot provide a sufficient boost to economy-wide income from labour reallocation. Increasing capital intensity of the sector only exacerbates this issue.

19 "Open safeguard" data policies refer to cross border data transfer mechanisms that tend to leave more discretion to the private sector as to how to safeguard transfers (often in the context of existing principles or guidance provided in domestic regulation). These include ex-post accountability principles that that allow cross-border transfers to take place without specific upfront requirements such as additional legal steps, contracts or private sector-led adequacy decisions.

20 For the specific investment and spending priorities identified above, emerging and developing economies other than China will need to spend around US$1 trillion in 2025 (4.2 per cent of GDP compared with 2.2 per cent in 2019) and around US$2.2 trillion in 2030 (6.9 per cent of GDP). As such, total investment for development and climate goals will have to increase by US$3.5 trillion in 2030 (or 6.9 per cent of GDP) from the spending level in 2019 (Bhattacharya et al., 2022).