

SDG 9: Industry, Innovation and Infrastructure

KEY POINTS

- Governments are adopting and implementing policies aimed at supporting the creation of fruitful innovation ecosystems, technology transfer and industrialization. Domestic intellectual property regimes can be tailored to support the policy objectives of different economies, and at the same time can provide the necessary certainty and predictability to the innovation ecosystem.
- The WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement) plays a crucial role in promoting innovation by incentivizing creators, protecting their rights, facilitating technology transfer, encouraging investment, fostering competition, and establishing international standards for intellectual property protection and enforcement.
- Government procurement of construction services is key to improving public infrastructure. The WTO plurilateral Agreement on Government Procurement (GPA 2012) provides a framework for the conduct of government procurement and help its parties to attract investment to boost public infrastructure.
- Aid for Trade plays a significant role in supporting the industrialization, innovation and improvement of trade infrastructure in developing economies. Aid for Trade disbursements increased during the pandemic, reaching an all-time high of US\$ 48.7 billion in 2020 and supported projects that prioritized building productive capacity and economic infrastructure.
- There has been an increase in the use of subsidies and new developments that underpin current industrial policy have exposed certain gaps in the existing rules. Therefore, to maintain the transparency, openness, and predictability of the multilateral trading system it is important to increase multilateral cooperation on subsidies.

Government policies to promote innovation and sustainability

In many economies, governments have implemented policies with the objective of improving the business environment or tilting the structure of economic activity toward sectors, technologies or tasks that are expected to offer better prospects for economic growth or societal welfare than would occur in the absence of such intervention. Governments generally justify the adoption of sectoral-level

policies in order to foster long-term growth, increase incomes and productivity, and, in doing so, promote entrepreneurship, innovation, technology transfer, skill development and competition.

Innovation policies have shifted with the evolving landscape of technologies. Initially, industrial policies were narrowly defined as policies that aimed to build capacity mainly in the manufacturing sector. Today, digitalization is one of the primary drivers in spurring innovation and productivity in fields such as science, technology and medicine – for example, the current wave of digital general-purpose technologies

includes artificial intelligence (AI), predictive technologies, highly sophisticated automation and big data (WIPO, 2022a). Many countries aim to modernize their economies, including their traditional manufacturing sectors, in a way that promotes the shift from mechanical and analogue production to digitally-enabled production processes and services.

Increasing concerns about environmental degradation and climate change have given rise to government interventions to direct the economy towards a green growth path. The policy tools to address sustainability issues can include command-and-control measures (i.e., regulatory measures or prohibition of certain products and practices), market-based instruments (e.g., carbon pricing, government support and government procurement), information instruments to provide environment- and

energy-related information to allow for informed choices, and voluntary agreements.

Open and transparent trade policies have also contributed to the development and the spread of environmentally friendly and low-carbon technologies. The shift to low-carbon farming – especially climate-smart agriculture techniques that focus on intercropping, crop rotation, agroforestry and improved water management – could bring further benefits to developing-economy farmers in terms of improved productivity, greater resilience, less deforestation, and reduced reliance on fertilizers and fuels (WTO, 2022b). In short, the diffusion of low-carbon technologies can provide poorer economies with the tools they need both to limit carbon emissions and to accelerate their development.

CASE STUDY

The steel industry

As the steel industry works toward carbon-neutral production, the WTO can help it to lower costs and reduce potential trade fragmentation by facilitating coherence and transparency in decarbonization standards.¹⁵

The transition of the steel industry and investments in breakthrough steelmaking technologies, in line with decarbonization standards, can present new opportunities for developing economies. New supply chains may open as steelmaking shifts to near-zero emission technologies, and as new inputs such as green hydrogen and the natural comparative advantage of developing economies could be exploited to allow them to integrate into these networks (IEA et al., 2022).

For example, there is potential for South Africa to enter into green primary iron production value chains (Trollip et al., 2022). Harmonizing decarbonization standards across the iron and steel value can be beneficial for developing economies to exploit these new opportunities.

It is worth noting there is no one-size-fits-all approach to innovation policy. Different sets of policies are relatively more appropriate for countries at different levels of economic development. At early stages of development, governments may favour investment-based strategies, while home-grown innovation becomes more important as an economy grows and approaches the world technology frontier (i.e., the most recent technological innovations). Coupled with open and competitive markets, innovation policy can help countries to escape the middle-income trap (i.e., the failure of a country to transition from a middle-income to a high-income economy because of rising costs and a decline in competitiveness) by fostering the most innovative entrepreneurs. However, in industries and firms far from the technology frontier that have not yet adopted the most recent technological innovations, productivity is more likely to be spurred by improvements in management practices. Likewise, investment in primary and secondary education, for example, is relatively more effective compared to investment in higher education in developing economies.

Other government policies can be beneficial for innovation. The economic literature highlights that research and development tax credits tend to increase research and development spending and, in some cases, increase patenting activity. Government research spending and procurement have a generally positive impact on innovation. Recent research shows that public funding of university research leads to more patents being filed by private firms.¹⁶ Government research grants allocated in a competitive way to private firms generally succeed in stimulating private research and development. The effect is particularly prevalent for small firms, which are more likely to experience external financial constraints. Governments can also have a large impact on innovation through procurement policies, especially those directed towards sectors and firms with high technological content.

Education, in particular in science, technology, engineering and mathematics (STEM), is associated with higher levels of innovation activities. Policies to increase the supply of STEM graduates and

attract highly skilled immigrants have been shown to boost innovation. Highly skilled scientists and engineers from developing economies who work abroad can also generate net positive gains in their home countries when they return back or foster collaboration with local entrepreneurs.

Promoting competitive markets is generally beneficial to innovation. Studies have shown that market entry barriers raised by product market regulation reduce the intensity or the efficiency of research and development in the same sector or in downstream sectors. Several studies show that the removal of market entry barriers fosters innovation, including in digital sectors. In developing economies that are far from the world technology frontier, policies limiting product market competition may be useful to improve the short-run allocation of resources but may have adverse long-run consequences.

Other policies that create an innovation-friendly environment include building and maintaining telecommunications infrastructure and favouring agglomeration and early exposure to innovation.

Examples of WTO initiatives that facilitate innovation

The plurilateral WTO Agreement on Government Procurement (GPA 2012) provides that its signatories must open their government procurement markets to each other's suppliers in a reciprocal manner. The GPA 2012 can help governments to obtain better value for money, for example, when purchasing climate-friendly goods and services through green public procurement. Notably, the GPA 2012 allows parties to apply technical specifications aimed at promoting natural resource conservation or protecting the environment. It also allows parties to use the environmental characteristics of a good or service as an award criterion in evaluating tenders (2022b).

The Aid for Trade initiative helps developing economies, in particular LDCs, to build the trade capacity and infrastructure they need to increase their participation in and benefit from international trade. A limited but increasing number of Aid for Trade projects integrate environmental considerations. In 2020, Aid for Trade disbursements with a climate objective (i.e., adaptation, mitigation or an objective that includes both) amounted to US\$ 15 billion, representing 31 per cent of total Aid for Trade. Around US\$ 5.75 billion, or 12 per cent of total Aid for Trade, were allocated to projects with adaptation as a single or cross-cutting climate objective (2022b).

The role of intellectual property and the WTO TRIPS Agreement in innovation

Intellectual property (IP) and the WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement) play significant roles in promoting innovation.

IP refers to the rights granted to individuals or organizations (i.e., natural or legal persons) over their creations or inventions. It encompasses different rights; for example, copyrights protect creations and patents protect inventions. IP supports innovation by:

- Providing incentives: IP rights provide creators and innovators with control over their creations or inventions for a specific period of time and allow them to authorize third parties to use the innovation. By granting them the right to profit from their work, IP encourages individuals and businesses to invest time, effort and resources into research and development, thereby stimulating innovation.
- Facilitating technology transfer: The IP regime provides the infrastructure that enables creators and inventors to license or transfer their rights to others in exchange for royalties or fees. This facilitates technology transfer and fosters the dissemination of knowledge and innovations across different industries and regions.
- Attracting investment: Effective IP protection enhances investor confidence by safeguarding investments in innovative projects. Investors are more likely to support ventures where IP rights are respected, as it ensures their potential returns and reduces the risk of unauthorized use or imitation.
- Promoting competition: IP rights enable innovators to differentiate their products or services from competitors, fostering healthy competition in the marketplace. This drives companies to innovate continually and to improve their offerings with a view to gaining a competitive edge, with the benefits to consumers being enhanced choices and quality.

To further explore the connection between IP and innovation, we must also look to the TRIPS Agreement, as it is the most comprehensive international instrument on IP rights and their protection, incorporating disciplines that were previously scattered in different conventions.

The TRIPS Agreement is an international agreement administered by the WTO and sets out the minimum standards for IP protection and enforcement to which members must adhere. Its Article 1 provides that WTO members are free to implement the TRIPS Agreement according to their own legal systems and practices. Article 7 spells out the public

policy purpose of the IP system, i.e., that it should help promote both innovation and the transfer and dissemination of technology, to the mutual advantage of producers and users, conducing to social and economic welfare and to a balance of rights and obligations.

The TRIPS Agreement, therefore, has several implications for innovation:

- **Harmonization of IP Standards:** The TRIPS Agreement establishes a uniform set of IP standards and enforcement mechanisms to be implemented by WTO members, which ensures a consistent level of IP protection worldwide, and this in turn creates a more predictable and stable business and investment environment for private sector operations.
- **Access to technology and knowledge:** The TRIPS Agreement recognizes the importance of striking a balance between protecting IP rights and ensuring access to essential technologies, particularly in areas of public health, agriculture and education. It also encourages WTO members to adopt measures that promote technology transfer and access to affordable medicines, while respecting IP rights. WTO ministerial decisions have reaffirmed WTO members' rights to use the flexibilities available in the TRIPS Agreement when pursuing public health objectives.
- **Enforcement and dispute resolution mechanisms:** The TRIPS Agreement provides a framework for creators and inventors to address issues related to infringement of their IP rights in the respective domestic court system. It is also covered by the WTO Dispute Settlement Understanding, which enables members to bring cases related to the TRIPS Agreement.
- **Technology capacity-building:** The TRIPS Agreement includes provisions that promote technology transfer to least-developed country members, encouraging developed members to assist developing nations in enhancing their technological capabilities, thereby fostering innovation and economic growth.

The domestic implementation of the TRIPS Agreement is an integral part of the innovation ecosystem and provides the necessary incentives and certainty for researchers and investors to venture into new areas, as well as legal avenues for collaborations and partnerships, including technology transfer and licensing. Each WTO member can tailor its IP regime to support its domestic priorities and policy choices. Thus, the notion of "TRIPS implementation" broadens and matures into a strengthening of domestic capacity to analyse and give effect to a policy option within the general framework of principles established by the

Agreement, increasingly informed by the horizontal dissemination of knowledge about practical choices implemented by countries of similar economic and cultural background.

The IP regime is also an important factor in technology transfer, as it clarifies ownership, strengthens an inventor's negotiating position and the recipient's role, and helps to attract partners and financing (WIPO, 2022b). While the TRIPS Agreement encourages technology transfer, it must be borne in mind that this is a practical craft that depends on a variety of factors to be successful. It requires the receiving economy or region to be capable of creating the right conditions for a solution to work, such as:

adequate education or training;

- a stable electricity supply;
- good tele-communications and internet connectivity;
- reliable transport and delivery systems;
- a functioning legal system;
- efficient financial services;
- openness to trade;
- a well-functioning and sizeable market; and
- peace and stability.

Technology transfer can also take different channels, including foreign direct investment (FDI), international trade, joint research, patents and licensing, and mobility of know-how, such as corporate temporary transfers and migration.

When it comes to the impact of the TRIPS Agreement on development and developing economies, this is a complex issue which is often subject to debate. While the TRIPS Agreement has provisions that aim to strike a balance between IP protection and development, it is important to note that the impact of the TRIPS Agreement on development is not uniform across all developing economies, as their circumstances, priorities and capacities differ. Some economies have effectively utilized IP protection to drive innovation and economic growth, while others face challenges in accessing essential technologies or medicines.

Balancing IP protection with development needs remains a complex task, and ongoing discussions and initiatives in the WTO aim to address concerns and enhance the positive impact of IP systems on development in developing economies. Nevertheless, IP and the TRIPS Agreement play crucial roles in promoting innovation by incentivizing creators, protecting their rights, facilitating technology transfer, encouraging investment, fostering competition and establishing international standards for IP protection and enforcement.

CASE STUDIES

IP and innovation in developing economies

COTTON, EGYPT

Egypt is one of the leading producers of premium cotton fibers in the world. In 1932, private cotton stakeholders established the Alexandria Cotton Exporters Association (ALCOTEXA), which operates as a non-profit organization with the goal of fostering cotton trade. In 2001, the Egyptian Ministry of Economy and Foreign Trade, along with ALCOTEXA, developed a logo consisting of figurative elements (the drawing of a cotton flower) and the words “Egyptian Cotton” to promote and increase the export of cotton products from Egypt. The two entities jointly registered the Egyptian Cotton™ logo as an international trademark under the WIPO Madrid System. The logo is also protected in specific national jurisdictions, and is registered as a trademark in some countries such as Denmark, the United Kingdom and the United States.



The use and protection of the logo, combined with promotional activities, a part of the branding strategy employed to increase consumer recognition of the high quality and specific attributes of Egyptian cotton which differentiate it from cotton produced elsewhere and justify its premium price.¹⁷ Despite the pandemic- and war-related disruptions, in 2021-2022 Egypt succeeded in exporting 50,000 tons of cotton, worth USD 274 million.¹⁸

SONO FILTER, BANGLADESH

IP can contribute to driving positive social impact to improve the quality of lives. For example, in Bangladesh, drinking water contaminated with arsenic – a highly toxic chemical – is very prevalent due to a confluence of interlinking factors. Out of 64 districts, water in 61 districts has arsenic concentration above the safe limit, and up to 77 million people have experienced health problems as a result.

To mitigate this problem, in 2001 Dr Abul Hussam, a Bangladeshi chemist, developed a simple and effective filter – the SONO filter – to remove arsenic from water. This product is patented as the “Arsenic Removal Filter” (Patent No. 1003935, 2002) with the Department of Patents, Designs and Trademarks of Bangladesh. Two international patent applications for the combination of active materials in the system have been made under the Patent Cooperation Treaty (PCT), and a patent in the United States has been pending as of 2010.

The SONO filter has prevented hundreds of thousands of people in Bangladesh from experiencing health problems due to arsenic poisoning. For example, according to Dr Hussam, many patients experiencing arsenical melanosis (skin pigment changes) have recovered and have witnessed significant health improvements. In addition, there are no new cases of arsenicosis among people drinking the water filtered with the SONO filter. Since 2010, as many as one million people are believed to be using the SONO filter, and new filters are continuously being installed.¹⁹

AFLUENTA, ARGENTINA

IP plays an instrumental role in protecting innovative technologies such as Web 3.0 and fintech (i.e., financial technology). For example, Afluenta is a marketplace lending platform that connects borrowers and lenders directly, without the involvement of banks. IP is key to Afluenta. The processes Afluenta designs, the codes, the training methodology, the onboarding method and the assessment algorithms are all protected with trade secrets, i.e., IP rights on confidential information which may be sold or licensed. The protection of its IP assets was instrumental in helping Afluenta to attract investors to scale up its business operations.²⁰

Policies of micro, small and medium-sized enterprises

Micro, small and medium-sized enterprises (MSMEs) account for most businesses worldwide and are important contributors to job creation and global economic development. Recently, various delegations shared their national best practices for MSMEs during the TRIPS Council:

- In Chile, trade policy has been geared towards increasing participation in international trade as a way of guaranteeing that the benefits of trade have a positive impact on economic growth and the reduction of inequality.²¹
- South Africa has launched flagship programmes that aim to help small businesses to benefit more meaningfully from the IP system. For example, the Inventor Assistance Program (IAP) was launched jointly by WIPO and the Companies of Intellectual Property Commission (CIPC). The programme aims to make the IP system more accessible to under-resourced inventors, including when they apply for patent protection, either as individuals or as a part of an MSME. This is achieved by providing online courses on the importance of IP protection and by pairing inventors with pro bono patent attorneys.²²
- In India, the Ministry of Micro, Small & Medium Enterprises has launched a National Manufacturing Competitiveness Programme (NMCP) to improve the competitiveness of the MSME sector. The programme includes a component called “Building Awareness on Intellectual Property Rights (IPR) for Micro, Small and Medium Enterprises”, which aims to increase productivity, upgrade technology, conserve energy in the manufacturing processes and expand the domestic and global market share of Indian MSME products. Another component of this programme is to provide financial assistance with regard to patents and registration under geographical indications of goods.²³

The role of the Agreement on Government Procurement (2012) in infrastructure development

Investment in global public infrastructure constitutes a significant public expenditure, which is expected to rise to US\$ 71 trillion by 2030 according to estimates of the Organisation for Economic Cooperation and Development (OECD).²⁴ Infrastructure investment plays a crucial role in tackling development challenges in such sectors as transportation, energy, information and communications technology (ICT), water and

sanitation. Inefficient and poor quality infrastructure has a negative impact on citizens' welfare and safety, and environmental challenges such as climate change may exacerbate this impact (UNEP, 2021). Inadequate public infrastructure also affects developing economies' chances of successfully integrating into global value chains and realizing the gains from trade (Niggli and Osei-Lah, 2014).

Government procurement of construction services is key to improving public infrastructure (Niggli, 2015). It can contribute to SDG 9 (“Industry, innovation and infrastructure”), by helping both to upgrade existing infrastructure and to achieve new, more sustainable infrastructure. However, successful infrastructure procurement depends on well-governed procurement systems that ensure integrity, transparency and accountability – according to one study, “83% of all deaths from building collapse in earthquakes over the past 30 years occurred in countries that are anomalously corrupt” (Ambraseys and Bilham, 2011).

The WTO Agreement on Government Procurement (GPA 2012) is a plurilateral agreement to which any WTO member may accede. It provides a framework for the conduct of government procurement in the context of an open trading system and supports its parties in maximizing value for money in their procurement systems through international trade. It also strengthens good governance in those systems, including by obliging its parties to conduct procurement in ways that prevent corruption and avoid conflicts of interest (Anderson et al., 2016).

Thus, the GPA 2012 can help its parties to enhance international investors' confidence in domestic procurement systems and attract the participation of international, well-reputed infrastructure suppliers in public tenders, which, in turn, can help GPA parties to achieve more affordable, reliable, sustainable and resilient public infrastructure. In the infrastructure sector, international participation can also foster local economic development, as it often results in subcontracting of locally established suppliers and the diffusion of international business standards and practices.

The GPA 2012 does not automatically cover all the public infrastructure procurement activities of each GPA party. For each party, only procurement activities carried out by specified covered procuring entities and concerning specified goods, services or construction services, as well as public contracts valued above a specified threshold, are subject to the disciplines of the GPA 2012. For most GPA parties, the threshold for procurement of construction services is SDR²⁵ 5 million (approximately US\$ 6.7 million). This means that below-threshold government procurement of construction services can be reserved for the domestic industry or for joint ventures between international suppliers and the domestic industry. This gives developing economies policy space to pursue industrialization objectives,

and can provide opportunities for domestic suppliers to gain experience and grow, enabling them to compete for larger-scale infrastructure projects.

Moreover, the GPA 2012 provides flexibilities for developing economies to manage their transition to a more internationally open and competitive government procurement system. Specifically, least-developed-country (LDC) WTO members and any other developing-economy WTO members may be accorded special and differential treatment (e.g., the possibility of delaying the application of certain GPA 2012 obligations), where and to the extent that it meets their development needs. The available flexibilities are in principle time-bound and subject to negotiation with existing GPA parties (Niggli and Osei-Lah, 2014).

In sum, infrastructure procurement is central to achieving sustainable development in the Global South. The GPA 2012 is an adaptable predictability- and integrity-enhancing government procurement framework that can assist developing economies in meeting their needs for resilient and sustainable public infrastructure, while at the same time ensuring cost-effectiveness and thus a sustainable burden of debt for future generations (UNEP, 2021).

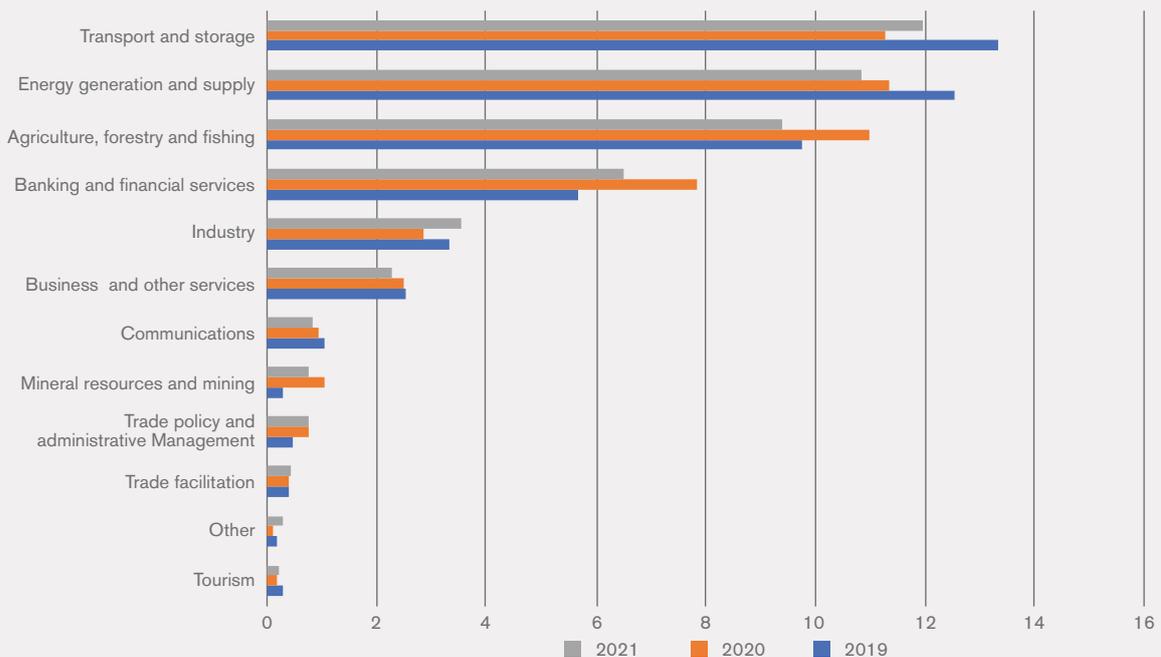
The role of Aid for Trade in SDG 9

Aid for Trade has a significant role to play in supporting industrialization and innovation in several developing economies. This support has helped these economies to improve their trade infrastructure, promote export-oriented industries, and improve their business environments, which has resulted in a significant increase in exports and helped to promote innovation and entrepreneurship in these economies.

For instance, Aid for Trade has helped to establish a strong information and communications technology (ICT) sector in Rwanda. The Rwandan Government has partnered with private companies to establish tech hubs, which has helped to mobilize private sector funds and international investors and to create jobs, promote innovation, and improve the economy. In another example, Ghana received a total of US\$ 7.1 billion in Aid for Trade disbursements, which have contributed to upgrading trade infrastructure, promoting export-oriented industries and improving Ghana's business environment.

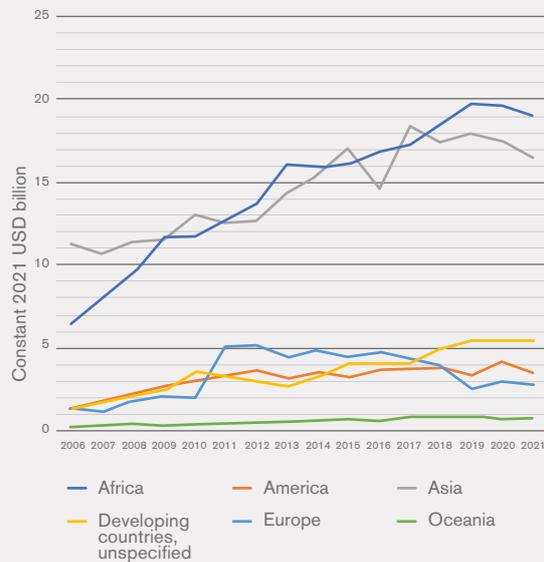
Official development assistance (ODA) remains an important source of finance for developing economies, particularly for low-income economies. In 2019, ODA represented 63 per cent of external inflows to low-income economies, 37 per cent in lower middle-income economies and 20 per cent in upper middle-income economies (OECD, 2019).

Figure 5: Disbursements by sector, 2019-2021



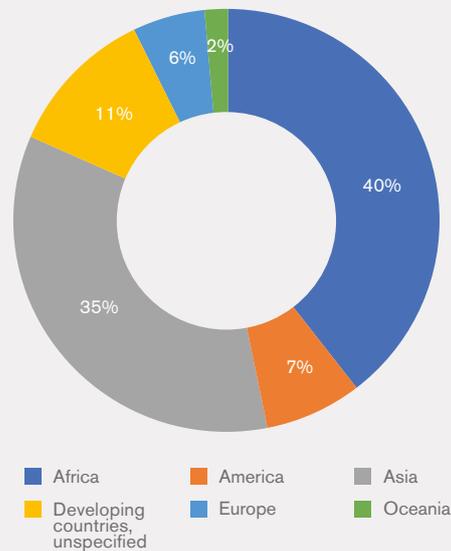
Source: Author's calculations based on the OECD/Creditor Reporting System (CRS) database (2022).
 Source: Based on OECD (2022), OECD.Stat, Creditor Reporting System, <https://stats.oecd.org/>.

Figure 6. Total disbursements by region



Source: Based on OECD.Stat (<https://stats.oecd.org/>).

Figure 7. Share of disbursements by region, 2021



Aid for Trade represents a considerable share of ODA, and accounted for 22 per cent of total ODA disbursements and 26 per cent of ODA commitments in 2020. In recent years, an increased focus has been placed on mobilizing all types of resources towards the SDGs.

Aid for Trade disbursements increased during the pandemic, reaching an all-time high of US\$ 48.7 billion in 2020. Projects have prioritized building productive capacity and economic infrastructure, which jointly accounted for 98 per cent of disbursements in 2020. In 2020, Africa received the largest share of Aid for Trade disbursements (38 per cent), followed by Asia (35 per cent), America (10 per cent), Europe (6 per cent) and Oceania (1 per cent). Responses to the 2022 Aid for Trade monitoring and evaluation exercise suggest a shift towards sustainability considerations, including climate change, and gender equality. In 2020, 51 per cent of Aid for Trade commitments included climate-related objectives, representing 56 per cent of total climate-related ODA commitments in 2020.

The geographical distribution of Aid for Trade

In 2020, Asia and Africa jointly accounted for 73 per cent of Aid for Trade disbursements – a share that has remained relatively stable since 2013. A total of 38 per cent of disbursements went to Africa, followed by Asia (35 per cent), America (10 per cent),

Europe (6 per cent) and Oceania (1 per cent). These shares are almost identical to the Aid for Trade commitments for those regions (38 per cent to Africa, followed by 36 per cent for Asia, 10 per cent for America, 6 per cent for Europe and 1 per cent for Oceania) indicating that donors follow through with their stated commitments.

Since 2018, Aid for Trade disbursements allocated to Africa have exceeded disbursements to Asia. America saw the highest growth, from US\$ 3.1 billion to US\$ 5 billion (+61 per cent) (see Figure 6).

Important differences exist in the type of Aid for Trade projects implemented across different regions. For example, a majority (54 per cent) of Aid for Trade disbursements to Africa focus on building productive capacity, while in Asia, support to economic infrastructure is predominant (63 per cent of disbursements) (see Figure 6).

Aid for Trade directly contributes to several trade-related SDGs, notably SDG 8 (“Decent work and economic growth”). SDG 8 includes a target to increase Aid for Trade support for developing economies, in particular least-developed countries (LDCs), including through the Enhanced Integrated Framework (EIF) for trade-related technical assistance to LDCs (UN Stats, 2021). Aid for Trade also contributes to the SDGs in ways that go beyond purely trade-related targets, including by enhancing the benefits of international trade. The Addis Ababa Action Agenda recognises that, with appropriate supporting policies, including those

targeting infrastructure and education, trade can also help to promote productive employment and decent work, women's empowerment and food security, contributing to a reduction in inequality and to the SDGs.

Recent pilot methodologies developed by the OECD using machine learning provide new insights into the contribution of Aid for Trade to the SDGs. For example, the data from the 2022 Aid for Trade report show that overall Aid for Trade contributes to all SDGs, and that each Aid for Trade project contributes to at least one SDG. In 2020, 18 per cent of Aid for Trade resources disbursed targeted SDG 7 ("Affordable and clean energy"), 17 per cent targeted SDG 9 ("Industry, innovation and infrastructure") and 16 per cent SDG 8 ("Decent work and economic growth").

According to responses to the joint OECD/WTO 2022 monitoring and evaluation exercise, 96 per cent of partner countries that participated in the survey include environmental considerations in their national development strategies, policies and plans, and 86 per cent have embedded such objectives in national trade development policy documents.

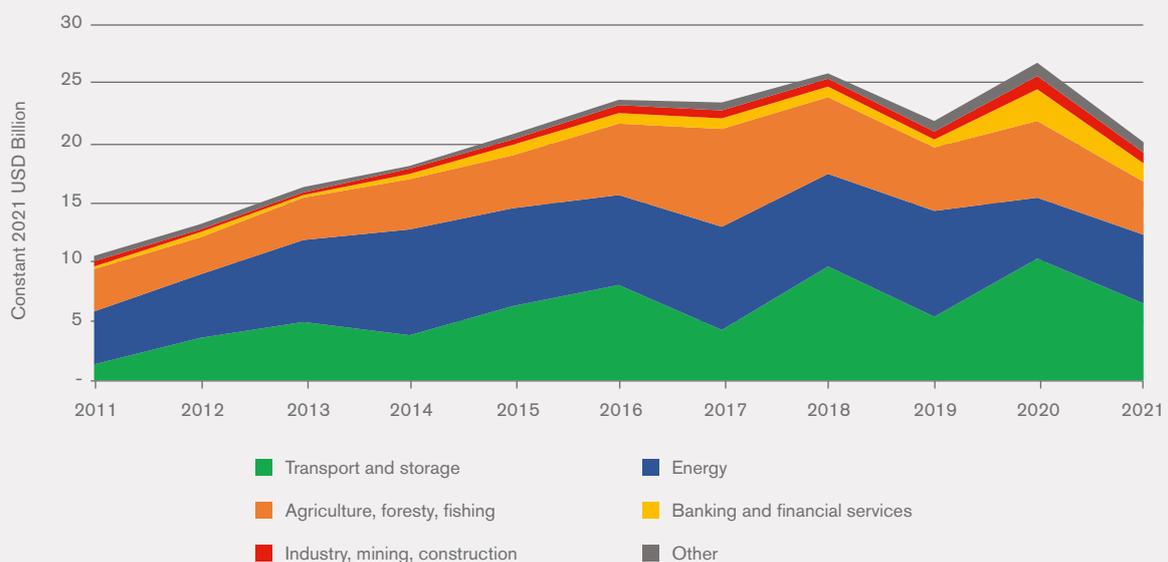
A large share of climate-related Aid for Trade commitments is concentrated in a few sectors, with energy, transport and storage, agriculture, forestry and fisheries making up 85 per cent of these commitments. These shares have remained relatively stable over the years, although climate-related commitments in the transport and storage sector more than doubled between 2019 and 2020 (+104 per cent) (see Figure 8).

Within the energy sector – which accounts for a large share of total carbon emissions – there is an emerging trend to allocate more and more support to renewable energies. The share of Aid for Trade disbursements allocated to renewable sources increased by 36 per cent between 2019 and 2020, from US\$ 3.3 billion to US\$ 4.5 billion. During the same period, the share of disbursements to non-renewable sources decreased by 26 per cent (from US\$ 1.6 billion to US\$ 1.2 billion) (see Figure 9).

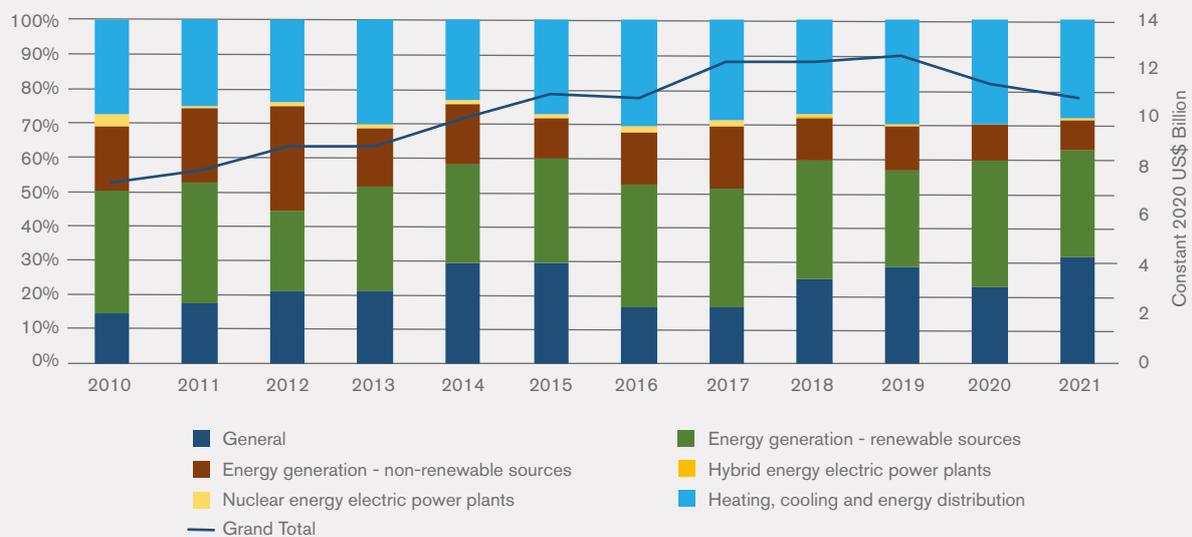
Furthermore, it is important to note that trade-related official development finance beyond ODA has increased and, together with Aid for Trade, has contributed to mobilizing additional resources in trade-related sectors. Both commitments and disbursements in other official trade-related flows have increased in recent years, reaching US\$ 44 billion in disbursements and US\$ 87 billion in commitments in 2020.

Furthermore, recent data collected by the OECD sheds light on the role of official development finance in mobilizing private resources for development. The data shows that during 2012-20, 86.6 per cent of private sector resources mobilized were in trade-related sectors, with an average annual growth of 16.3 per cent.

Figure 8: Climate-related Aid for Trade Commitments by sector, 2011-21



Source: OECD.Stat, Creditor Reporting System (<https://stats.oecd.org/Index.aspx?ThemeTreeId=3>).

Figure 9: Energy generation and supply disbursements, 2011-20

Source: OECD.Stat, Creditor Reporting System (<https://stats.oecd.org/Index.aspx?ThemeTreeId=3>).

Source: Based on OECD.Stat (<https://stats.oecd.org/>).

Strengthening multilateral cooperation on industrial subsidies

In a modern economy, subsidies deserve special attention because they constitute a pre-eminent industrial policy tool. They are also one of the industrial policy instruments subject to the most multilateral regulation. To better understand both their role in modern industrial policy and the need for multilateral cooperation on this issue, it is important to recall the reasons why subsidies are subject to international rules.

During the establishment of the multilateral trading system under the General Agreement on Tariffs and Trade (GATT), and subsequently the WTO, members recognized that subsidies or financial support from the government could serve certain legitimate and economically useful policy objectives, such as correcting certain market failures. However, it was also recognized that subsidies can have adverse effects on trade, on the global commons and on the efficient allocation of global resources, which is one of the objectives set out in the preamble of the Marrakesh Agreement creating the World Trade Organization.

Classic economic theory holds that the market is the most efficient mechanism for allocating resources. This is because the market is driven by the interaction of supply and demand, which reflects the choices and preferences of individuals and businesses. When a government interferes with the market, for example,

by providing subsidies, or by imposing price, exports or import controls, it can distort the allocation of resources and prevent the market from functioning efficiently.

In addition, government interference with the market can lead to the development of rent-seeking behaviour, where individuals or businesses seek to gain an economic advantage through the use of political influence rather than through productive economic activity. This can lead to the misallocation of resources, discourage foreign investment, harm consumers by artificially inflating the prices of goods and services, and in general undermine economic growth and prosperity.

For these reasons, and to avoid the impoverishing effects of a subsidies race, members agreed to regulate the provision of subsidies, notably through the WTO Agreement on Subsidies and Countervailing Measures (SCM Agreement) and the WTO Agreement on Agriculture. The SCM Agreement regulates subsidies on the basis of the principle that the more trade-distorting the subsidy the stricter will be the disciplines applied.

Therefore, two kinds of subsidies – export subsidies and import substitution subsidies – are prohibited, as both were specifically designed to affect trade. All other subsidies are deemed to be “actionable”. If one member believes that another member is using prohibited subsidies, or that the subsidies are causing it adverse effects, it may bring a case to the WTO and seek the withdrawal of those subsidies or removal of the adverse effects, in the case of actionable subsidies. Members which are suffering

injury to their domestic industry caused by subsidized imports may also take domestic measures, mostly in the form of import duty surcharges to “countervail” the amount of subsidization or the injury.

Despite the existence of multilateral regulation, and ample jurisprudence that clarifies it, there are still significant gaps in these international rules. These gaps have been made more evident as the rules have not been adapted to new realities and emerging global issues. The new developments that underpin current industrial policy can be summarized as:

- The emergence of global value chains, and the current need to make them more resilient to cope with extraordinary events such as the COVID-19 pandemic and increasing geopolitical tensions. This has led governments to seek alternative sources of supply and production for key inputs, energy products and foodstuffs, in some cases subsidizing local production.
- Greater awareness by governments of the urgent need to take action against climate change and the corresponding aspiration to reach a reduced-carbon-emissions economy, requiring large investments and state support for adaptation and mitigation. This has led to governments and policy experts arguing in favour of a greater use of subsidies to correct market failures and provide incentives to develop new environmental technologies. There is also a growing recognition that many existing subsidies, for example fuel subsidies, have negative environmental effects and should be subject to stricter regulation.
- A growing understanding that subsidies may play a significant role in governments' response to economic, health, natural disaster and social emergency situations that require public intervention. These subsidies should be designed in a manner that does not support companies which are inefficient and would have exited the market, does not cause harm to trading partners, and can be easily phased out once the emergency they were meant to address has passed, preventing further distortions.
- The increased digitalization of the economy and the strategic importance of new technologies has led governments to enter a race to support these industries. Governments also believe that, because of the general-purpose nature of digital technologies, subsidies to digital innovation will lead to large cross-sectoral positive spillover effects.
- The rising importance of economies in which the state plays a central role, and of international state-owned enterprises, where some governments believe that the current rules may not be able to capture some interventions in the economy, leading to unbalanced competition. This is contributing to fuelling a debate on how

the architecture of global trade rules and their underlying assumptions of a market-driven economy may be stretched when applied to different economic models under a single rules-based multilateral system.

The urgency of increasing multilateral dialogue and cooperation to better understand and address these new realities is being compounded by recent announcements of new subsidy programmes in some major economies covering key sectors such as electric vehicles, renewable energy and semiconductors. Access to some of these funds has been made contingent on the use of domestic inputs and localizing production.

These measures could have a negative impact on the global economy, as trying to repatriate production could result in price inflation which will harm the poorer and most vulnerable economies and people. These types of subsidies could also create duplication of supply chains, increasing inefficiencies and may ultimately raise the costs of transitioning to a green economy, or lead to a waste of public funds.

All of this comes at a time when the WTO Dispute Settlement Mechanism, which is meant to deal with trade distorting subsidies, is not fully functional. As a result, members are less likely to challenge these measures, and there is a risk that they may instead try to reproduce them if they possess the financial means to do so.

If the transparency, openness and predictability of the multilateral trading system is to be maintained, and indeed increased, broad-based cooperation on subsidies is required. Recent evidence shows that the use of subsidies by governments is pervasive, expanding and frequently mis-targeted in terms of their envisioned policy goals²⁶. This condition not only raises questions about the economic efficiency of such subsidies, but also encourages the employment of unilateral trade remedy measures, erodes public support for open trade, and contributes to severe commercial disputes that obstruct the achievement of other international goals, including those inscribed in the 2030 Agenda for Sustainable Development.

Governments should move quickly to enhance and clarify the international rules governing subsidies, while also acknowledging the useful functions that properly crafted subsidies can play to correct market failures, spur technological innovation and provide social safety nets. More work is required to develop an agenda to better the understanding of present subsidy programmes and their consequences for trade partners and the global commons. By taking a more active part in transparency, research and consultation about subsidy methods, international organizations can also be of assistance in this important and urgent task.²⁷