Chapter II

What will it take? Financing sustainable industrial transformation*

1. Introduction and key messages

Scaling up investment in sustainable industrial transformation can be a key to rescuing the SDGs. Industrialization and structural transformation have been historic engines of economic and productivity growth, job creation and technological advancement—and have laid the foundation for poverty reduction and a sustained mobilization of domestic resources. A vibrant domestic private sector engaged in dynamic activities has been at the heart of sustained progress and development in most countries. At the same time, countries' policy efforts to spur industrial transformations have a mixed record, not least in their impacts on equity, the environment and sustainable development more broadly; many lessons can be learned from both failures and successes.

In response to a series of major shocks and crises, the state of domestic productive capacities has become a central concern of policymakers around the world again. The 2008 world financial and economic crisis, the ongoing climate crisis, the COVID-19 pandemic, and, most recently, the fallout from the war in Ukraine have all contributed to a revival of industrial policies. Countries have taken steps to support low-carbon transitions, create decent jobs, promote digitalization and enhance the resilience of their economies to economic and non-economic shocks. Industrial policy measures more than doubled between 2009 and 2019, with much of the growth in developed countries.

The revival of industrial policies provides an opportunity to achieve sustainable industrial transformations. The SDGs give today's efforts at industrial transformation a desired direction: such transformations must be underpinned not only by economic growth, but by growth that can be sustained over time, is inclusive, creates decent jobs, is environmentally sustainable and supports rapid decarbonization. A new generation of sustainable industrial policies has to reflect these sustainable development priorities.

Sustainable industrial transformations require scaled up, coordinated and "targeted" public and private investments. Sustainable transformations require investments by the private sector in innovation, energy transition and other areas, and affordable access to finance to fund these investments. Sustainable transformations also require public investments in sustainable infrastructure, human capital and other public goods to overcome supply side bottlenecks and crowd in private investment, and the fiscal space to maintain such investments. Because sustainable industrial transformations are "directional", they also require *a more expansive toolkit* to create and align incentives for sustainable investment: public leadership and coordination to create investment opportunities, for example in activities critical to the low-carbon transition, demand-side or regulatory measures to support development and adoption of desirable technologies, and the alignment of tax and fiscal systems and all other relevant policy frameworks with the SDGs.

Sustainable industrial and financing policies, both national actions and international support, are key to facilitate such transformations. This chapter discusses relevant policy options, with a particular focus on financing policies that are pertinent to the action areas of the Addis Ababa Action Agenda. Several key messages emerge:

- Countries should have strong ownership over the industrial policy formulation process, and relevant stakeholders—private business, labour, civil society and others—should be involved in inclusive consultation and decision-making processes. Sustainable industrial transformations depend on the buy-in and coordinated actions of many stakeholders;

* This chapter has benefited from inputs from many Task Force members. It puts forward ideas for governments to consider; however not all Task Force members are endorsing all the proposals in the chapter.

- Policymakers need to develop a coherent *sustainable industrial policy strategy* that is aligned with a country's overall vision. Sustainable industrial policies should be closely linked to national sustainable development strategies and plans, which can be supported by integrated national financing frameworks. They need to be context-specific, responding to a country's binding constraints and institutional frameworks;
- Countries must provide support to vulnerable groups that may lose economic opportunities during industrial transformations. This underscores the importance of *universal social protection systems*;
- To reduce the cost of capital for firms, countries should continue to improve domestic enabling environments (thus reducing investment risks) and financial sectors (to lower the cost of capital domestically), and adopt supportive macroeconomic policies;
- Public development banks are a major source of long-term financing and can help to address financing gaps for sustainable transformation. They can provide funding for new, smaller or innovative firms, or for priority sectors. Public development banks also develop specific expertise and market intelligence—they can fill both knowledge and resource gaps;
- Investment incentives remain the most prevalent sustainable industrial policy instruments and can be complemented by demand-side measures and appropriate technology standards to spur development and adoption of sustainable production processes. They also need careful policy design to manage fiscal impacts and avoid capture by special interests, for example by linking support to success criteria;
- Many developing countries will need capacity and financial support. The international community can support countries' efforts through systemic reforms in the international financial architecture and project-specific support, for example through blended finance instruments well aligned with national priorities;
- Developing countries also need to preserve existing and, in some areas, regain lost policy space to pursue sustainable industrial policies. There are risks of rising fragmentation in the global economy, and to a fair and open trading regime. Efforts to tackle climate change and the SDGs, and recent industrial policy announcements in some major economies, have led to calls to increase multilateral dialogue and potentially adapt current multilateral rules. An unlevel playing field and the "finance divide" must not undermine the ability of developing countries to achieve sustainable industrial transformations.

2. Why now? Sustainable industrial transformation and the SDGs

2.1 Industrialization and structural transformation as a historic engine of development

Historically, most countries that have achieved sustained economic development and improvements in living standards have done so through structural transformation. Structural transformation involves the reallocation of capital and human resources from low- to high-productivity activities and sectors through economic diversification and strengthening productive linkages in the economy.[1] A more diversified economy enables higher per capita incomes,[2] lower volatility, poverty reduction and better long-term growth prospects.[3] The impacts of structural transformation also extend beyond economic growth. They often include increased migration from rural areas to urban centres, usually combined with a reduction in birth rates, greater participation of women in the workforce and deep political and sociocultural changes.

Manufacturing sector growth and industrialization have historically been central to structural transformation. Because of several unique properties, manufacturing activities were often at the heart of sustained growth episodes, with structural transformation typically involving a rapid increase in the share of industry and a corresponding decline in agriculture in economic activity.[4] First, technological advances often originated in the manufacturing sector, and diffused from there to other sectors. Manufacturing firms in developing countries were often able to import and adapt these technologies and achieve rapid productivity growth even when broader institutional capabilities and skills were still comparatively scarce in their host economies.[5] Technological and organizational learning in these firms triggered significant economic and knowledge spillovers to the rest of the economy. Second, many low-skilled workers found employment in manufacturing, at least until recently. In this, manufacturing differs greatly from other high-productivity sectors such as finance; it allowed developing countries to attract investment, import technology and capital goods, and combine it with low-skilled labour. And third, manufacturing products are tradeable, and hence growth is not limited by the small size of domestic markets in many developing countries.[6]

Improvements in agricultural productivity were usually a precondition for industrialization. Improvements in agricultural productivity allowed agriculture to produce food needed to feed urban industrial workers, release labour for employment, supply raw materials to support the industrial sector, including agro-industries, increase exports to pay for industrial investments, and enhance the domestic market for industrial products.[7] Today, some agro-industries and knowledge-intensive services have proven to be technologically dynamic, with high potential for productivity growth (see boxes 1 and 2),[8] while some manufacturing activities have become "commodified", limiting their potential to support upgrading and learning.[9]

Throughout history, countries have provided targeted support to domestic firms to enter dynamic sectors, with policies evolving over time in response to changes in the global economy. Structural transformation is underpinned by the expansion of productive, technological and organizational capabilities at the firm and industry level. Firms generally acquire these capabilities in the process of production ("learning by doing"), but this learning process is fraught with uncertainty (see box 6). Countries have long provided support for domestic firms, often in specific industries, with a view to shaping comparative advantages.[10] The interpretation and debates around industrial policies have emphasized different aspects at different times: the protection of infant industries in the 19th century; structural change and the role of a dynamic manufacturing sector after World War Two; and market failures, technological and organizational learning and the industrial policy design to address governance challenges at the end of the 20th and beginning of the 21st centuries.[11] The industrial policy toolbox changed accordingly: While protectionist

trade policies and tariffs were the most common tools in earlier phases, low interest loans, financial grants (for example R&D subsidies or investment grants) and trade financing are now more prevalent.[12]

While the industrial policy record is mixed, there are lessons that can be learned from both successes and failures. The contributions of industrial policies have often been contested. In part, this is because such policies are difficult to assess due to static costs but dynamic benefits, and also because such policies can be open to corruption and state capture. Recent research, taking advantage of "natural experiments" has, however, confirmed positive and long-lasting impacts of historical industrial policies.[13] At the same time, there is no shortage of failed interventions, with a mixed policy record overall and significant variations in their impact on sustainability and equity across countries. From these experiences, key policy lessons emerge on both policy design and state-business relations, including the need for:

- **A clear vision with specific objectives and political accountability**: A clear vision must be translated into specific near- and medium-term objectives that tackle clearly defined challenges, and against which policies can be assessed and revised if needed; political accountability against such targets has also been important;
- **Context-specific strategies**: Industrial transformation is typically a gradual process and leapfrogging is rare. Strategies must identify current and dynamic comparative advantages and take into account firms' existing capabilities and their potential to learn and acquire additional ones, to avoid policy failures;[14]
- **Policy coherence**: Many industrial policy strategies become undone because macroeconomic, financing, trade or other policies were not aligned with their objectives; often this is a symptom of the industrial policy strategy not being consistent with the broader national vision and/or not fully backed by the country's leadership, which may have competing or conflicting interests.[15] If relevant stakeholders do not participate in the policy formulation process, implementation and impact are often limited;
- **Addressing political economy and governance challenges head on**: Policymakers need a good understanding of private sector challenges, and hence a close relationship with the business sector; but this relationship also heightens risks of policy or regulatory capture, with temporary subsidies turning into permanent support for underperforming or uncompetitive firms.[16] In some cases, structural transformation policies were discredited and abandoned for decades as a result of misuse of public funds. Policies need to be designed to mitigate against risks of capture;
- **Managing sustainable development impacts**: To ensure that industrial transformations are inclusive and sustainable, proactive policies are needed to support (and compensate) those at risk of being left behind and to ensure environmental sustainability.

2.2 The role of industrialization and structural transformation in the sustainable development agenda

Structural transformations and industrial policies have to be sustainable and inclusive. Achieving the SDGs requires rapid

Box II.1
Rural economies and the potential of agro-industry

In the absence of inclusive rural transformation in many least developed countries (LDCs), low-productivity agriculture continues to dominate rural economic activity, and rural poverty remains high. When increasing urbanization is not supported by growth in manufacturing, people leaving agriculture move mostly into the informal service sector, which is also characterized by low productivity.

Successful structural transformations in such cases rely on strengthening rural–urban linkages, by better connecting agriculture to urban manufacturing and service sectors. Agro-industries could play a productive role and provide a viable path for sustainable industrial transformation in "late transforming" countries. In sub-Saharan Africa, for example, agro-industries account for a significantly higher share of total manufacturing employment than in other regions. Agro-industries and services along the agri-food value chain have the potential to absorb labour that leaves primary agriculture. As such activities are geographically spread and dominated by small- and medium-sized enterprises (SMEs), they also create employment opportunities in small- and medium-size cities and towns, preventing migration to megacities. They could also provide the springboard for other forms of manufacturing and services through technology spillovers, improved management skills and capital accumulation.

For this potential to materialize, the industry needs to overcome bottlenecks for financing and expansion—including the fact that many firms in the sector are small, family based, scattered and lacking economies of scale.

Source: FAO.

Box II.2
"Connected services" and their contribution to industrial transformation

International supply chains rely on four services sectors—financial services, information and communication technologies (ICT), transport and logistics, and business and professional services—for their functioning. Together with digital technologies, these services connect businesses within their supply chains.

These service sectors have also become major sources of employment creation, exports, foreign direct investment (FDI), and innovation. Through linkages to other sectors, their presence also enhances the competitiveness of firms in other sectors. For example, in regions with high-quality connected services, 44 per cent of all companies are engaged in export, compared with 19 per cent of firms where such services are weaker. Seizing their full potential depends on reforming trade, investment and competition policies, combined with training to upgrade worker and firm competencies and technology adoption.

Source: ITC, based on ITC. 2022. SME Competitiveness Outlook 2022: Connected Services, Competitive Businesses. Geneva.

transformations of production processes. As countries seek to decarbonize the economy, create decent jobs and address deep-rooted inequalities emanating from the productive sphere, policymakers are again looking to industrial policies to tackle these challenges.[17] The SDGs are giving structural transformation a desired direction: Such transformation has to be underpinned by economic growth that not only can be sustained over time by building the required technological and other capabilities, but that is also inclusive, creates decent jobs, is environmentally sustainable and supports rapid decarbonization.[18]

Sustainable and inclusive industrialization is a core element of the Addis Ababa Action Agenda and the 2030 Agenda. The importance of industrial development is recognized in the Addis Agenda, where countries commit to "invest in promoting inclusive and sustainable industrial development to effectively address major challenges such as growth and jobs, resources and energy efficiency, pollution and climate change, knowledge-sharing, innovation and social inclusion."[19] The 2030 Agenda "reintroduced the notion of development as a process of change in the productive structure of an economy", which had been a less prominent aspect of the Millennium Development Goals.[20] In regard to SDG 9, countries commit to "build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation". At the current pace of progress the world will not achieve SDG9, with developing economies facing significant challenges (see box 3).

Box II.3
Progress on SDG 9

The world is lagging behind in achieving industry-related SDG 9 targets. While there is tangible progress in some countries, particularly developed countries, there are stark regional and country-level differences. Several large, middle-income countries have achieved substantial progress, while LDCs in Africa record a clear regression (figure 1). Key data gaps also remain.

Figure II.1
Year-on-year growth rates of manufacturing output by country group

Albania	Negative	Germany	Substantial	New Zealand	Fair
Algeria	Negative	Ghana	Insignificant	Niger	Negative
Angola	Negative	Greece	Fair	Nigeria	Insignificant
Azerbaijan	Negative	Guatemala	Fair	Norway	Fair
Argentina	Fair	Haiti	Negative	Oman	Insignificant
Australia	Fair	Honduras	Insignificant	Pakistan	Insignificant
Austria	Substantial	China, Hong Kong SAR	Negative	Panama	Negative
Bahrain	Fair	Hungary	Substantial	Paraguay	Fair
Bangladesh	Insignificant	Iceland	Fair	Peru	Negative
Armenia	Insignificant	India	Insignificant	Philippines	Fair
Belgium	Substantial	Indonesia	Fair	Poland	Substantial
Bolivia (Plurinational State of)	Insignificant	Iran (Islamic Republic of)	Fair	Portugal	Fair
Bosnia and Herzegovina	Insignificant	Iraq	Negative	Qatar	Fair
Botswana	Negative	Ireland	Substantial	Romania	Substantial
Brazil	Fair	Israel	Substantial	Russian Federation	Fair
Brunei Darussalam	Insignificant	Italy	Substantial	Saudi Arabia	Fair
Bulgaria	Fair	Côte d'Ivoire	Insignificant	Senegal	Insignificant
Myanmar	Insignificant	Jamaica	Insignificant	Serbia	Fair
Belarus	Substantial	Japan	Substantial	Singapore	Substantial
Cambodia	Negative	Jordan	Fair	Slovakia	Substantial
Cameroon	Negative	Kazakhstan	Insignificant	Slovenia	Substantial
Canada	Fair	Kenya	Negative	South Africa	Insignificant
Sri Lanka	Insignificant	Republic of Korea	Substantial	Spain	Substantial
Chile	Fair	Kuwait	Insignificant	Suriname	Insignificant
China	Substantial	Kyrgyzstan	Negative	Sweden	Substantial
China, Taiwan Province of	Substantial	Lao People's Democratic Republic	Negative	Switzerland	Substantial
Colombia	Insignificant	Lebanon	Insignificant	Syrian Arab Republic	Negative
Congo	Negative	Latvia	Fair	Tajikistan	Negative
Costa Rica	Fair	Libya	Negative	Thailand	Substantial
Croatia	Fair	Lithuania	Substantial	Trinidad and Tobago	Fair

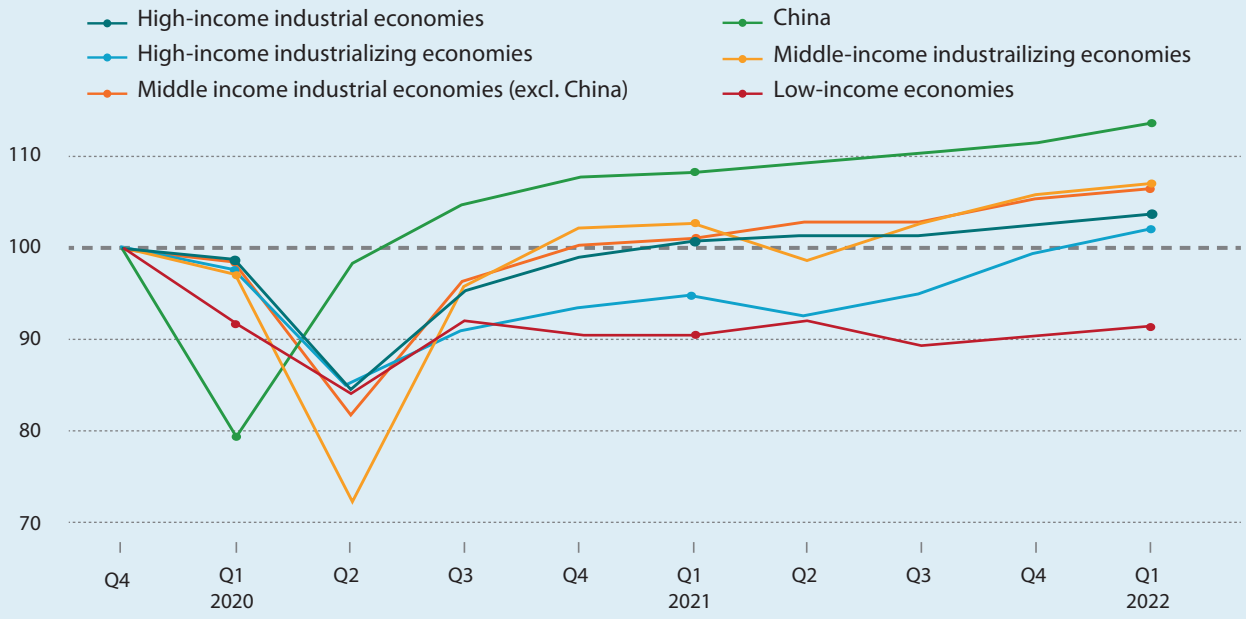
Substantial
Fair
Insignificant
Negative

Cuba		Luxembourg		United Arab Emirates	
Cyprus		North Macedonia		Tunisia	
Czechia		Malaysia		Turkey	
Denmark		Malta		Ukraine	
Ecuador		Mauritius		United Kingdom	
Egypt		Mexico		United Republic of Tanzania	
El Salvador		Mongolia		United States of America	
Eritrea		Republic of Moldova		Uruguay	
Estonia		Montenegro		Uzbekistan	
Ethiopia		Morocco		Venezuela (Bolivarian Republic of)	
Finland		Mozambique		Viet Nam	
France		Namibia		Yemen	
Gabon		Nepal		Zambia	
Georgia		Netherlands		Zimbabwe	

Source: UNIDO elaboration.
Note: The scores in the figure are based on the index proposed by Kynčlová et. al (2020) and refers to the SDG 9 targets 9.2.1a, 9.2.1b, 9.2.2, 9.4.1 and 9.b.1.

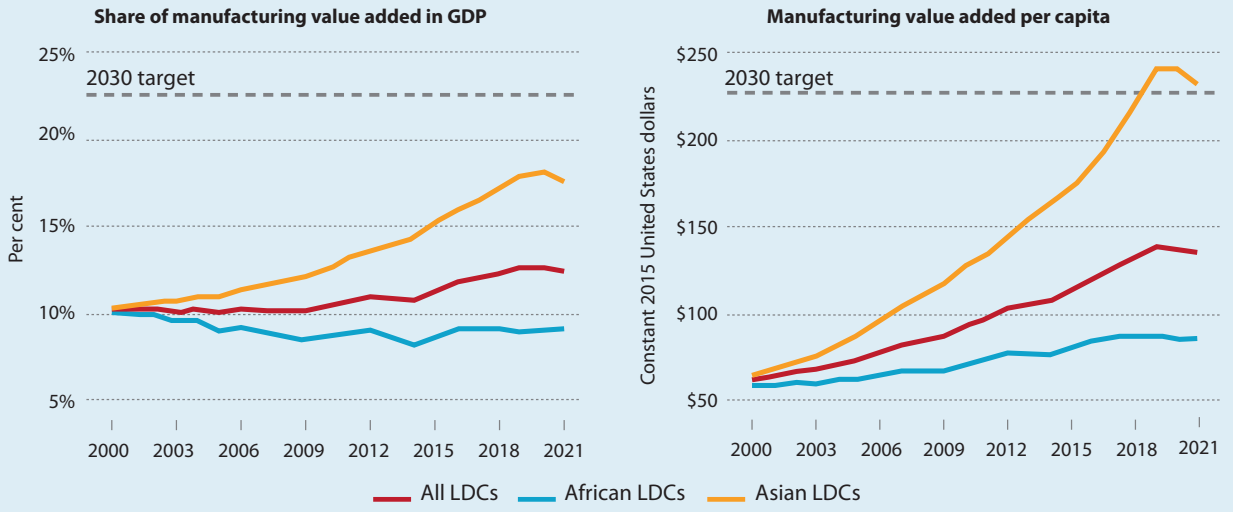
The pandemic and uneven recovery have had a strong negative impact on SDG 9 achievement. Recovery from the COVID-19 pandemic has been incomplete and unequal, including in manufacturing employment. While firms and households in high-income countries benefited from substantial policy support, manufacturing in LDCs stagnated due to limited support measures coupled with subdued and volatile global demand and tighter domestic conditions (see the *2022 Financing for Sustainable Development Report*). While manufacturing output in most country groups had returned to pre-pandemic levels by the end of 2021, this was not the case for LDCs and other low-income economies (figure 2). SDG 9 targets such as 9.2 (industry share in output and employment) are in jeopardy, particularly for African LDCs (figure 3), which have mostly stagnated over the last 20 years.

Figure II.2
Year-on-year growth rates of manufacturing output by country group
Index (Q4 2019=100)



Sources: UNIDO International Yearbook of Industrial Statistics 2022.

Figure II.3
Prospects of least developed countries achieving SDG target 9.2 by 2030



Sources: UNIDO International Yearbook of Industrial Statistics 2022.

a Kynčlová, Petra, et al. 2020. Composite index as a measure on achieving Sustainable Development Goal 9 (SDG-9) industry-related targets: The SDG-9 index. Applied Energy 265.

Industrialization and structural transformation must be managed to contribute to progress across the SDGs and ensure that progress is inclusive and sustainable. Industrialization impacts economic growth as well as socioeconomic and environmental objectives (see figure 4). The specific links between structural transformation and other SDGs have played out differently in different historic and country contexts. They are contingent on policy choices, hence the critical importance of pursuing sustainable and inclusive industrial policies (see box 4 for some examples of interlinkages).

Figure II.4
Contribution of sustainable industrialization to the SDGs

Sources: UNIDO.[21]

Box II.4
Sustainable industrialization and the SDGs—some examples

SDG 1—poverty eradication, and SDG 10, reducing inequality: Greater (formal) employment opportunities and higher wages paid in manufacturing jobs can support the eradication of poverty, help to build a middle class and reduce inequalities. At the same time, the interactions between structural transformation and inequality are complex—Kuznets' famous proposition was that the shift of labour from agriculture to industry would initially increase inequality, only for it to fall over time (the Kuznets curve). Empirically, country experiences have been heterogeneous, with some countries managing benign transitions that combine structural transformation with stable or falling inequality, and others struggling with challenging trade-offs.[a] This suggests a strong role for policy to shape transformation pathways.

SDG 2—ending hunger: Strengthening rural-urban linkages, which connect agriculture and the food system to the manufacturing and service sectors, supports further increases in agricultural productivity and that of rural activities, and facilitates the generation of marketable surpluses, the diversification of production patterns and livelihoods, and better access to public services and infrastructure in rural areas.[b] In countries that have substantially reduced rural poverty, inclusive rural transformations additionally created income-generating opportunities in the rural non-farm sector, e.g. in rural services and small-scale manufacturing. Agro-industries and agro-processing, which create jobs in rural areas, are a promising source of employment but require public efforts to address working conditions and lack of social protection in small-scale informal firms.[c]

SDGs 12, 13, 14 and 15—impacts on the environment: Industrial development can be both the source of, and contribute to resolving, environmental challenges. Historically, industrialization has been a main contributor to global greenhouse gas emissions and other environmental damages even as emission intensity typically decreases as countries industrialize. Appropriate policy and regulatory frameworks are needed to mitigate and reduce the environmental impacts of manufacturing industries, for example to ensure the efficient use of resources and responsible management of waste and pollutants (SDG 12), and to support the transition towards more environmentally sustainable production models and decarbonization in manufacturing. At the same time, manufacturing plays a key role in innovation and the efficient production of environmental products, such as wind turbines, solar panels, insulation materials for buildings and electric cars.

SDG 5—gender equality: Structural transformation and industrialization have interacted with gender equality in complex ways. For example, it was often the lower wages of female workers that enabled labour-intensive, export-led industrialization strategies, and women have often been excluded from "good jobs" as economies and sectors upgrade.[d] These inequalities persist: Women represent less than 40 per cent of employment in manufacturing; within manufacturing, they are overrepresented in sectors with lower profit margins, low technology intensity and low wages, such as the food, garment, textiles and leather sectors.[e] The majority of new jobs generated in the transition to low carbon and circular economies will also be created in sectors that are currently male dominated. Hence, for women to equally benefit from the transition to green economies and industries, specific measures to reduce gender inequalities are needed; in turn, greater gender equality can support structural transformations through both positive impacts on aggregate demand and supply-side impacts on the labour force.[f]

a Alisjahbana, Armida, et al. 2022. *The Developer's Dilemma: Structural Transformation, Inequality Dynamics, and Inclusive Growth*. Oxford University Press.

b Timmer, Peter. 2014. Managing Structural Transformation: A Political Economy Approach. WIDER Annual Lecture 18.

c Willkinson, John and Rudi Rocha. 2009. Agro-Industry Trends, Patterns and Development Impacts. Agro-industries for development.

d Tejani, Sheba and David Kucera. 2021. Defeminization, Structural Transformation and Technological Upgrading in Manufacturing. Development and Change 52 (3).

e United Nations Industrial Development Organization. 2020. Industrial Development Report 2020. Industrializing in the Digital Age. Vienna.

f Seguino, Stephanie. 2020. Industrial Policy and Gender Inclusivity. Oqubay, Arkebe, et al. (ed.) The Oxford Handbook of Industrial Policy.

2.3 Sustainable development and the industrial policy revival

In recent years, industrialization has re-emerged as a key priority for policymakers. An analysis of national policies recorded in the Global Trade Alert initiative found that industrial policy measures more than doubled between 2009 and 2019, and that by 2019, nearly half of all policies recorded in the database could be classified as industrial policies, up from only 20 per cent in 2009. There are several reasons behind this surge:

- Industrial policies have been resurgent since the 2008 world financial and economic crisis, in response to an **increase in inequality and the decline of decent jobs** tied to the decline in manufacturing sectors in some countries. One prominent example are policies targeting productive development and **job creation** in underperforming regions (place-based policies). The localized effects of green transitions have also increased interest in regional and local development policies;
- To accelerate the **development and deployment of low-carbon technologies** and the energy transition, many countries have also adopted "green industrial policies". Such policies are extremely common in both developed and developing countries—almost 170 countries have targets for the deployment of renewable energies and around 100 countries use tax incentives, public investment and/or tendering procedures to achieve these targets.[22] Many countries go further and use green industrial policies to support domestic production through various forms of incentives, with a view to creating additional local economy benefits such as job creation and domestic innovation;
- With recent **inflation driven in part by supply-side shocks** such as the disruption of global supply chains and labour shortages (see chapter I), there has also been a recognition that industrial policies can play a positive role in addressing macroeconomic challenges;
- The COVID-19 pandemic revealed **vulnerabilities in medical supply chains**. Countries with domestic manufacturing capabilities proved

more resilient thanks to the ability to produce essential goods critical to the pandemic response domestically.[23] This has rekindled debates around reshoring. Vulnerabilities in food supply chains, particularly food processing and distribution, contributed to rising food prices, especially in urban centres;

- **Rising geopolitical tensions** are providing an additional geostrategic impetus to "avoiding external dependencies", particularly in sectors that are deemed strategically important, such as semiconductors, other high-tech sectors and energy.[24] This has also raised concerns over fragmentation and the risk of technological decoupling and potential impacts on economic efficiency and innovation.

What all these efforts have in common is a focus on building domestic productive capacities to respond to economic, social, environmental and national security concerns, and a willingness to expand the economic policy toolkit to support such structural change.[25]

While both developed and developing countries have been using industrial policies, their use is far more prevalent in developed countries. Four out of the five countries with the largest number of industrial policies are developed countries.[26] For example, the European Union's Green New Deal prominently includes an industrial strategy to support the digital and green transitions of European industry. Climate, health, resilience and national security considerations have led to an industrial policy revival in the United States, with the CHIPS and Science Act allocating over $50 billion to support domestic manufacturing capacity in semiconductors, and the Inflation Reduction Act committing around $370 billion to support investments in clean energy and climate mitigation. It includes tax incentives for clean electricity and energy investments, with extra credits for use of domestically manufactured components; for clean vehicles made in North America; and for domestic clean energy manufacturing of solar panels, turbines or batteries.

2.4 A changing and challenging global environment

The new generation of industrial policies has to respond to a changing and challenging global environment. The rise of global value chains (GVCs), rapid technological change and digitalization, the impacts of financial globalization and changes to global rules have made industrial transformation more challenging in recent decades. This has coincided with the geographic concentration of manufacturing activities in a few large countries and so-called "premature deindustrialization" in many developing countries.

- **Manufacturing has been less effective as a "development escalator".** As economies grow and per capita income rises, the share of labour employed in manufacturing tends to first rise and then fall. Since the 1980s, this turning point has arrived at ever lower levels of per capita income.[27] With workers moving from agriculture to services such as trade and hospitality rather than manufacturing or modern services, productivity growth has declined, with working conditions characterized by widespread informality;[28]
- **The rise in GVCs has created opportunities for firms in developing countries to participate in global production networks, but has also made it more challenging to upgrade to higher value-added activities and build productive linkages to domestic firms.** Since the 1950s, large firms have taken advantage of lower costs in other geographical regions through cross-border supply chains. The intensity increased markedly in the 1990s, when lead firms increasingly organized production in GVCs. Their impact on developing countries' industrialization prospects has been ambiguous: GVCs have enabled countries to attract investment based on their labour cost advantages and have opened up opportunities for firms even in the absence of locally available inputs or other complementary factors. GVCs also enable learning and transfer of tacit knowledge through the interactions between lead firms and suppliers.[29] Overall, GVCs can contribute to boosting growth, creating jobs, and reducing poverty, if supported by enabling industrial policies.[30] However, GVCs also limit opportunities for "upgrading", that is, entering higher value-adding activities within a value chain, with lead firms retaining the most profitable tasks;[31]
- **Technological changes and digitalization have "raised the bar" for developing countries and may limit employment creation opportunities.** Advances in ICT were a precondition for rapid globalization in the 20th century. Today, the emergence and diffusion of advanced digital production technologies is creating new opportunities for developing countries, for example in the export of services; but it is also threatening to undermine traditional development pathways. First, production of new technologies is still very much concentrated in a few leading economies (see chapter III.G).[32] Second, automation enabled by digital technologies has undermined job creation in some industries: As more tasks become automated, labour accounts for a smaller share of production costs. Third, advanced production technologies also raise the bar for competitiveness: demands on the quality of infrastructure, logistics and connectivity, as well as educational and skills requirements, will rise, making it more difficult for countries without appropriate infrastructure or capacities to compete;[33]
- **Financial liberalization and globalization have had the unintended effect of limiting access to credit for some firms.** The policy mix of successful "late industrializers" typically included "interventionist" financing policies: channelling resources to selected firms through the publicly controlled banking system combined with "financial repression", which kept interest rates low to support high investment rates; regulations on external financing and capital flows; and competitive exchange rates.[34] The current context is very different, with financial markets more liberalized, financial flows intermediated more commonly by markets, and a smaller role for state and development banks. While the growth of financial inclusion has brought financial services to a much greater proportion of the population, bank lending, especially to micro-, small- and medium-sized enterprises (MSMEs), is still hindered by the limited information that banks have on borrowers and other impediments (see chapter III.B). Financial globalization context has also put developing countries in a very different macroeconomic as more large corporations, such as commodity exporters, are able to borrow from markets, including in dollars or euros—sometimes creating currency mis-matches and making them vulnerable to global financial cycles.[35] In addition, in more financialized economies, financing for real economic activities is sometimes at the expense of high yielding and highly leveraged financial investments;
- **Changes in global rules have limited the policy space of developing countries.** Global rules related to financing, trade, investment

and technology aim to strike a balance between providing countries with sufficient policy space to address societal concerns and avoiding the negative spillovers of such policies on other countries. Since the mid-1990s, global, regional and bilateral trade and investment rules have limited (though usually not entirely ruled out) the use of several commonly used industrial policy tools, including tariffs, quantitative restrictions on imports and exports, subsidies, and performance or domestic content requirements (see chapter III.D).[36]

3. What will it take? Industrial and financing policies for sustainable industrial transformation

Sustainable industrial transformation requires scaled up, coordinated and "targeted" public and private investments. Sustainable transformations require large-scale public investments in sustainable infrastructure and other public goods, and the fiscal space to maintain such investments. They require significant investments by the private sector in innovation, energy transition and other areas, and access to finance on the right terms for firms to fund these investments. Public actions are needed to enable and incentivize private investments that are fully aligned with economic, social and environmental objectives. Both public and private actors need to build up relevant capabilities and step up their cooperation.

Sustainable industrial and financing policies, both national actions and international support, are therefore key to facilitate such transformations. The sustainable industrial policy toolbox is large, as it can be defined to include any policies directed at changing the structure of the domestic economy in support of strategic goals such as climate action and the SDGs. The remainder of the chapter will discuss how national policies and international actions can facilitate sustainable industrial transformation, with a particular focus on financing policies and actions covered in the Addis Agenda.

3.1 The role and purpose of sustainable industrial policies

Sustainable industrial policies aim to provide targeted support to firms (e.g. for learning) in priority sectors and create an enabling environment, while ensuring that social and environmental goals are supported and concerns are fully taken into account. As discussed in section 2 above, the objective of this new generation of industrial policies is not only to spur sustained economic growth and build the necessary capabilities in the domestic private sector to innovate and enhance productivity, but also to "shape" growth, ensuring that it creates decent jobs and provides opportunities for all and is environmentally sustainable. Such transformations are unlikely to unfold, and firms are unlikely to invest sufficiently in desired activities (such as innovation or green technologies), without public policy and action.

Sustainable industrial policies aim to overcome several distinct but related challenges that stand in the way of sustainable structural transformation. For individual firms, whether or not to make an investment that has public policy benefits is a business decision—the risks that inevitably come with a new venture may be too high compared to the expected returns, and returns may not be competitive with alternative investment opportunities. But the decision to forego the investment may be due to a number of underlying reasons, including high risks, low returns and other bottlenecks. While challenges will always be country-specific, understanding which of them are most "binding" (that is, are the biggest hurdles to investment) is critical to formulate an effective policy response. Such obstacles can be categorized into four overlapping, broad areas:

- Challenges internal to the firm—namely, a lack of capabilities to be competitive in dynamic or desirable (e.g. green, employment-creating) activities;
- Challenges external to the firm—such as poor infrastructure or macroeconomic instability (lack of an enabling environment);
- Externalities both negative (pollution or carbon emissions) or positive (positive spillovers from a firm's R&D or training efforts on the rest of the economy)—which mean that the firm's incentives are not well aligned with the public good, unless corrected by policies; and
- Coordination challenges, when investments will only be profitable if other public or private investments take place in parallel—this includes investment in project-specific infrastructure (such as transport or digital), relevant business services or other inputs that have to be procured locally. Coordination is a central challenge for sustainable transformations that have a "direction", where the public sector often has to lead in creating investment opportunities and coordinating public and private resources around a vision.

To support the overall vision for the economy and address coordination challenges, policies and instruments are typically brought together in a strategy that creates policy certainty and guides public and private investment and action (see box II.5 for details).

3.2 Strategic approaches

Countries need to develop coherent strategies to align the actions and incentives of all actors with public policy objectives. Sustainable structural transformations depend on the buy-in and coordinated actions of many stakeholders—within government and across ministries, between public and private actors, and over time.[37] To this end, countries need a clear direction for policymakers, firms and investors, typically spelled out in an industrial development strategy that brings together different actors, instruments, policies and tools in a coordinated manner.[38] Such strategies can be part of and/or should be closely linked to a country's national sustainable development strategy, with integrated national financing frameworks a useful vehicle to align financing policies with structural transformation objectives.

Strategies need to be context-specific and countries should have strong ownership over the industrial policy formulation process. Strategies need to respond to key country-specific challenges, binding constraints and opportunities, which can be identified through a national assessment process. Based on these assessments, countries can spell out prioritized and sequenced actions and initiatives. While external parties, such as foreign experts and consultancy firms, may be able to provide useful advice, they cannot replace the country's own discovery process of studying challenges and opportunities, consultations with stakeholders, inter-ministerial coordination and creating consensus. Unless there is a

Box II.5
Sustainable industrial policies—a conceptual perspective

Firms often lack technological, organizational and managerial capabilities to be competitive in dynamic sectors.[a] Acquiring the capabilities to successfully compete in technologically dynamic sectors and activities is costly and risky and depends to a significant extent on "learning by doing". Technologies cannot just be acquired; tacit knowledge has to be absorbed and adapted to specific local contexts.[b] Firms initially usually operate at a loss in activities new to the economy (if not to the world), with profitability highly uncertain, which typically also makes it difficult to secure financing. When the capability gap for international competitors is large, this can lead to so-called "learning traps", with firms instead pursuing investment opportunities in sectors that require lower capabilities, such as real estate or import trade; but these often have lower productivity growth and fewer positive spillovers and impacts on the rest of the economy.[c] In response, sustainable industrial policies can **support and incentivize firm learning and innovation** by providing firms with concessional financing during the learning period, subsidizing other production inputs, supporting demand, and managing competition and other means (see section 3.3).

Firms are also faced with significant **external constraints**. Workers in a country may not have the required skills, particularly in activities new to the local economy; required infrastructure may be poorly developed or absent; the cost of finance is typically high, reflecting not only high risks associated with new activities but also underdeveloped financial markets or macroeconomic instability; and access to other critical inputs may be constrained, e.g. because of underdeveloped local markets and/or lack of foreign exchange. The **creation of a broader enabling environment and provision of relevant public goods** is thus an important part of this effort. This includes investments in infrastructure, education and health, stable and growth-oriented macro-policies and exchange rates, measures to improve access to finance, and good governance more broadly. Because private investments typically have impacts on the broader economy and society that are not reflected in market prices or returns to investment for an individual firm, an enabling environment for sustainable industrial transformation also requires corrective policy intervention to **"internalize" the externalities.** Such externalities can be positive (the spillover effects from investments in R&D, the "cost discovery" that pioneering firms achieve in their domestic economy, paving the way for imitators), or negative (most prominently, pollution), and corrected through subsidies for investment in R&D, taxes (e.g. carbon taxes) or regulations (section 3.4).

There are also often major **coordination failures** that inhibit investment in sustainable transformation. Often, projects require several simultaneous, large-scale investments—e.g. in targeted infrastructure necessary for a specific project, industry-specific services or provision of other inputs. Individual investors would not proceed with investments without having some assurance that complementary upstream or downstream investments will also be made, or relevant infrastructure built and public institutions set up.[d] Coordination challenges can also be exacerbated by powerful incumbent actors (e.g. fossil fuel interests, commodity exporters), who may fiercely resist policy changes they perceive to be against their interest, which could undermine policy coherence and coordinated actions.[e]

Coordination challenges abound in the context of SDG-aligned transformations, climate action and other **"mission-oriented" policy** efforts. For example, to achieve rapid decarbonization, many parallel public and private investments and interventions are needed that go far beyond "fixing market failures", but also aim for technological, behavioural and systemic changes in land use, transportation, housing, energy, industry, and so forth. Such efforts require public leadership (to help develop new technologies, build relevant institutions and create entirely new markets and investment opportunities).[f] To tackle such challenges, countries need an overall vision, e.g. an SDG-aligned transformation plan linked to long-term objectives (such as carbon reduction targets), which can then guide all public policies and investments and provide policy certainty for firms and investors (see section 3.2).

a Khan, Mushtaq. 2019. Knowledge, skills and organizational capabilities for structural transformation. Structural Change and Economic Dynamics, Vol 48.
b Cimoli, Mario, et al. 2020. Industrial Policies, Patterns of Learning, and Development. Oqubay et al. (ed.) The Oxford Hanbook of Industrial Policies. Oxford University Press, Oxford.
c Whitfield, Lindsay and Nimrod Zalk. 2020. Phases and Uneven Experiences in African Industrial Policy. Oqubay et al. (ed.) The Oxford Hanbook of Industrial Policies. Oxford University Press, Oxford.
d Rodrik, Dani. 2004. Industrial Policy for the Twenty-First Century. Harvard KSG Faculty Research Working Paper
e Andreoni, Antonio and Ha-Joon Chang. 2019. The Political Economy of Industrial Policy: Structural Interdependencies, Policy Alignment and Conflict Management. Structural change and economic dynamics Vol. 48.
f Mazzucato, Mariana, et al. 2020. Challenge-Driven Innovation Policy: Towards a New Policy Toolkit. Journal of Industry, Competition and Trade Vol. 20 (2).

high level of ownership over and commitment to industrial policy formulation, implementation tends to be ineffective and inconsistent across various policies and over time.

Countries need to take into account existing and potentially competing interests of powerful actors. Structural transformations tend to create winners and losers. Overcoming the resistance of powerful groups (for example fossil fuel interests) is critical, as is the provision of support and retraining to workers who may be left behind. In developed country contexts, the capacity to plan and then coherently implement transformation policies against the resistance of particular interests may be the fundamental constraint to achieving sustainable and inclusive transformations—more binding than the availability of financial and technical resources, which exist in abundance but are often not aligned with these objectives.[39] Building broad coalitions for change—including through transparent consultations with stakeholders as noted above—can provide political support. Identifying and giving political voice to the "winners" can help to balance resistance from vested interests and should be considered in the sequencing of initiatives.[40] Policymakers can also identify "champions" of reform efforts, for example by assigning responsibility to a high-level political figure.[41] Social protection systems that enable workers and households to better manage the risks of such transitions and provide a safety net can also build support.

Countries also need to carefully manage public sector relations with the private sector. In cases of successful industrial policies, public actors were able to build close working relationships with private partners (which help governments to elicit relevant information), but at the same time retain the capacity to implement policies that investors advocate against and to withdraw support when necessary.[42] Getting policy design right is critical but challenging; policies should have success criteria linked to broader development objectives, clear accountability lines and political leadership at a high level. Policies should also be transparent and support to firms linked to performance requirements and containing sunset clauses.[43]

Strategies likely need to make use of a more expansive toolkit in the context of sustainable transformations. Because sustainable industrial transformations are "directional", these actions and initiatives are likely to be more expansive than the traditional industrial policy toolkit. For example, rather than being technology-neutral, strategies should aim for the rapid uptake of low-carbon technologies. To this end, supply-side policies to push down the costs of production for desirable technologies (e.g. subsidies) and targeted public investments (including in basic research) can be complemented by the use of technological standards and regulatory frameworks that reduce technology uncertainty, as well as by demand-side measures that create further economic incentives for technology adoption.

3.3 Support to build capabilities of firms

Sustainable industrial policies can support and incentivize firms to build technological and organizational capabilities to be competitive in dynamic sectors. To overcome so-called learning traps, policymakers can use a wide range of tools—providing firms with concessional financing during the learning period, subsidizing other production inputs, supporting demand, managing competition, or other means. The intention is to make initial investments more attractive to support "learning by doing" in priority sectors and activities, with the ultimate objective of creating competitive firms. Since learning is costly for firms and difficult for the state to monitor, firms may be tempted to invest their energies in keeping subsidies and protections in place rather than in achieving competitiveness. To avoid this fate, successful industrial policy interventions often combine "carrots" with "sticks", for example in the form of performance requirements that are tied to policy targets or sunset clauses.[44]

Fiscal instruments

Fiscal instruments such as subsidies and tax incentives remain the most prevalent sustainable industrial policy instruments. Fiscal instruments can be used to incentivize and/or share the costs of risky or uncertain investments or reduce the cost of initial investment (i.e. tax credits or rebates for capital expenditure). Their effectiveness depends on sound design and how well they are embedded in a broader strategic approach, as discussed above.[45] Investment incentives are often tied to performance requirements. In addition to R&D, training or minimum investment requirements, incentives can focus on job creation. To strengthen the development of productive linkages between foreign investors and domestic firms, matchmaking activities and other support for local suppliers can be used.

In the pursuit of "directed" transformation, demand-side instruments such as strategic public procurement have become more prominent. Public procurement is a significant part of public expenditure and is increasingly used to achieve sustainable development objectives, such as promoting innovation, sustainability and social inclusiveness, for example through green procurement (see chapter III.A). Strategic public procurement can encourage the development, innovation, and ultimately the competitiveness, of domestic firms, for example through outcome targets aimed at creating a level playing field for local MSMEs, combined with capacity support, or through "innovation procurement".

Fiscal instruments can be costly and require careful policy design. Tax incentives both to enterprises and households have been estimated to amount to over 5 per cent of GDP in foregone tax revenues in some developing countries.[46] This underlines the importance of effective planning and policy design, including: analysis of the total cost of the fiscal tool vs. the long-run benefit, along with a comparison of the cost of other tools to achieve the same goal; tying support to performance; and careful targeting of interventions to support priority activities. In addition, international support can play an important role in countries that are fiscally constrained, including, for example, for interventions that target global priorities such as decarbonization (see chapter III.C).

Financial instruments

Public development banks can provide long-term funding for structural transformation. Public development banks can fill both knowledge and resource gaps.[47] They have been a major provider of long-term and affordable finance for firms (see the *2022 Financing for Sustainable Development Report*). Many also provide funding for new, smaller or innovative firms, and for priority sectors or activities linked to broader transformation objectives. In addition, they can also develop specific expertise and market intelligence relevant to policymakers, such as for the initial assessment of binding constraints and market failures (see also box II.6).

Regulatory measures can also contribute to increasing the availability of financing for desired activities. In addition to direct lending by public development banks, countries have also "directed" or incentivized commercial lending through risk-sharing mechanisms and regulatory requirements. For example, loan guarantee programmes are widely used to support green technology development. On the regulatory side, quantitative tools were common historically, including ceilings or quotas for bank lending to targeted sectors; they have largely been replaced by price-based measures. These include, for example, the green refinancing tools of central banks, which incentivize credit provision for environmentally friendly activities through cheaper refinancing.[48] Central banks have also tied terms of access to lending windows to minimum shares of SME loans in banks' lending portfolios.[49]

Blended finance from international partners can also support sustainable industrial transformation when it is in line with national strategies and plans. The international community has looked to blended finance instruments to bring down the financing costs of private investments in developing countries by sharing risks. Blended finance uses public funds to crowd in private finance, with a view to unlocking investment that the private sector would not have done on its own in support of national development priorities. Blended finance makes use of instruments

similar to those in the industrial policy toolbox, such as guarantees, concessional loans or equity investments, and it predominantly targets sectors that are core to structural transformation, particularly clean energy and industry (see chapter III.C). Blended finance, mostly provided by international development finance institutions, could thus be an important complement to national efforts, particularly if the projects and sectors supported align with the national strategies of recipient countries. Embedding blended finance in national industrial policy efforts, for example through an integrated national financing framework, could enhance such alignment and recipient country ownership of blended finance approaches, which has been a challenge to date. "Just energy transition partnerships" could be a promising model of coordinated support by multiple development finance institutions and other partners for country-led transitions (see box III.C.4).

Other measures to strengthen the capabilities of firms

There is a wide range of additional measures that policymakers can consider to strengthen the capabilities of firms. These include training activities for technological and entrepreneurial skills and support for producer associations or public technology intermediaries, such as public research centres. Public research centres, which are often underfunded, can provide technology and national quality infrastructure and also work directly with firms through consultancy, training and market opportunity analysis.[50]

Supporting upgrading and linkages has also been the main objective of strategic trade policy. Tariffs to protect "infant industries" from international competition, and local content requirements were once the main instruments of industrial policy to allow firms time to develop "learning by doing". With deeper trade integration, such policies have to be nimbler—targeting upgrading in specific activities and value chains rather than entire sectors and using import protections more prudently, based on a sound understanding of targeted value chains and lead firms' strategies.[51]

3.4 Creating an enabling environment for sustainable industrial transformations

To address the external constraints faced by firms, policymakers need to invest in the creation of an enabling environment for sustainable industrial transformation. This includes creating a general enabling business environment incorporating: regulatory frameworks (including competition policies); investments in infrastructure, education and health; credit constraint solutions; stable and growth-oriented macro-policies and competitive exchange rates; and good governance more broadly (see chapter III.B). These are sometimes referred to as "horizontal" policies because they benefit most firms and are not explicitly targeted at specific sectors. In practice, countries do not have sufficient resources for all infrastructure investments and are "doomed to choose" in how they prioritize public investments. Even such horizontal policies should therefore be coordinated with industrial policies and related structural transformation objectives.[52] They also have to "internalize" pervasive externalities that hamper sustainable transformations—fiscal systems have to set the right incentives for private actors, e.g. through carbon taxes, the removal of fossil fuel subsidies or of biases in the tax code against labour, along with accompanying regulatory measures (such as energy efficiency standards).

Box II.6
A spotlight on development banks—mobilizing resources, balancing risks and rewards and eliciting information

The history of public development banks is closely linked to industrialization. The first "prototype" development finance institutions were set up in 19th century continental Europe to fund rapid industrialization; the setting up of such institutions peaked in the decades after World War Two, with efforts from developing countries across the world to achieve rapid structural transformation.[a]

Most development banks seek to maximize sustainable development impact (depending on their specific mandates), while also maintaining financial viability. Throughout their history, development banks have provided four functions undersupplied by markets. They have: i) extended credit countercyclically, stabilizing financial markets in times of crisis; ii) funded strategic developmental investments, e.g. in public goods such as infrastructure; iii) provided financing for innovations to SMEs that cannot fund such investments from their balance sheets; and iv) funded major public policy plans ("missions"), such as energy transitions in Germany or China.[b] Development banks generally take into account factors beyond financial viability in their lending decisions. For example, the Korean Small and Medium Business Corporation (SBC) assesses the technological and business viability and growth potential of SMEs in its corporate evaluations.[c]

Public development banks that are able to retain equity in their investments (or design equity-like instruments) are particularly well placed to finance investments in innovation because of their ability to diversify across investments. Public banks (or public or semi-public venture capital funds) can capture the upside of successful investments, which can help to compensate for losses to be expected in a risky and highly uncertain innovation investment portfolio.[d]

Development banks can also help to identify market failures through their routine activities of loan-screening and lending and can use this information to provide inputs for the design of other structural transformation policy instruments. This orchestrating role can accompany their more traditional function in addressing financial constraints and crowding in a diverse set of financing actors.[e]

a Xu, Jiajun, et al. 2020. Mapping 500+ Development Banks. The Institute of New Structural Economics at Peking University. Beijing.
b Mazzucato, Mariana and Penna, Caetano. 2018. National Development Banks, and Mission-Oriented Finance for Innovation. The future of national development banks.
c Chang, Jung-moh. 2015. The Republic of Korea's Financial Support for Small and Medium-Sized Enterprises and Venture Businesses. Development and Modern Industrial Policy in Practice. Edward Elgar Publishing.
d Griffith-Jones, Stephany, et al. 2023. Matching Risks with Instruments in Development Banks. Development and Public Banks.
e Fernández-Arias, Eduardo, et al. 2020. Smart Development Banks. Journal of Industry, Competition and Trade Vol. 20 (2).

Efforts to strengthen the overall enabling environment for business and investment should be aligned with sustainable transformation objectives. Investment and trade facilitation are key aspects of industrial policy packages. Investment facilitation measures typically focus on transparency and better information provision for potential investors, addressing administrative hurdles for investors, or a more predictable and stable policy environment.[53] Trade facilitation aims at more efficient border procedures and improvements in trade-related infrastructure. Such measures should be supportive of sustainable transformation objectives, for example by taking priority sectors and activities into account in the sequencing of policy actions. Countries have increasingly used these principally horizontal tools to prioritize facilitation efforts in specific sectors or to promote technological upgrading.

Public investments in sustainable infrastructure, education and R&D are key for overcoming supply-side bottlenecks. In most countries that have achieved sustained, rapid industrial growth, public investment played a crucial role in crowding in private-sector investment.[54] This includes investments in sustainable infrastructure, education, skills development and training, and public R&D. The public sector is typically a main and direct funder of investment in basic and applied research, and public investment in this area has also facilitated the pursuit of public policy goals—mission-oriented institutions have made critical contributions to technological breakthroughs, for example in renewable energy; labour-augmenting technologies could be made a priority in publicly funded research[55] (see chapter III.G).

Public expenditure should also ensure that transformations are inclusive and leave no one behind. For poor and vulnerable households, industrial transformations may be associated with an increased risk of marginalization rather than growing economic opportunities, unless such households receive support. Education and training programmes should aim to not only build relevant skills for new sectors and occupations, but also focus in particular on those workers who may lose jobs in the context of transformation processes. They should also strive to remove barriers to education for women, migrants and other marginalized groups. Social protection systems can also play a key role in this regard by providing a safety net for those who may have lost income opportunities while also enabling people to take up potentially risky opportunities in new sectors and activities. This calls for the strengthening of social protection systems as well as targeted efforts—for example for rural populations and rural-urban migrants (see box II.7).[56]

Financial sector development and macroeconomic policies

Lack of access to long-term finance is a key constraint facing firms, particularly when investing in innovation and/or new sectors and activities critical to sustainable transformation. Many investments that are critical to the growth of enterprises, such as purchases of fixed assets or equipment, are long-term investments, hence the need for long-term financing.[57] Accessing financing on such terms can be a major challenge. The financial sector tends to have short-term incentives (see box II.8); lenders are reluctant to provide credit to borrowers about whom they have very limited information (SMEs, investments in innovation); and neither commercial banks nor capital markets are likely to provide sufficient financing for investing in entirely new markets or for specific "mission-oriented" projects due to the lengthy time horizons involved, the public benefit which generally cannot be monetized and intrinsic uncertainty about future returns.[58]

These challenges are exacerbated in developing countries, resulting in more firms either excluded from external financing or else subject to expensive borrowing terms. Even countries with deep financial markets face critical gaps, for example in funding for investment in basic R&D or in SME lending. But this is exacerbated in developing countries with underdeveloped financial markets. For example, small manufacturing enterprises could play an important role in sustainable industrial transformation, but in sub-Saharan Africa and LDCs only 15.7 per cent and 17 per cent of these enterprises, respectively, have access to financial services, well below the global average (SDG indicator 9.3.2) (see chapter III.B). This divide is also visible in the terms of finance that are available. Banks provide significantly more long-term lending in developed countries than they do in low-income countries and LDCs.[59] And financing is more expensive: Economy-wide costs of capital have been estimated to be up to seven times higher in developing countries than in the United States and Europe.[60] In addition to specific and targeted instruments to

Box II.7
Structural transformation needs to be just and inclusive—Global Accelerator on Jobs and Social Protection

Structural transformation is inherently a process of creative destruction that needs to be carefully managed to ensure inclusive outcomes and a just transition. This entails coherent policy action that creates new, productive jobs and expands social protection coverage for those who risk being left behind in the transition. To be actionable, these policies will need to be financed, through national efforts and international development cooperation. The institutional structures at the country level will also need to be strengthened to manage the transition in partnership with international and multilateral institutions.

These pillars of policy coherence, financing frameworks and multilateral cooperation constitute the core of the Global Accelerator on Jobs and Social Protection for Just Transitions launched by the United Nations Secretary-General in 2021. The ambition of the Global Accelerator is to bring together member States, international financial institutions, social partners, civil society and the private sector to help countries create 400 million decent jobs, including in the green, digital and care economies, and to extend social protection coverage to the 4 billion people currently excluded, many of whom are migrant workers in the informal economy.

The Global Accelerator provides a vehicle for putting plans into action by supporting the design, implementation and monitoring of integrated national strategies and policies that combine investments in decent jobs, sustainable development and universal social protection. At the initial stage, the Global Accelerator will be implemented in a selected number of pathfinder countries.

Source: ILO.

Box II.8
Has "financialization" undermined real capital formation and industrial transformation?

Financialization is typically defined as the increasing size and influence of the financial sector relative to the economy, as well as an increase in financial transactions such as speculative investments by corporations, governments and households.[a] Financialization is most visible in developed countries, with the picture varying widely in the developing world. But its impacts are felt globally through financial globalization: changes from bank-based finance towards liquid capital markets, which allows for greater leverage; the significant growth of international capital markets stimulated by the growth of institutional investors; and the liberalization of cross-border financial flows.

There is increasing evidence that above a certain threshold, financial sector growth increases inequality and financial instability[b] and, critical for sustainable transformations, lowers real capital formation and growth prospects,

- Financialization may negatively impact the **productive investment** and operational activities of companies. For example, instead of reinvesting in business development, companies have used share buybacks to boost stock prices, with buybacks exceeding capital expenditure in some years in the United States.[c] In developing countries, greater external vulnerability and macroeconomic volatility provide motives for more liquid holdings by firms.
- In addition, in countries with liquid capital markets, elevated returns on highly leveraged financial assets can divert productive investment to financial investment. In periods of low interest rates, long-term investment is backed by short-term borrowing (or leverage), which increases the return for every dollar invested as long as market prices rise. As a result, even so-called long-term investors such as pension funds may limit purchases of illiquid assets (such as infrastructure) since they want to be able to sell assets when interest rates rise and the leveraged position is no longer profitable.
- There is evidence that increased short-termism reduces **investments in innovation and R&D,** with firms engaging in less radical innovation and achieving fewer breakthroughs.[d]
- Boom and bust cycles of capital flows can also undermine the development of high value-adding, export-oriented activities because of unfavourable **exchange rate dynamics.** Manufacturing employment, manufacturing's share of GDP and economic complexity contract during periods of strong net capital (non-FDI) inflows, particularly in developing countries.[e]
- In developing countries, this is exacerbated by volatile capital flows, making the financial system overall more prone to short-termism and less likely to finance long-term investment.[f] In countries vulnerable to capital flight, and especially in conditions of tight global liquidity, even public development banks may find it hard to provide patient capital domestically.

Source: UN/DESA, based on Bonizzi, Kaltenbrunner, Powell (2023)[69] and the 2019 FSDR.

a Mader, Philip, et al. 2020. Financialization: An Introduction. London: Routledge.
b Furceri, Davide, et al. 2019. The Aggregate and Distributional Effects of Financial Globalization: Evidence from Macro and Sectoral Data. Journal of Money, Credit and Banking Vol. 51.
c Davis, Leila. 2018. Financialization and Investment: A Survey of the Empirical Literature. Analytical Political Economy.
d Dosi, Giovanni, et al. 2016. Financial Regimes, Financialization Patterns and Industrial Performances: Preliminary Remarks. Revue d'économie industrielle, vol. 154.
e Botta, Alberto, et al. 2021. Productive Development, Structural Change and International Capital Flows: The Role of Macroprudential Policy for Transformative Post-Covid Recovery. DA-COVID 19 Project paper 13/21. ECLAC.
f Bortz, Pablo and Annina Kaltenbrunner. 2018. The International Dimension of Financialization in Developing and Emerging Economies. Development and Change, vol. 49 (2)

bring down the cost of capital discussed above, financial sector development and macro-policies can help to address these challenges.

Bringing down the cost of capital requires domestic and international action. Higher costs of capital in part reflect the greater (perceived and actual) risks that investors are exposed to in developing countries, including political risks, poor contract enforcement, limited information about clients' creditworthiness, and macroeconomic risk. Tackling these underlying challenges—improving the domestic enabling environment—is an important aspect of financial sector development and expanding the availability of long-term finance. But domestic factors alone cannot fully explain risk premia. As discussed in the *2022 Financing for Sustainable Development Report*, developing countries have historically faced high sovereign credit spreads (interest costs above US Treasuries) for their borrowing in international markets, even after adjusting for defaults and risks (as measured by volatility). With sovereign rates usually providing a "floor" for firms' borrowing costs, this translates into higher costs of capital for corporate and project financing (see also the *2022 Financing for Sustainable Development Report*, chapter III.B). As global factors have become increasingly important in determining capital flows and their volatility, policy actions are needed at the global level (see box II.8 and chapter III.E); they also provide an additional rationale for scaling up international concessional lending (see chapter III.C).

The macroeconomic environment is a major determinant of the cost of capital and of prospects for sustainable transformation; macroeconomic policies should thus be aligned with and supportive of transformation objectives. Investment-centred macro-policy frameworks geared towards facilitating sustainable industrial transformations should target both stability and the balanced expansion of supply capacities and aggregate demand.[61] Such approaches can build on recent developments. In response to growing systemic risks, including from the pandemic and climate change, there has been a greater appreciation of macroeconomic policy frameworks that support inclusive growth and productive employment, address inequality and climate change, and are better prepared for shocks (see the *2022 Financing for Sustainable Development Report*). Fiscal and monetary policy toolkits are being expanded accordingly, with countries considering additional fiscal measures for climate investments and incorporating climate risks into monetary policies.

The specific elements of such a pro-structural transformation macroeconomic policy framework will vary depending on country circumstances. Policies will differ depending on country needs and circumstances and shifting political, economic, environmental and social realities. Box II.9 presents some options.

Box II.9
Macro-policy options to support sustainable industrial transformations

Periods of sustained growth in developing countries have often coincided with undervalued real **exchange rates**, which facilitated reallocation of resources towards dynamic tradable sectors.[a] Non-competitive exchange rates are a challenge in natural resource-rich developing countries in particular;[b] dependence on resource exports undermines prospects for diversification, which in turn exacerbates vulnerability to terms of trade shocks and macroeconomic volatility.[c] To achieve a stable and competitive real exchange rate, countries can try to smooth boom and bust cycles in external financing, for example through macroprudential policies. Macroprudential measures help to dampen both domestic financial cycles and capital flow volatility. "Pre-emptive" and countercyclical measures aimed at dampening excessive portfolio inflows during boom times can lower the risk of sudden stops during crises and reduce exchange rate volatility[d] (see chapter III.F). Commodity exporters can also manage commodity price fluctuations, e.g. through stabilization funds.[e]

Managing exchange rate volatility has become more challenging in an era of financial globalization. The build-up of foreign exchange reserves can provide a degree of self-insurance for countries in addition to supporting competitive exchange rates, but it is costly and may be insufficient to reduce vulnerability to the volatility of international capital flows.[f] This underlines the **importance of international action**: further strengthening the international financial safety net, the monetary policy coordination of major central banks and their greater consideration of macroprudential financial sector regulations (see chapter III.F).

Where possible, **fiscal policies** should support scaling up public investments and the provision of public goods, e.g. by targeting minimum levels of productive public investments. Investments should be sequenced to prioritize high sustainable development impact and the alleviation of critical supply constraints.[g] This could include, for example, employment-intensive public investment in resilient infrastructure. To be fiscally sustainable, such expansion of public investment must go hand in hand with increasing the effectiveness of public investment, the mobilization of additional domestic resources (see chapter III.A) and, for many developing countries, concessional financing.

Fiscal policies should also overcome "procyclicality traps". Countercyclical fiscal policy should work in tandem with monetary policy to both stabilize economic activity and support growth and sustainable development in the longer run. For example, unemployment insurance and social protection are countercyclical measures because they support demand during economic slowdowns. Capital expenditure tends to be particularly procyclical, rising during booms and falling during economic slowdowns when investment is most needed. Protecting green and other productive investments through business cycles is key to enhancing supply capacity over time; through pre-approved public investments, capital spending could be expanded during downturns.

Many **central banks** already have dual policy mandates, such as price stability *and* full employment, and set policy rates accordingly. The United States Federal Reserve System has had such a mandate since 1978. The mandate of the Reserve Bank of New Zealand includes "maximum sustainable employment" in addition to price stability. While not explicit mandates, several central banks in developing countries, including in Asia (for example Bangladesh, Bhutan, Fiji, Pakistan, the Philippines and Thailand), in addition to their primary mandate, also identify the broader objectives of supporting inclusive economic growth, financial inclusion or development in their vision or mission statements.[h] In developing country contexts, inflation is commonly driven by external shocks and other cost factors rather than by excessive demand. Policy responses may, for example, need to include supply-side measures.[i]

More recently, many central banks have taken steps to **"green" their monetary policies**, in recognition of the risks that climate change poses for price and financial market stability. This has led to explicit consideration of climate risks in monetary policies, e.g. by taking into account carbon intensity in asset purchasing programmes, or through collateral rules that incentivize green lending by providing cheaper refinancing to banks for such lending (see also chapter III.F).

a Rodrik, Dani. 2008. The Real Exchange Rate and Economic Growth. Brookings papers on economic activity.
b Reda, Cherif, et al. 2016. Breaking the Oil Spell. IMF.
c Guzman, Martin, et al. 2018. Real Exchange Rate Policies for Economic Development. World Development Vol. 110.
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3.5 Additional enablers—state capabilities, international enabling environments and international support

State capabilities

Effectively supporting industrial transformations requires specific technical, operational and political capabilities in the public sector. Developing relevant skills in public agencies is an important feature of structural transformation strategies. In so-called "developmental states", bureaucracies were often organized around a central leading entity, led by an elite corps of civil servants with significant autonomy, such as the Ministry of International Trade and Industry in Japan.[62] In lower-capability settings, industrial policy coordination and delivery has often succeeded by creating "pockets of effectiveness". These could be agencies outside the regular bureaucracy that are able to attract highly skilled personnel, such as development banks, or delivery units under the direct authority of high-level officials. Such delivery units can follow up on implementation, prioritize, assess, flag bottlenecks and solve problems in dialogue with all relevant actors.

State capability constraints can be partially addressed through smart policy design. All countries already have a variety of financing policies in place, along with areas of expertise and competence in existing institutions. Interventions should be designed to build on these existing capacities. Industrial transformation policies can also be designed to mitigate against existing constraints. One way to do this is to reduce the "failure dimensionality" of policies, by keeping the number of components of a specific initiative or policy package low and/or by focusing on key binding constraints such as managerial abilities or access to long-term financing.[63] Phased approaches can also be considered, especially in countries with more limited managerial skills.

Countries should aim to develop "dynamic capabilities"—to continue to learn from initial efforts. To achieve sustainable transformations and shape and create new markets, policymakers will "discover" policy solutions, learn from failures and allow for policy experimentation, evaluation and revision.[64] This is a challenge in both developed and developing countries, as public institutions are typically not set up to experiment. But some institutions may be better placed than others and could be prioritized for capacity support: Public development banks, public-private consultation bodies or entities specifically set up to engage with the private sector may have more flexible rules and more capacity to experiment, learn and adapt.[65]

International enabling environments

Countries need to preserve existing and, in some areas, regain lost policy space to pursue sustainable industrial policies. Trade, investment and technology policies typically have spillovers across national borders. The international rules and agreements that aim to balance national interests and negative spillovers have come under scrutiny in response to changes in trade relations and technologies and new challenges such as climate change and the SDGs.

Trade-related industrial policies can have both positive (for example diffusion of innovation across borders) and negative spillovers (for example firms relocating production in response to trade barriers or subsidies). International trade agreements and rules aim to balance the right to pursue domestic policy objectives with avoidance of negative spillovers. This is embodied in World Trade Organization principles such as non-discrimination, transparency and market-based resource allocation, combined with policy space for addressing societal concerns (see also chapter III.D). At the same time, emerging global issues such as tackling climate change and achieving the SDGs, the rise of global value chains, different roles of the state in economies, as well as recent announcements of new subsidy programmes in some major economies covering key sectors such as electric vehicles, renewable energy and semiconductors, have led to calls to increase multilateral dialogue and potentially adapt current multilateral rules, for example in regard to subsidies. The strong agglomeration effects observed in a digitalized economy have provided additional weight to these calls. While these questions should be urgently addressed at the global level to ensure level playing fields, it is also important to note that many policies remain permissible even under current rules.[66]

International investment agreements (IIAs) are treaties to regulate conditions for cross-border investments and grant foreign investors certain protections and benefits, with a view to attracting investment. While they typically do not target specific sectors or activities, IIAs can support broader industrial policy efforts, for example by improving the investment policy framework. At the same time, they can restrict the use of typical industrial policy instruments such as performance requirements or subsidies. In recognition of the need for countries to use their regulatory space to pursue the SDGs and climate action, reform of the investment treaty regime is accelerating and newly concluded IIAs feature many reformed provisions, including provisions on gender equality, human rights and climate action (see also chapter III.D). The latter in particular has increased the urgency of IIA reform, with investors using agreements to challenge climate action and green industrial policy measures.[67]

Intellectual property rights (IPR) increase returns on, and thus should provide economic incentives for, investment in innovation but they can constrain diffusion of technologies.[68] As most developing countries import technologies, they would tend to benefit less from strong IPR regimes that increase costs for follow-on inventors. Their legislation should thus make full use of the flexibilities in international agreements to allow reverse engineering and technological diffusion (see chapter III.G). At the international level, cooperative IPR arrangements, such as patent pooling, cross-licensing and technology-standards agreements, have been used in the health sector and should also be considered for low-carbon and other SDG-critical technologies that can be considered global public goods. Global research collaboration efforts should be strengthened (see also chapter III.G).

International support

Developing countries, and LDCs in particular, will also require capacity development and financial support. To build public sector capabilities, capacity development efforts should be further scaled up. Knowledge exchange and South-South cooperation could play an important role, with the training of functionaries and their observation of practices in other countries a potentially cost-effective measure. Financial support is also critical—long-term concessional financing for developing

countries to carry out public investments in sustainable transformations must be scaled up significantly as recognized, for example, in the SDG Stimulus put forward by the Secretary-General. Multilateral development banks are uniquely positioned to facilitate such investments with their ability to provide long-term financing with interest costs significantly below commercial rates; financing provided on such terms is particularly suitable for investments in sustainable transformations, which can stimulate growth, generate employment and ultimately enhance countries' fiscal capacity and improve debt sustainability. Blended finance can also play a productive role in this regard when tied to national priorities and plans (see box II.10 for the role of migrants and chapter III.C).

Box II.10
The role of migrants and the diaspora

Developing countries could also look to tap the financial, economic and social capital of its migrants and diaspora. The diaspora can establish new businesses and pass on capabilities they acquired in the countries of their workplace through skills mentoring and knowledge transfer, allowing countries to establish a foothold in new, productive industries and establishing trade links between countries of origin and destination. Policymakers can facilitate diaspora investment through the provision of specialized accounts, dedicated support by inward investment agencies, as well as an enabling policy and business environment.

Source: IOM.

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