Catching Up in a Time of Constraints

Industrial Policy Under World Trade Organization Rules, Free Trade Agreements and Bilateral Investment Agreements

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Core Labour Standards Plus

Linking trade and decent work in global supply chains

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Abbreviations

GATS	General Agreement on Trade in Services
GATT	General Agreement on Tariffs and Trade
IMF	International Monetary Fund
TRIMS	Trade-related investment measures
TRIPS	Trade-Related Aspects of Intellectual Property Rights
SCM	Subsidies and countervailing measures
WTO	World Trade Organization

Foreword

“ For developing countries, the promises of the Washington Consensus—more growth and catching-up through deregulation and liberalization—have not materialized.”

This bitter statement is the basis of this study, which discusses two seemingly opposing trends of the past few decades.

On the one hand, industrial policies have experienced a solid revival over the past years: From China’s US$1 trillion Belt and Road Initiative to government investments in domestic tech hubs in Pakistan to automotive industry clustering in Indonesia, industrial policy is alive and well. These government interventions, industry protection and targeted subsidies and taxes aim to let national industries grow and increase their global competitiveness. And though not all industrial policies are successful, countries like China and the Republic of Korea used them to successfully catch up with industrialized countries.

On the other hand, we see the resurgence of free trade agreements: After years of negotiations, the European Union’s trade deals with Vietnam, Singapore and Japan are finalized, trade agreements with Australia and New Zealand are on their way and the forthcoming Regional Comprehensive Economic Partnership (RCEP) will shape the future of trade in the Asia-Pacific region. These free trade agreements are often linked to investment protection measures and provisions that restrict national industrial polices. So, while the demand for industrial policies grows, their design becomes more and more constrained.

To tout the potential for industrial policies in the context of World Trade Organization rules, free trade agreements and bilateral investment treaties, this study examines the policy space in which policy-makers can act. It also demonstrates how certain provisions in free trade agreements and investment protection treaties can curtail the range of options of future political choices.

We thank the two authors, Hansjörg Herr and Petra Dünhaupt, for this comprehensive publication that identifies industrial policy space under a diverse set of constraints. Their methodical and pragmatic work is also the bedrock of the Friedrich-Ebert-Stiftung Asia regional project series Core Labour Standards Plus. The project seeks to understand the need for industrial policy in combination with social upgrading and to develop a modern industrial policy in the framework of the present globalisation structures. It first analysed the negative effects of unmitigated free trade in four country studies before following with a proposed Model Labour Chapter for European Union trade agreements that, if included in future trade deals, would make trade work for workers and not primarily for employers and multinational corporations. In this series, Friedrich-Ebert-Stiftung, in collaboration with numerous researchers throughout the Asia-Pacific region and the two authors of this study, have compiled comparative country studies on social and economic upgrading through industrial policy. The comparisons among the different industrial policy approaches in Asia portray alternatives for improving workers’ working and living conditions while supporting sustainable inclusive economic development.

This latest study braces the two parts of the Core Labour Standards Plus project and evaluates how beneficial industrial policies can perform in a world increasingly linked by binding free trade agreements. It seeks to bridge the divide between the politically desirable industrial policy and what is legally possible under binding treaties.

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Introduction

Two opposing economic-policy trends have been gaining ground for some years now:

Industrial policy is experiencing a revival among academics, practitioners and politicians worldwide (Chang and Andreoni, 2016; Naqvi, Henow and Chang, 2018; Warwick, 2013). After the great recession of 2008–2009, the major industrialized countries, in particular Germany and the United States, revitalized their economies with massive government interventionist programmes. The impressive catching-up development of countries like China today or the Republic of Korea in the past is sparking new interest in industrial policy.

At the same time, a massive number of free trade agreements and bilateral investment treaties have been signed in recent decades that promote liberalization and deregulation and the integration of trade, services and investment worldwide, thus restricting governments' scope.

Needed ecological transformation is putting industrial policy worldwide in the centre of economic debates. For developing countries, the promises of the Washington Consensus—more growth and catching-up through deregulation and liberalization—have not materialized. Thus for developing countries, industrial policy has become a political agenda again.

There are theoretical and empirical arguments for industrial policy. Theoretically, there are two strands of arguments for why industrial policy is needed: The first strand stresses that certain market failures make industrial policy necessary. This is the explanation for why all countries in the world practise industrial policy. The second strand makes clear that the market mechanism reproduces underdevelopment, at least in the sense of a failure of less developed countries to catch up with the development level of developed countries. After World War II until today, empirically, only a small number of countries have been able to catch up. Extreme poverty has been substantially reduced, mainly due to development in China and India; but there is no general trend, for example, of a shrinking gap of real gross domestic product per capita between less developed countries and developed countries. And the successful countries catching up, for example, early Japan, the Republic of Korea, Singapore or China, all used comprehensive industrial policy (Herr, 2018).

Rodrik (2008, p. 1) postulated of industrial policy: "Don't ask why, ask how." To answer the "how" question, it must be clear what is understood by "industrial policy". Warwick (2013, p. 16) defined it as "any type of intervention or government policy that attempts to improve the business environment or to alter the structure of economic activity toward sectors, technologies or tasks that are expected to offer better prospects for economic growth or societal welfare than would occur in the absence of such intervention." This definition includes horizontal and vertical industrial policy. Horizontal industrial policy means investing in the general improvement of the education system, infrastructure or research. Vertical industrial policy is needed to support certain regions, sectors or certain tasks in global value chains and to create new comparative advantages (Cimoli, Dosi and Stiglitz, 2009; Chang, 2002). Horizontal industrial policy, in many cases, includes vertical elements, especially in countries with scarce resources. We evaluate the distinction between horizontal and vertical industrial policy as not helpful.

The aim of this study is to explore the possibilities of an active industrial policy in today's environment of free trade and investment agreements. In the second section the argument begins with the theoretical necessity of industrial policy as different types of market failures lead to underdevelopment. The section also presents instruments of industrial policy that can correct these failures. The third section entails examination of the options available to countries under multilateral agreements and under the umbrella of the World Trade Organization (WTO). The fourth section looks at the possibilities under bilateral investment treaties, before the fifth section discusses the restrictions imposed by free trade agreements. The last section summarizes the main results of the paper.

2 Need for and potential instruments of industrial policy

2.1 General arguments for industrial policy

Markets fulfill important allocative functions in many areas, set positive incentives and increase efficiency and technological development. However, when developing realistic economic and social policies, it has to be accepted that, in the echo of Polanyi (1944), markets especially fail in three areas: in the field of labour, in the field of financial markets and in the field of nature. Industrial policy has a role to remedy these failures. On a more concrete level, industrial policy is needed for all countries for the following reasons.[1]

First, industrial policy is needed to solve the ecological crisis. Unfortunately, the strong and even violent capitalist productivity machine has a defect. It does not consider ecological problems because they do not belong to (or are only an indirect and distorted part of) the incentive system of firms developing new technologies and guiding the consumption of households and production of firms. Negative external effects are widespread and fundamental in the field of pollution and the exploitation of natural resources and biodiversity. Without heavy government intervention in technological development, the way to produce and consume will undermine the basis of life (Mikefeld, 2011).

Second, there are information externalities. New products and new technologies or innovations involve a process of discovery. Investment in new productions is risky and can fail, making it difficult for private firms and their financiers to invest. Major innovations are especially risky. In some cases, governments or societies must decide in which direction technologies should develop. Making matters worse, if a firm is successful, follower firms can imitate the successful firm, thus reducing the rent-seeking of the innovative firm (Rodrik, 2004).

Third, there are coordination externalities. In almost all basic technological development for changing the way of production and consumption in a substantial way, a bundle of policies and investments is needed that goes far beyond a single firm. A new product or a new technology may need new infrastructure (from transportation to new communication technologies) that cannot be handled by a single firm. Specific skills of employees producing the new product and firms producing complementary goods or inputs may be needed for new investment (Rodrik, 2004).

Fourth, in most industrial productions, internal and external economies of scale (and scope) exist (Krugman, 1981). Internal economies of scale are based on many factors, such as indivisibilities (even small planes need a pilot); research departments may have synergies and become more productive if they are bigger; producing cars with robots makes sense only if a huge quantity can be produced; etc. For these reasons in most industries, big firms produce more efficiently and can deliver goods and services cheaper than small ones. But internal economies of scale lead to oligopolistic or monopolistic markets. Incumbent firms are protected from newcomers, and latecomers have no chance to enter the market.

External economies of scale are based on synergies, network effects and positive external effects that are created by economic clusters. Economic clusters have a diversified structure of workforce and of firms. Formal or informal institutions lead to cooperation among firms, research institutes, universities and financial institutions. For example, employers' associations organize joint research projects among firms or joint marketing activities. Personal relationships and trust among employers, trade union leaders and government officials add to development. Development banks deliver long-term financing with low interest rates to innovative firms. Or the government provides specific infrastructure and focused education and training. The innovative power of clusters, in many cases combining small and big firms, is greater than for a single firm. Even if firms remain small and if internal firm-based economies of scale do not exist, the country that developed by chance the first external economies of scale will accumulate advantages that make it extremely difficult for latecomers to develop.

1 For a literature overview, see Herr, 2019.

Famous clusters extend from Silicon Valley to the Italian leather fashion enclave to German machine building.

2.2 The need for industrial policy in the Global South

Friedrich List (1885, p. xxvi) was one of the first authors arguing that free trade would "kick away the ladder" of development for less developed countries:

> "I saw clearly that free competition between two nations […] can only be mutually beneficial in case both of them are in a nearly equal position of industrial development, and that any nation which owing to misfortunes is behind others [...] must first of all strengthen her own individual powers, in order to fit herself to enter into free competition with more advanced nations."

More than a century later, Chang (2002) discovered how historically impossible it is to find any important country in the Global North catching up without heavy protection and other instruments of industrial policy, be it England, the United States, Germany or France.

Which effects does free trade impose on the catching-up process?[2]

First, the theoretical approach of comparative advantages that are used by mainstream models and that explain a substantial part of international trade come to the conclusion that technologically advanced countries concentrate on the production of high-tech, high-skill, capital-intensive products (always including services) and less developed countries dwell on low-tech, low-skill, labour-intensive products. This is the outcome of market forces. The models show that consumers in the short-term gain from such a distribution of labour. But the problem is that the technologically demanding production and the learning and skill effects are all concentrated in the Global North, which becomes, by this distribution of labour, more and more productive and powerful in relation to less developed countries.[3] Some less developed countries have absolute advantages, for example, in the extraction and export of natural resources that other countries do not have. However, theoretical empirical investigations show that this, in almost all cases, constrains development and does not lead to industrial development.

Second, comparative advantage models usually assume constant returns to scale. The world looks different as soon as we have internal and external economies of scale. Krugman (1981) crafted a model in which developed countries that are first movers by chance realize external economies of scale. The accumulation of advantages in developed countries based on such economies of scale leads to uneven development; differences in living standards between developed and developing countries will become increasingly bigger as developed countries take over high value-adding high-tech productions and increase their innovative power. The clusters created become technology and innovation leaders, and the countries in the Global South are stuck with low value-adding, low-tech productions. The market mechanism thus leads to bigger differences between these two groups of countries.

If external economies are combined with internal economies of scale, the situation becomes even worse, which is almost always the case. Based on internal economies of scale, big multinational companies emerge that act in oligopolistic or monopolistic markets, which allows them to follow rent-seeking strategies that create disadvantages for consumers worldwide and for the countries in the Global South overall. It seems there has never been such a concentration of power by multinational corporations and such an extent of rent-seeking strategies as what transpires today.

Third, since the 1990s, international trade has been organized to a large extent within global value chains. In these chains, the production of a product is cut into different tasks, and the tasks are allocated worldwide according to the profit-maximization strategy of the lead firm. Theoretically, the geographical dispersion of tasks

2 See Herr and Dünhaupt, 2019 also for a literature overview.

3 Mainstream models also show that movement towards more free trade produces losers in all trading countries, such as unskilled workers in developed countries, if there is no compensation by income transfers, etc.

depends on comparative advantages and economies of scale. According to traditional trade theory, developing countries have a comparative advantage in low-tech and low-skill tasks, while developed countries have a comparative advantage in high-tech and high-skill tasks (Feenstra, 2010). For example, in garment production, countries like Bangladesh or Vietnam have taken over the low-tech, low-skill tasks, such as trimming and cutting, whereas high-value activities like design, research for new material, branding or logistics, have been co-opted by lead firms and big intermediate traders. In the framework of comparative advantages, developing countries now produce not only the low-tech, low-skill, labour-intensive goods in traditional trade; they also produce the low-tech, low-skill, labour-intensive tasks in the production of *all* goods and lose any type of production that is technologically ambitious from a skill and technology perspective.

Fourth, global value chains also have positive effects. They support industrialization in the Global South because it is easier to produce a simple task in a fabrication stage than to establish a whole industry. The extent of industrialization in many developing countries is now substantially higher than sceptics expected, such as Prebisch (1950) and Singer (1949). In global value chains, lead firms that organize and manage global value chains need suppliers with high-quality production. To support that need, certain technologies and skills may be transferred to the suppliers.

There is great hope that foreign direct investment especially will do the trick and lead to catching up. However, the positive effects are limited and integration into global value chains does not automatically lead to economic development (World Bank, 2016). To realize higher value added, companies must try to initiate economic upgrading. Humphrey and Schmitz (2002) distinguished between four types of economic upgrading in global value chains: They distinguished between product upgrading (produce a task with a higher quality), process upgrading (use a better technology to produce a task), functional upgrading (take over higher value-creating functions in a global value chain) and inter-sectoral upgrading (start production in related or new industries). It is likely that a lead firm will transfer technology and skills for product and process upgrading to its subsidiaries or even subcontractors in the Global South. Even the newest technology may be transferred to produce simple tasks. But a lead firm has no interest in having a supplier take over the high value-adding functions in a global value chain because these belong to the core competence of the lead firm.

In addition, conditions for research, developing new products, design, branding, etc. are usually much better in the home country of a lead firm that is integrated in a highly efficient economic cluster. Analysis of incentives for different actors in global value chains has led to the conclusion that functional and intersectoral upgrading are unlikely (Humphrey and Schmitz, 2002). Amsden (2001) found that transnational companies invest virtually nothing in local research and development in the Global South. The successful catching-up of Asian countries and the lack of substantial catching-up in Latin America can, to a large extent, be explained by the different ownership structures. In Latin America, large manufacturing firms are dominated by foreign ownership, whereas in Asia, governments have supported domestically owned firms with the aim of creating national champions (Shapiro, 2007). In a recent study, Raj-Reichert (2019) found that the Malaysian electronics industry's excessive reliance on foreign direct investment, particularly contract manufacturers, was to blame for its inability to upgrade and that this substantially contributed to the middle-income trap Malaysia seems to have been in since the early 2000s.

Fifth, foreign direct investment and subcontracting of lead firms may keep suppliers isolated from the rest of the economy. In the extreme, all material inputs are imported, the inputs are processed, and the output is exported, without creating backward and/or forward links with the domestic economy. In this situation, the integration of the country in global value chains produces only small advantages for the whole economy (Hirschman, 1958).

Sixth, in global value chains, typically asymmetric power relationships between lead firms and their suppliers in the Global South exist. Lead firms like big retailers or brands have a demand oligopoly or even monopoly and can push prices for intermediate products to levels that create enormous pressure on prices and push profits of suppliers to a minimum. Suppliers that are under extreme competitive pressure transfer that pressure to workers, who suffer low wages and bad working conditions. Lead firms, following their profit maximizing motive, exploit all kinds of traditional societal structures in the Global South, from caste systems and high levels of hidden unemployment to low levels of labour market and ecological regulations. There is a second way of the so-called "value grabbing". Foreign direct investment firms want to make a profit and also want to transfer those profits from the Global South to the Global North. The profit transfers are recorded in the primary balance of the current account. A highly negative primary income balance heavily burdens the current account of many developing countries. South Africa, for example, has a current account deficit only because of a negative primary income balance. Such profit transfers reduce investment and consumption demand in developing countries and increase inequality in developed countries.

Another final point: Economic upgrading, when defined as higher productivity and increasing innovative power, is the precondition for important elements of social upgrading, such as higher real wages for all workers or shorter working time. But one does not automatically lead to the other. Only under certain conditions does economic upgrading combine with social upgrading. Important for social upgrading is the existence and strength of trade unions and enforced labour laws which limit precarious working conditions and high wage dispersion. A lack of social upgrading becomes a hurdle for economic upgrading. Resent research has made clear that high inequality itself becomes a barrier for development. It reduces aggregate demand, creates negative supply conditions like insufficient expenditure for education or health, and it reduces productivity (Berg and Ostry, 2017).

2.3 Industrial policy instruments

This section discusses the most important instruments for industrial policy. For each case of market failure, the most important instruments are mentioned (table 1).

Table 1. Market failures and industrial policy instruments

Market Failures	Most Important Instruments
General instruments	■ Tax incentives and subsidies ■ Focused public education ■ Selected infrastructure investment
Ecological problems	■ Ecological taxes (for example, a tax on carbon dioxide emissions) and certificate trading ■ Prohibition and orders ■ Public provision of public goods ■ Focused government innovation policy and focused research and emulation ■ Development banks (focused and long-term subsidized credits)
Information failures	■ Roundtables with all stakeholders ■ Support of cooperation among enterprises ■ Long-term-oriented government procurement ■ Long-term selected infrastructure investments ■ State-owned enterprises ■ Development banks (focused and long-term subsidized credits)
Coordination failures	■ Roundtables with all stakeholders ■ Support of cooperation among enterprises ■ Development banks (focused and long-term subsidized credits) ■ Government innovation policy and focused research and emulation ■ State-owned enterprises ■ Cluster policy
External economies of scale	■ Cluster policy ■ All policies mentioned under coordination failures

Internal economies of scale	■ Competition policy ■ Support for national champions ■ State-owned enterprises ■ Development banks (focused and long-term subsidized credits)
Negative effects of international trade according to comparative advantages for developing countries	■ Tariffs and infant industry protection ■ Import quotas and infant industry protection ■ Export taxes, export quotas ■ Development banks (focused and long-term subsidized credits) ■ Government innovation policy and focused research and emulation ■ Cluster policy
Foreign direct investment	■ Integrated foreign direct investment in cluster policy with forward and backward linkages ■ Enforcement of local content ■ Demand transfer of research and certain tasks ■ Demand transfer of skills and training ■ Enforcement of joint ventures ■ Demand certain quota of domestic citizens in workforce, board of directors or other areas ■ Allow foreign direct investment only for some regions ■ Allow foreign direct investment only for certain sectors
Social upgrading	■ Minimum wages ■ Sector-based wage bargaining (and working conditions) ■ Social dialogue ■ Social welfare state ■ Policies to prevent high inequality (tax policy, public transfers, poverty reduction, public goods)
Macroeconomic instruments and demand stimulation	■ Competitive exchange rate ■ Provide long-term financing for low interest rates ■ Long-term oriented public investment ■ Long-term oriented public procurement ■ Policies to prevent high inequality to stimulate demand

General instruments

There are several general instruments that belong to basic government actions and policies that also can be used for industrial policy. Without taxes, governments cannot exist. They have fundamental allocative and distributional effects for any economy and can also be used for industrial policy. Subsidies give financial incentives and/or offer protection. Obviously, taxes and subsidies can be used to sanction or support certain behaviour in the private sector. Public education is one of the basic goods that governments must deliver. Especially in developing countries, public resources are scarce. This means governments must decide what kind of education should have priority, for example, elementary schools, universities or vocational training. Vocational education should be adjusted to the needs of the private sector, and curricula should be developed with all stakeholders. Curricula should not be too narrow and should also include societal dimensions. Education combines economic and social upgrading in an ideal way. Public infrastructure investment is also a basic activity of governments and has direct effect for economic and social development. In the case of infrastructure investment, governments must always be selective. Should a long-distance railway system or public transport in cities be developed or should more motorways be built? Should a street be improved to a certain big factory or region? Where should an industrial park be located? We can see here that it does not make much sense to distinguish between horizontal and vertical industrial policy.

Ecological problems

To change economic behaviour of firms and consumers, emissions (carbon dioxide) taxes or other ecological taxes, including certificate trading of pollution rights, can have an important role. Because certificate trading is more complicated for developing countries, taxes and subsidies seem to be more suitable. Prohibitions (such as preventing the use of certain technologies) and orders (such as enforcing the use of a certain technology) are unavoidable in the field of ecological transformation. The provision of public goods supports ecological transformation, for example, in the field of public transport.

Focused government innovation policy and focused research and emulation are key elements of industrial policy in many areas and also in the field of ecological transformation. Successful innovation policy develops and transfers knowledge to the enterprise sector. In most countries of the Global South, emulation and adaptation are the main tasks. Employers' associations, single firms, research institutes, universities and government agencies must work together to implement or transfer new technologies and skills in the enterprise sector. In the ideal case, all stakeholders of innovation policy, including trade unions, take part in the selection and implementation of innovations. Historically, some governments bought patents and gave licenses to domestic firms. In many cases, innovation policy is connected with the need for financing. This brings in the important role of development banks. The function of development banks is to remedy market failures in financial systems. Developing countries especially suffer from distorted financial markets that do not deliver sufficiently, especially long-term financing for low interest rates. Development banks can take over this function. In addition, development banks can privilege certain sectors. For example, they can support small and medium-sized firms, high value-adding activities or industries that are of special importance for development or ecological transformation.

Information failures

As noted, information failures can have different dimensions. Different agents may have different information levels or even hide information. It may be not clear what kind of vision the government has to transform the economy and developing industries. The level of uncertainty to build up a new industry or take over a new task in a global value chain may be too risky for a single firm. It is obvious that building efficient institutions for information sharing is an important instrument for industrial policy. Also needed are roundtables with all stakeholders that serve to accommodate information exchange and to organize cooperation. To reduce the level of uncertainty, governments in many different ways can "produce" more certainty for the private sector and stimulate investment in new economic activities. Of particular importance are long-term-oriented public investment and long-term-oriented public procurement. Both can support certain domestic sectors or even tasks produced in a sector. They can guarantee a stable and sufficient demand for selected sectors or tasks, and they can help to exploit economies of scale for industries that should be developed. Development banks financing risky projects and risk sharing between the private and public sectors also are important. State-owned enterprises can take a role here. They have the advantage that they do not have to maximize profits, and they can follow a long-term strategy. They have been used for economic upgrading in many successful countries.

Coordination failures

In almost all important economic developments, a single firm or even the private sector alone is not able to upgrade in a certain direction. Many agents in different sectors must work together and coordinate their activities. As with information failures, roundtables with all stakeholders to accommodate the sharing of information and to organize cooperation are needed. In the case of coordination failures, complex government interventions are required for economic development. An ideal industrial policy comprises a package of activities. In many circumstances, it also implies institution building in the private sector. An example is the salmon industry in Chile. It developed from a completely unimportant industry to one of Chile's main export sectors and became a significant contributor to regional development. In doing so, Chile became one the bigger salmon product producers in the world and also developed technologies for the production of other fish species products. In a case study, the United Nations Conference on Trade and Development (2006, p. 1) summarized the success factors as follows: "The close cooperation between government agencies and the salmon producers played a vital role in the growth of the industry, especially in the development of licensing regulations, sanitary standards and supporting research and development activities. Similarly, research and development institutions worked closely with the national fishing agency, the National Commission for Science and Technology and the salmon industry." Such comprehensive interventions by governments and cooperation among different stakeholders are the basic idea of cluster policy.

Cluster policy refers to a coherent package of policies to support existing clusters or create new ones and is closely related to innovation policy. It involves creating backward and forward linkages and links among firms and between firms, employers' organizations, research institutes, universities, government agencies and trade unions. Cluster policy includes, among other things, focused development of skills, implementation of new technologies, specific government infrastructure investment, long-term and cheap financing (especially by development banks), supporting tax policy and subsidies, the opening of export or other demand channels and the compensation of losers. It also includes representation of trade unions, good working conditions and the enforcement of labour laws. Cluster building can take place on different levels: national, sectoral or regional. It also allows decentralized decisions on how cluster policy should be carried out. The parties involved can develop strategies on how to develop a cluster and what type of help is demanded from the government. In clusters, bigger and smaller companies can usually work together. State-owned enterprises can have a positive role in developing clusters.

External economies of scale

External economies of scale imply that many factors in a cluster work together and increase efficiency and the innovative power of a cluster. All instruments discussed under coordination failures also apply here. It is worthwhile to look at the creation of one of the most famous clusters in the world, the Silicon Valley in California, in the United States. The basis of its development was "the simultaneous alignment of the country's political, cultural, and technical elites around the view that Silicon Valley held the key to the future" (Chen, 2020, para 6). In reaction to the Sputnik success of the Soviet Union in 1957, "millions of dollars in government funding flooded technology companies and universities around the country." An outsized portion went to northern California's burgeoning tech industry and to Stanford University and the surrounding area became a hive of government research and development in those years, "as IBM and Lockheed Martin opened local outposts and the first native start-ups hit the ground […] Fairchild Semiconductor's biggest clients for its new silicon chips were NASA, which put them in the Apollo rockets, and the Defence Department, which stuck them in Minuteman nuclear missiles" (Chen, 2020, para 7f).

Internal economies of scale

Internal economies of scale (and scope) imply that only big firms can produce efficiently and that there is a tendency to natural monopolies[4] or oligopolistic markets. Unregulated monopolies exploit the rest of the economy and potentially are lazy to innovate. Oligopolies can lead to similar effects if they create (secretly) cartels, passively follow the price leadership of one firm, compete only in the field of product differentiation, etc. To avoid the negative effects of monopolies and oligopolies, the creation of competition is important. In this sense, competition policy becomes part of industrial policy. In cases of natural monopolies, the creation of competition is difficult, inefficient and not preferable. Examples are public utilities, such as the supply of water, but also railway systems or electricity grids. In such areas, well-managed state-owned enterprises seem the best solution. Economies of scale imply that countries must develop big firms, ideally, national champions that are able to compete with multinational firms on the global level. A successful example is the Chinese electronics and IT company Huawei. Of course, countries must be highly selective when creating national champions, which also depends on the size of the country. Norway, for example, has been concentrating on energy production and developed a world-leading high-tech company, Equinor ASA, in oil and gas extraction, deep-sea drilling and renewable

4 A natural monopoly develops endogenously by market forces.

energy. Equinor ASA is the biggest Norwegian company and belongs to the 50 largest industrial companies in the world. It has government ownership of 67 per cent and is managed by the Norwegian Ministry of Petroleum and Energy, plus nearly 3.3 per cent ownership by the Norwegian national insurance fund (Equinor, 2019). To develop national champions, development banks can help as well as policies to increase demand for the output of the supported firm or industry.

Negative effects of trade according to comparative advantages for developing countries

In the past, including during the first decades after World War II, tariffs and import quotas were the most widespread instruments for infant industry protection. They were used to develop national industries until they were able to compete in the world market. The big advantage of a tariff is that poor countries with a small public budget can use them extensively, and they even help to increase public revenues. Also in the past, relatively high transportation costs led to a protection of domestic industry, similar to tariffs. For countries exporting natural resources, from rare earth to agricultural goods, export taxes are useful to tax rents of natural resource-exporting companies. Export taxes and export quotas can stimulate further processing of natural resources inside the country and in this way lead to functional upgrading in global value chains. Infant industry protection has the purpose to increase productivity and the innovative power of domestic industries. It is obvious that government innovation policy, cluster policy and development banks are central for reaching this target.[5]

Foreign direct investment

Foreign direct investment can be a useful industrial policy instrument. It can be integrated into cluster policy, for example, by searching for a foreign investor that can take over tasks in a global value chains that cannot be managed by domestic firms. Cluster policy should create forward and backward linkages of foreign direct investment. There are several regulations that help to select the positive effects of foreign direct investment for a developing country and avoid the negative ones. The most important ones allow or only joint ventures with domestic companies or in special cases; demand the transfer of research, certain tasks or certain skills; demand a quota of national citizens in the board of directors; or allow foreign direct investment only for some regions and in certain sectors. For example, foreign direct investment in the real estate sector or financial sector can lead to negative effects—it can add to bubbles or create a shortage of credit to the private sector.

Social upgrading

In the field of social upgrading, a high-road strategy with good wages linked to productivity development should be followed. Instruments like sector-based wage bargaining, minimum wages and limitations on wage dispersion stimulate productivity. A high-road strategy implies that firms should not be allowed to compete with wages that are lower than what a competitor pays. For wages, the same should apply as for other inputs, like oil or other intermediate goods: the established and broadly supported law of one price. This forces firms to compete with the quality of goods, improve efficiency and invest in the qualification of employees. Decently paid workers are more productive than workers who feel they are underpaid. The law of one price works like a productivity whip and supports economic development. Sufficiently high minimum wages and sector-based bargaining has the additional positive effect that income inequality does not become too high and consumption demand is stimulated. Other policies that support social upgrading and economic development indirectly are minimal social welfare state and tax policy, public transfers or public goods that prevent high inequality. According to Myrdal (1972), the build-up of welfare states in Western countries after World War II was one of the most profitable

5 During his time in the United States, Friedrich List (1789–1830) was influenced by Alexander Hamilton (1755–1804), who was the first United States Secretary of the Treasury and the main author of the economic policies of George Washington's administration. List was also influenced by German policy. For example, Friedrich the Great (1712–1786) invited the highly skilled Huguenots from France to migrate to Prussia as an industrial policy measure. He also founded state-owned enterprises to support industrial development. In 1763, the Royal Porcelain Factory in Berlin was founded, and remains a state-owned and leading high-tech company in pottery art.

investment of societies, even though the gestation period of this kind of investment is long term.

Macroeconomic instruments and demand stimulation

There are macroeconomic policies that are important for industrial policy; the following highlights the two most important policies.

One is a competitive real exchange rate. Rodrik (2005) argued that sustained real exchange rate depreciation constitutes a very effective industrial policy instrument. The explanation of this is that a real depreciation increases the profitability of the export sector, and this sector is usually the most dynamic one a country wants to support. At the same time, it protects weaker domestic sectors from international competition. This was the paramount insight of Ricardo (1817), who argued that the exchange rate can serve as a general protection of a country from technologically more developed foreign countries. The ideal strategy is to use the exchange rate as general protection and vertical industrial policy in addition as selective support.

The other is sufficient demand creation. Supply-side industrial policy is not effective when there is insufficient demand for a sector or task. In the case of weak demand, economies of scale cannot be exploited. Long-term-oriented government procurement and public investment can fill an important role to create demand for some sectors. The exchange rate also has a role. It should guarantee that countries (especially developing countries) do not realize current account deficits, which reduce aggregate domestic demand. Other important policies to stimulate demand are measures to prevent too-high inequality and to create a financial system that delivers sufficient and cheap credit in domestic currency.

It is of prime importance to have industrial policy not derive from bureaucrats or experts alone in an ivory tower. It is essential for success that it spring forth from an intensive exchange of information and ideas between all parties to industrial policy, including the government, employers' associations and trade unions. It is also important that industrial policy be carried out from a high political level; otherwise, there is the danger that it will be ruined by the infighting among different interest groups and/or regions (Rodrik, 2004).

When we ask "how" industrial policy should be implemented, we are also asking which instruments should be used. Without doubt, the successful countries catching up in the past have useful lessons to offer. But the world has changed. In the past, tariffs, quotas, export subsidies and local content rules for foreign direct investment, to name but a few, were used as instruments for industrial policy. Many of these instruments are no longer allowed under the rules of the WTO, free trade agreements and bilateral investment agreements. This is thus the topic of the next section, which examines which industrial policy instruments listed in table 1 can still be used.

Multilateral agreements

3.1 World Trade Organization

The WTO was established in 1994 and began operations a year later. Before then, the trade in goods was regulated by the General Agreement on Tariffs and Trade (GATT), signed originally by 23 countries in 1947 (expanding to 128 by 1994).[6] The GATT is still a primary agreement now managed by the WTO. However, the WTO oversees multiple agreements that regulate the trade in goods, the trade in services (General Agreement on Trade in Services) and the trade in intellectual property (Trade-Related Aspects of Intellectual Property Rights). Its "overriding purpose is to help trade flow as freely as possible—so long as there are no undesirable side effects—because this is important for economic development and well-being" (WTO, 2019a, p. 1). To guarantee fair and free trade, the WTO maintains a stand against government intervention.

Additionally, the Agreement on Subsidies and Countervailing Measures and the Trade-Related Investment Measures relate to things that affect the trade in goods. Generally, WTO members automatically join all agreements under the WTO umbrella. There are exceptions, however, such as the Agreement on Government Procurement, which only a small number of countries has signed to date (WTO, 2019b).

In addition to the agreements that are designed to guarantee free trade, the WTO provides a forum for resolving disputes between fellow members. The highest decision-making bodies in the WTO are the Ministerial Conference, which usually meets every two years, and the General Council, which meets several times a year. Decisions can be concluded with majority vote, but there is a tradition of consensus (Ehlemann and Ehring, 2005). Presently, the WTO has 164 members representing 98 per cent of world trade (WTO, 2019a).

To ensure fair trade, the agreements are based on principles of non-discrimination. One of the basic principles is that of most-favoured-nation treatment,[7] which provides that a member country is not allowed to discriminate between trade partners. If a special status is granted to one trade partner, the country is required to extend it to all WTO members. Exceptions are preferential treatment of least developed countries (for example, the Everything But Arms scheme of the European Union), regional trade agreements (for example the European Union or the North American Free Trade Agreement (NAFTA) and customs union (for example, the Eurasian Customs Union). A second important principle is the one of national treatment. It requires products to be treated equally within a national border, whether they are imported or locally produced. This principle is also found in the agreements on services and intellectual property rights. It "only applies once a product, service or item of intellectual property has entered the market" (WTO, 2019c).

It is often said that the WTO restricts the space for an active industrial policy and that countries no longer have the same instruments available to them as other countries had in the past and with which they developed successfully (Chang, 2002). The extent to which this assertion is correct is examined in the following sections (on the three core areas of goods, services and intellectual property rights), which also discuss the instruments that are still available as well as regulations concerning public procurement and enforcement mechanisms.

3.2 Trade in goods

Trade in goods is certainly the area that has been regulated at the multilateral level for the longest time (Trasher and Gallagher 2008). Due to its long history, it is not surprising that the rules and regulations for the trade in goods are the most comprehensive and sophisticated.

6 See www.wto.org/english/thewto_e/gattmem_e.htm.

7 Most-favoured-nation status gives a country the best trade terms by its trading partner: It receives the lowest tariffs, the fewest trade barriers and the highest import quotas (or none at all). This means all trade partners who are WTO members must be treated equally.

3.2.1 Tariffs

Each WTO member is required to list its commitments regarding tariffs in its Schedule of Concessions. In this Schedule of Concessions, countries specify tariff ceilings for at least part of their product lines, which are then covered by the agreement. These maximum tariffs, also known as bound tariffs, represent an upper limit to which actually applied tariffs can be raised. The actually applied tariffs follow the most-favoured-nation principle and apply to all members. Countries are allowed to increase applied tariffs any time to the level of the bound tariffs. The difference between the bound tariff and the applied tariff is called "water". The more water there is in a country's tariff profile, the more scope there is for tariff policy (UNECA, 2016). The WTO is pushing countries to bound all products, reduce their maximum tariffs and reduce the water in their tariff system.

As an example, table 2 lists the different tariffs for selected product groups in Vietnam. An upper tariff limit was determined for all product lines, as the binding coverage is 100 per cent. However, there is a relatively large range regarding maximum tariffs. For example, under final bound tariffs in the textile product group, there is at least one product for which customs duties can be raised up to 100 per cent (shown in the MAX column); in the transport equipment product group, there is at least one article that can even be subject to an import duty of 200 per cent. On average, however, the maximum tariffs are far below these peaks, as can be seen in the first column (AVG). In the textile product group, for example, 0.3 per cent of the products in that category are not allowed to have any tariffs (duty-free). On the right side, the actual applied tariffs are shown. The average duties applied are lower than the average maximum duties that would be allowed. Interestingly, the maximum tariff values

Table 2. Tariffs in Vietnam, by product group, 2018 (%)
Source: WTO, 2019d.

	Final bound duties				Most-favoured-nation (actually) applied duties		
Product groups	**AVG**	**Duty-free**	**MAX**	**Binding**	**AVG**	**Duty-free**	**MAX**
Minerals & metals	11.1	11.8	60	100	8.3	37.3	45
Petroleum	35.1	0	40	100	11.7	11.1	20
Chemicals	6.1	8.4	27	100	2.9	62.8	27
Wood, paper, etc.	11.4	15.5	25	100	10.0	28.6	25
Textiles	10.3	0.3	100	100	9.6	11.3	100
Clothing	19.9	0	20	100	19.8	0	20
Leather, footwear, etc.	14.0	1.9	35	100	12.6	16.4	35
Non-electrical machinery	5.7	35.0	50	100	3.3	64.8	50
Electrical machinery	9.7	32.1	35	100	7.8	49.8	35
Transport equipment	22.1	21.7	200	100	19.5	33.7	75
Manufactures, n.e.s.	10.3	38.5	35	100	9.9	41.5	35

Note: Final bound duties—AVG=simple average of final bound duties excluding unbound tariff lines; duty-free=share of duty-free subheadings in the product group with a bound tariff of zero; MAX=highest allowed ad valorem duty or calculated ad valorem equivalent within the product group; and binding=share of bound tariffs in the product line. Full binding coverage is indicated by 100. Most-favoured-nation applied duties—AVG=simple average of those applied duties; duty-free=share of duty-free in the product group; MAX=highest ad valorem duty or calculated ad valorem equivalent within the product group.

allowed for at least one product in a product line in both categories (final bound tariffs and most-favoured-nation applied tariffs) are sometimes equally high, such as with textiles and clothing. This means that in these categories, there are certain articles for which the maximum rate of duty actually applies.

According to the WTO (2019e), developed countries bound 99 per cent of their product lines in 2018 while developing countries bound 73 per cent, and economies in transition from central planning bound 98 per cent.

Table 3 presents the binding coverage, the average bound tariff and the average applied tariff for industrial product lines for six Asian countries. There are considerable differences between these countries, not only in terms of coverage rates but also in terms of the maximum duties that can be levied. While Bangladesh has only bound 3.9 per cent of its products, the rate is almost 62 per cent in the Philippines and more than 90 per cent in the other countries, with Vietnam having 100 per cent binding coverage.

Table 3. Binding coverage and average bound and applied tariffs of selected Asian countries' industrial products, 2018
Source: WTO, 2019d.

Country	Binding coverage (%)	Simple average bound tariff (%)	Simple average tariff applied (according to most-favoured-nation rule) (%)
Bangladesh	3.9	35.6	13.4
Indonesia	95.8	35.5	8.0
Republic of Korea	94.1	9.8	6.8
Pakistan	99	55.1	11.9
Philippines	61.9	23.4	5.7
Vietnam	100	10.4	8.4

For many countries, it is still legally possible to increase tariffs and use this traditional instrument for industrial policy. For unbound tariff lines, tariff policy is even possible without limitations.

3.2.2 Non-tariff barriers

Under the WTO rules, quantitative restrictions to regulate trade are largely banned, with some exceptions. Article XI.1 of the GATT deals with the elimination of quantitative restrictions. Article XI.1 requires that members do not impose "prohibitions or restrictions other than duties, taxes or other charges". Thus, "quotas, import or export licenses or other measures" are not applicable as regulatory instruments. The term "quota" refers to both import and export restrictions. The philosophy behind this is that instruments like tariffs are more market based than restrictions like quotas. Import quotas, as an instrument of industrial policy, are thus eliminated.

The WTO does not prohibit the use of export taxes. On the contrary, Article XI.1 even explicitly permits them. Mendez Parra, Schubert and Brutschin (2016), however, pointed to a tightening of rules regarding export taxes. For example, new members are required to introduce stricter policies for dealing with export taxes and restrictions in using them in their admission protocols. Accession countries are expected to phase out export taxes or, as in the case of China, to limit themselves to individual customs tariff lines. In the ongoing negotiations on the Doha Round, there are also voices that want to further tighten or even abolish the use of export taxes, at least for agricultural goods. In our opinion, export taxes should be defended. They are an important source of government income, especially for developing countries.

And especially in the natural resource sector, they can be an instrument to tax rents that reduce the welfare of societies and violate the merit principle. In addition, they can serve as an incentive to reduce the export of raw materials and process them domestically.

Safeguards

Safeguards are measures that countries can introduce for a certain period of time in emergency situations that would otherwise violate WTO rules in normal times. The WTO only permits exceptions to the ban on quantitative restrictions under special circumstances, such as balance of payments problems, critical food shortages or for extremely special goods, such as nuclear weapons or medical products in the event of a pandemic, such as the coronavirus (WTO, 2018b).

In the case of "increased imports of particular products" that "have caused or threaten to cause serious injury to the importing Member's domestic industry" (WTO, 2019f), members are allowed to impose quantitative restrictions or raise the tariff above the level of the bound tariff for a duration of up to four years. Before the Uruguay Round (1986–1993), countries solved problems of sudden import surges with quantitative restrictions, such as "grey area" measures, with, for example, bilateral voluntary export restraints. These are now prohibited.

It is possible to impose quantitative restrictions under Article XII of the GATT, which can be invoked by all members, and Article XVIII section B, which applies only to developing countries, in terms of balance of payments problems. In the past, balance of payments problems were often countered by quantitative restrictions, the WTO now indicates that price-based measures should be the preferred instrument. And the measures should only be temporary and transparent and should target the general level of imports. The protection of certain sectors is therefore excluded. Members who want to impose quantitative restrictions must notify the General Council of the WTO and consult with the International Monetary Fund (IMF) (WTO, 2019g).

Since the founding of the WTO, the balance of payments provision to restrict imports has been in less-frequent use. This is due to the now-stricter and more formal application procedures and the fact that WTO members are trying to discourage the introduction of new protectionist measures. Even if the law is on their side, countries are often discouraged from taking action. But even though it is difficult to take action here, it is not impossible (UNECA, 2016). The last countries to invoke the balance of payments provision were Ecuador and Ukraine in 2015.

The allowed quantitative restrictions are not suitable for industrial policy because they are short-term oriented. They are useful for protecting an industry under short-term pressure. In severe balance of payments problems, however, developing countries can and should use the quantitative restrictions as a short-term measure.

Anti-dumping

Countries can implement anti-dumping measures in the event of "unfairly low prices" (WTO, 2019h). A price is considered unfairly low when exporting firms sell products abroad for a lower price than in the home market. WTO rules stipulate the following procedure: (a) it has to be shown that dumping is occurring; (b) that the domestic industry affected by the import is suffering material injury; and (c) that there is a causal link between the two. There are general rules how an investigation into whether an unfairly low price exists should be carried out. However, the investigations are nationally regulated and under the control of the State that believes it is suffering from unfair competition and initiates the process. Overall, the investigation process is lax and can be used strategically by governments (Wu, 2012).

As an anti-dumping measure, tariffs are allowed to compensate for an unfairly low price. It is important that the country that suffers from dumping can implement anti-dumping measures unilaterally and only has to report the measures to the WTO. The exporting country disadvantaged by anti-dumping tariffs can start a WTO dispute settlement process to let the WTO check whether the anti-dumping tariff is justified or not. But this is a lengthy process.

Anti-dumping measures are relatively frequent. From 1995 until 2017, there were 3,604 anti-dumping cases reported to the WTO. India reported the most cases

(656), followed by the United States (427), the European Union (325), Brazil (251), Argentina (241), China (197) and Turkey (189). Japan reported only a few cases (11), followed by Vietnam (7), while Bangladesh reported no case (WTO, 2019i).

Obviously, different countries use this instrument differently. Anti-dumping measures can be used to protect and/or support certain industries. Without doubt, countries have used anti-dumping measures as an industrial policy instrument. For example, India and China used anti-dumping tariffs in a systematic way to support domestic industries (Wu, 2012). Also, in the ongoing trade war between the United States, China and the European Union, anti-dumping tariffs are formally used. For a long-term industrial policy strategy, anti-dumping measures are not suitable.

National Security Exception

Article XXI of the GATT allows trade restrictions to defend national security. If a country sees its national security threatened, it can use quantitative trade restrictions as well as tariffs. The decision on whether national security is in danger is decided by the country implementing restrictions. Article XXI can be used for trade with arms, ammunition and materials that allow the production of such goods. Other emergencies can be used to introduce tariffs and quantitative restrictions. Other countries that disagree with these trade restrictions and fear disadvantages for their economies can complain at the Dispute Settlement Body of the WTO.

In 2018, US President Donald Trump used Article XXI of the GATT to introduce tariffs on imports of steel (25 per cent) and aluminium (10 per cent) for a number of countries, including China. Immediately, several countries complained at the Dispute Settlement Body. This could become the first case that the WTO has to decide on such a case; in the past, Article XXI had no role in WTO trade disputes. In the coronavirus crisis, a number of countries have used this possibility to introduce trade restrictions, such as the prohibition of certain medical products (Lapa, 2020).

3.2.3 Trade-related investment measures

The Agreement on Trade-Related Investment Measures (TRIMS) applies to investment measures that affect trade in goods. Measures that violate national treatment and quantitative restrictions on imports or exports of goods are prohibited. An illustrative list of examples can be found in the appended annex of the TRIMS agreement; prohibited measures include local content requirements, trade balancing requirements,[8] foreign exchange restrictions related to trade[9] and domestic sale requirements (WTO, 2019j).

With these restrictions for foreign direct investment, it becomes more complicated for countries to promote the domestic economy by demanding to use local intermediate goods or to prevent firms from exporting unprocessed raw materials (Johnson, 2016). As for the export of unprocessed raw materials, however, export taxes are allowed and can do the job.

As pointed out by Trasher and Gallagher (2008), many useful instruments for performance requirements that can contribute to development are not on the list of prohibited measures. For instance, requirements to employ local labour and to put nationals on boards of directors or in senior management, to locate regional headquarters or a research and development process in the host country, to establish operations in a particular region or to transfer developed technology to the host country are all instruments that are not mentioned by the TRIMS agreement and hence permitted. These measures must, of course, comply with the WTO principles of most-favoured-nation and national treatment. Other measures missing from the list are the requirement to use local service providers, joint ventures or domestic

8 Trade balancing items "limit the purchase or use of imported products by an enterprise to an amount related to the volume or value of local products that it exports"

9 Foreign exchange balancing requirements: "Importation by an enterprise of products used in or related to local production is limited by restricting the enterprise's access to foreign exchange to an amount related to the foreign exchange inflows attributable to the enterprise" (WTO, 2019k).

equity participation (Johnson, 2016). There is no "right of establishment" at all, which means that countries are free to decide whether they want foreign firms to participate in certain sectors. This gives them the right to restrict or even refuse market access to foreign investors (Shadlen, 2005). Further, in regard to exports, it is possible to impose export performance requirements (WTO, 2019k).

3.2.4 Subsidies and countervailing measures

Subsidies are a popular means of promoting local producers, and they have been used for a long time. Because subsidies can have trade-distorting effects, the GATT stated, back in 1947 even, that subsidies leading to an increase in exports or a decrease in imports should be reported. The WTO regulates the use of subsidies for goods in the Agreement on Subsidies and Countervailing Measures (SCM) (WTO, 2019l). The SCM agreement deals with subsidies that do not relate to agricultural goods (for those goods, there is the Agreement on Agriculture, which allows comprehensive tariffs and subsidies).

The SCM agreement distinguishes between two categories of subsidies: (a) export subsidies and subsidies contingent on the use of domestic content;[10] these are strictly prohibited. And (b) subsidies to specific industries and companies, which may be challenged if they cause adverse effects to other countries. There are two possible options for countries suffering from subsidies in other countries: (a) the WTO dispute settlement and (b) countervailing duties.

To qualify as a subsidy as defined by the SCM agreement, the following criteria must be met: "A government (or a public body within the territory of a WTO member) is providing either a financial contribution or income support, and this confers a benefit on a specific recipient" (ITC, 2009, p. 3, emphasis added). The term "government" includes the government itself and all entities that the State directly or indirectly controls, such as the central bank, government development banks or state-owned enterprises. Examples of financial contributions are loans or loan guarantees to a private firm, the provision of goods and services by a government, the purchase of goods at an unsuitable high price by a government and the foregoing revenue (a firm is exempt from tax, for example). If the State asks a private bank to offer a loan at a particularly favourable interest rate to a firm, this is also considered a financial contribution and thus prohibited (ITC, 2009).

As previously noted, to qualify as a subsidy, a benefit must be conferred. A benefit exists as soon as conditions for a firm are better than the market norm. The benefit is then determined by comparing the applied price with the prevailing market price, such as the market price for a good or the interest rate. However, it is often relatively complicated to determine these conditions (METI, 2016). This is especially true for new situations. For example, in the Canada-Renewable Energy feed-in-tariff case, which was brought forward by the EU and Japan, the WTO Appellate Body dismissed the claim of prohibited subsidies: "Where a government creates a market, it cannot be said that the government intervention distorts the market, as there would not be a market if the government had not created it" (Charnovitz and Fischer, 2014, p. 1).

The SCM agreement only applies to subsidies that are specific—granted only to an individual firm (such as Airbus), a particular group of firms or an individual industry (such as textiles), a certain group of industries (such as textiles and electronics) or a group of firms in a particular region (ITC, 2009).

If a government thinks that another country is granting a prohibited subsidy, for example, an export subsidy or a local content subsidy, that government can use the dispute settlement procedure. Should the subsidy be found to be in violation of WTO rules, the country providing the subsidy will be requested to abolish it. If it does not do so, the country complaining may take appropriate countermeasures, such as increasing tariffs to reverse the effect. While export subsidies and local content subsidies are thus outright prohibited, other subsidies must be shown to be specific and cause adverse effects.

10 For example, in the automotive industry before the WTO, subsidies were granted but contingent on the use of domestically produced inputs in car production (ITC, 2009).

The SCM agreement recognizes three types of adverse effects: (a) injury to the domestic industry of another WTO member;[11] (b) nullification or impairment of tariff concessions or other benefits given based on the GATT; and (c) serious prejudice to the interests of another WTO member (such as export displacement).

Until the end of 1999, there were three categories of permitted subsidies: (a) for research and development; (b) regional development assistance; and (c) environmental protection.[12] Even though these subsidies are now also actionable, they are often used in practice by industrialized countries and are rarely disputed[13] (UNECA, 2016). There are also exceptions that apply to developing countries,[14] which are defined by Article 27 of the SCM agreement on Special and Differential Treatment of Developing Country Members. Developing countries are explicitly allowed to use export subsidies. But other countries may impose countervailing duties.

Even though export credits are mentioned in annex I of the SCM agreement as prohibited export subsidies, industrialized countries have negotiated a special rule so that export credits are only to a limited extent regarded as export subsidies and can therefore continue to be granted. As far back as 1976, member countries of the Organisation for Economic Co-operation and Development (OECD) agreed on a “gentlemen’s arrangement”[15] for regulating the use of export credits, which officially came into force in 1978. The agreement classifies borrowing countries according to their income and country risk and, on this basis, specifies the minimum interest rates, minimum risk premium rates and repayment terms to be charged[16] (OECD, 2019). If export credits granted comply with the OECD agreement, they are legal and are not regarded as prohibited export subsidies.[17]

To attract foreign investors in the hope of creating jobs and technology transfers, many developing countries have set up export processing zones[18] (Waters, 2013). These zones are characterized by how they define a certain geographically closed area in which there is a separate customs and free-trade regime, into which foreign investors are attracted by fiscal and financial privileges to produce mainly for export (Kusago and Tzannatos, 1998).

Although export processing zones are not explicitly mentioned in the agreement, some of the incentive instruments often used may conflict with the SCM agreement if they are contingent on export performance. This mainly concerns various customs and tax exemptions, or duty drawbacks, and the provision of services at particularly favourable conditions. To be more specific, the SCM agreement provides for an exception in respect of the duty-free import of raw materials and intermediate inputs intended for the manufacture of export goods. In addition, there are exceptions to the handling of indirect taxes on inputs consumed in the manufacture of the export goods. These are not counted as export subsidies and legally possible, whereas tariff exceptions on capital goods contingent on exports count as an export subsidy and are prohibited (Engman, Onodera and Pinali, 2007). An electronics manufacturer that

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11 Injury to the domestic industry is also the requirement for anti-dumping and countervailing duties.

12 SCM agreement article 8.

13 Only three disputes thus far related to research and development subsidies, all in the aircraft sector (Maskus, 2015).

14 The SCM agreement annex VII defines developing countries as follows: (a) least-developed countries designated as such by the United Nations and are WTO members; and (b) certain WTO members when gross domestic product per capita has not reached $1,000 per annum. The following countries are listed: Bolivia, Cameroon, Congo, Côte d’Ivoire, Dominican Republic, Egypt, Ghana, Guatemala, Guyana, India, Indonesia, Kenya, Morocco, Nicaragua, Nigeria, Pakistan, Philippines, Senegal, Sri Lanka and Zimbabwe.

15 Officially titled, Arrangement on Guidelines for Officially Supported Export Credits.

16 The maximum repayment term, interest rates and risk premiums currently applied can be found in the terms and conditions at http://www.oecd.org/trade/topics/export-credits/arrangement-and-sector-understandings/financing-terms-and-conditions/

17 Compare the safe haven clause item (k) Annex 1: “… an export credit practice which is in conformity with those provisions shall not be considered an export subsidy prohibited by this Agreement” (WTO, 2019l).

18 The designation for economic processing zone regionally differs. Other designations include free trade zone, industrial free zone, maquiladoras, duty-free export processing zone or special economic zone (for a detailed list of designations, see Kusago and Tzannatos, 1998).

imports 100 per cent of its material and exports 60 per cent of its products can expect customs exemptions of 60 per cent on the imported material. In addition, that manufacturer can be reimbursed for tariffs on inputs incurred in the production process (such as fuel). That same manufacturer can also have indirect taxes (such as a value-added tax) refunded for domestic goods that have also flowed into the production process. However, the reimbursement of direct taxes and customs duties on capital goods is excluded because they are considered as export subsidies.

The economic benefits of export processing zones are highly contested because they crowed out domestic firms. These zones also are often associated with poor working conditions and thus must be evaluated negatively in terms of social upgrading (ILO, 2019).

In terms of subsidies in the field of export promotion, industrialized countries have the great advantage of a hard currency and low credit risk. Take Germany, for example. With the Kreditanstalt für Wiederaufbau (KFW), Germany maintains "the most nationally important state-owned development bank in the world", measured by total assets as a percentage of gross domestic product (Naqvi, Henow and Chang, 2018, p. 2). The KFW refinances its lending transactions by issuing bonds on the international capital market (KFW, 2018). Due to the statutory guarantee of the German government and the top AAA rating, refinancing for the KFW is highly advantageous. This enables the KFW to grant (export) loans at highly favourable rates (Griffith-Jones, 2016), which it claims to be market rates because it issues bonds on the international capital market (Naqvi, Henow and Chang, 2018).

3.3 Trade in services

The General Agreement on Trade in Services (GATS) distinguishes between two sets of obligations: "general obligations" include most-favoured-nation treatment and transparency; "specific commitments" contain market access and national treatment. Under the GATS treaty, countries have considerable freedoms unless they have committed themselves otherwise. In the schedule of commitments, WTO members identify the sectors for which they guarantee market access and national treatment for the four modes of supply: mode 1—cross-border supply; mode 2—consumption abroad; mode 3—commercial presence; and mode 4—presence of natural persons[19] (WTO, 2019m).

Article XVI of the GATS treaty on market access provisions mentions six restrictions:

a. Limitations on the number of service suppliers;
b. Limitations on the value of service transactions or assets;
c. Limitations on the total number of operations or quantity of output;
d. Limitations on the total number of natural persons supplying a service;
e. Measures that restrict or require specific types of legal entity or joint venture; and
f. Limitations on the participation of foreign capital.

What do these restrictions mean in practice? Once countries have liberalized sectors, they will no longer be able to protect the sector, for instance, to protect domestic service providers from foreign competition and require the use of local content. Moreover, countries will no longer be able to promote joint ventures or restrict foreign direct investment in the sector. Article XVII of the GATS treaty on national treatment requires that countries not place foreign suppliers in a worse position than domestic suppliers. This limits the ability of governments to impose obligations on foreign suppliers that domestic firms do not have to comply with. In addition, they cannot grant fiscal, financial or other incentives to domestic firms that foreign firms do not receive.

However, the GATS treaty has a special feature—it applies a "positive-list" approach. For example, market access

19 Mode 1 includes cross-border services supplied by technical means from one WTO member country to another, for example call centres or online services; mode 2 includes services consumed by the consumer from one WTO member country in another WTO member country (consumption abroad), for example through tourism and related services; mode 3 refers to an entrepreneurial presence in a host country, for example through direct investments, joint ventures or sales offices; and mode 4 refers to services for the provision of which persons cross borders, for example, when in-house managers are temporarily transferred abroad (temporary labour migration) (BMZ, 2019).

and national treatment only apply to those sectors and modes of supply that are explicitly listed in the schedule of commitments. In the sectors that are not listed, there is still the full range of instruments that can be used, above all with regard to local content. In the schedule of commitments, members can even, if they open up the sector, fix limitations that allow them to deviate from full market access and national treatment. For example, under mode 3, foreign direct investment can be subject to many conditions: WTO members may require foreign-owned service providers to use a certain amount of local resources when offering services. They can also require joint ventures, such as demanding that foreign investors cooperate with domestic firms and/or research institutes. Further, they can require foreign-owned firms to have a certain share of domestic ownership (local equity requirement) (Johnson, 2016).

It is also possible to request a local presence that specifies that the service provider must have a licensed and registered office in the country where the service is offered (UNCTAD, 2005). The GATS treaty does not contain explicit rules for dealing with subsidies. Therefore, only the general GATS rules apply, such as the most-favoured-nation rule prohibiting discrimination and the national treatment rule, which only applies if the sector is listed in the schedule of commitments (Sauvé, 2006).

The GATS treaty can also have profound impact on the implementation of capital controls and exchange rate management. In general, the IMF (2016a), in its Articles of Agreement, regulates the use of capital controls. It clearly states that the use of capital controls is possible. Yet, no controls may be used that affect the current account, unless otherwise permitted by the IMF. Regarding the GATS treaty, countries that list the financial service sector under modes 1 and 3 in their schedule of commitments automatically open up their capital account because the free flow of capital is an essential element of the service provided.[20] This implies that it is not possible for these countries to use capital controls that regulate capital inflows. But there is no mention in the GATS rules of the extent to which capital controls to regulate capital outflows may be used. However, some authors have suggested that these might also be covered (Gallagher, 2010). There is also a safeguard clause in the GATS treaty that allows countries to introduce capital controls in the event of balance of payments problems and external financial difficulties.[21] But the controls are precisely regulated: Measures shall not discriminate among WTO members, they must be in line with the IMF Articles of Agreement requiring that they "avoid unnecessary damage" to other members, do "not exceed those necessary" to deal with the balance of payments problem and are "temporary" and "phased out progressively" (WTO, 2019n).

If the IMF recommends capital controls concerning capital inflows and current account restrictions, such as transactions related to the financial sector, the IMF case law ranks above the GATS treaty, and therefore the WTO regulation is obsolete. Countries that have not made any concessions in the areas of cross-border trade in financial services (mode 1) and commercial presence of foreign services (mode 3) can thus use capital controls freely without any restriction. If a country does not comply with the GATS rules, other countries can file a complaint, and a dispute settlement between the two States begins. The possible penalties are sustained cash payments or cross-retaliation rights of the complaining country (Gallagher, 2010).

3.4 Intellectual property rights

As UNECA (2016) emphasized, technological upgrading constitutes one of the necessary elements for industrial development, and the access to innovation helps to acquire technological knowledge.

The Trade-Related Aspects of Intellectual Property Rights (TRIPS) agreement covers a wide range of areas, from copyright and trademark over industrial designs and integrated circuits (better known as chips) to patents and the protection of undisclosed information (trade secrets or know-how). The rules for patents can make it especially difficult for developing countries to catch up technologically and to implement industrial policy

20 See GATS article XVI on market access and article XI(2) on payment and transfers.

21 See GATS article XII on restrictions to safeguard the balance of payments.

measures. The TRIPS agreement requires that countries offer patents for all inventions, both for products and processes, over a period of at least 20 years, from the date of application (WTO, 2019o). Patents grant exclusive rights to an invention, and they are valid only in the country for which they were granted. If inventions are to be protected in other countries, the patents must also be registered in those countries. Although there is no such thing as a "world patent", inventors do not have to file patent applications in every country worldwide but instead can file an international patent application under the Patent Cooperation Treaty (DPMA, 2019). Also, for patented products to be legally manufactured and sold, it is only possible with the consent (such as through a license) of the patent owner. If a production process is patented, it can no longer be carried out in the country where the patent is registered without the consent of the patent owner. It is also possible that products manufactured abroad by this patented process cannot be imported (Correa, 2015).

Even if the TRIPS agreement restricts the emulation of knowledge, according to Correa (2015), there are still ways that countries can cleverly retain room for manoeuvring: First, countries can create flexibility through their own legislation on patent law. The standards according to which a patent is granted should be set high. This increases the pool of knowledge not patented and ensures that competition continues and that domestic firms that are afraid of litigation can use the new knowledge. Second, only actual inventions should be protected. In the pharmaceutical industry, for example, it is common practice to make only tiny changes to a product, which then again is patented for 20 years. Third, the granting of a patent should depend on its applicability. Canada had one of the toughest patent laws until 2017; according to the patent law's "promise doctrine", patent holders had to prove the usefulness of their product. For example, if a drug did not work as the firm described in the application (it did not fulfil the explicit promise of utility), the patent could be revoked.[22] Since 2005, Canadian courts have revoked 25 patents, most of them for drugs (Stevens and Schultz, 2016). As a result, generic drugs could be legally produced by other pharmaceutical firms. Fourth, there is the possibility to establish far-reaching exceptions for research. This creates opportunities for domestic players to deliver findings without infringing patent law (Shadlen, 2005). Finally, countries are free to decide whether to allow patents on plants or "essentially biological processes"[23] (Correa, 2012)

Additionally, compulsory licenses can be granted. Patents give the owner an exclusive right, and the owner can determine whether a product is manufactured or not. That way, it is possible that useful products may not be produced. The TRIPS agreement tolerates the granting of compulsory licenses under certain conditions. Above all, an attempt must be made to obtain a license from the patent holder and for a certain period of time. If that fails, countries can grant compulsory licenses to domestic firms for a limited amount of time. The patent owner must receive adequate payment, whereby the country decides what it perceives as adequate. Generally, the products may only be produced for the domestic market and not for export. In cases of national emergencies, other circumstances of extreme urgency, public non-commercial use or anti-competitive practices, governments can grant compulsory licenses even without approaching the patent owner first. Of course, the patent owner still must be compensated. Although compulsory licenses generally serve for the production for the domestic market, there might be cases of national emergency in the pharmaceutical sector when countries are not able to produce generics for their own country. Under these circumstances, it is also allowed to import from a third country, meaning that countries are allowed to produce generic drugs and export them to countries in an emergency situation (WTO, 2018a). Least-developed countries are exempted from the TRIPS agreement until 2021 and for the protection of medical patents until 2033 (WTO, 2013). Further, there is the possibility of parallel imports. Pharmaceutical companies maximize profits by

22 In 2017 in Canada, the Supreme Court overturned the law on the grounds that it could lead to unfair consequences because it could lead to the withdrawal of the patent if even one promise of many is not fulfilled. In a new law, the threshold for utility has been lowered (Lin, 2017).

23 For example, "a novel combination of traditional plant breeding techniques that results in plants and seeds" (Correa, 2012, p. 6).

selling identical drugs in different countries at different prices. Countries have thus the option to buy drugs in a country where the drug is the cheapest and not directly from the manufacturer. This process is called "parallel import". According to the TRIPS agreement, intellectual property rights are exhausted when a product is sold in one country. Hence, parallel imports are legally allowed (Fischer, 2012).

3.5 Government procurement

In many countries, government procurement accounts for between 10 per cent and 15 per cent of gross domestic product (WTO, 2019p), thus representing a major component of demand. The GATT and GATS do not cover government procurement; both agreements even explicitly omit it.[24] Instead, there is the Agreement on Government Procurement, also under the WTO framework. This is a pluralistic agreement that not all WTO members have signed: Currently 19 parties[25] have signed it, 10 countries[26] are in the process of acceding, and five countries[27] have expressed their intention to become members to the agreement. The agreement concerns the supply of goods, services and construction services. In this agreement, the participating countries can determine in their schedule of commitments which areas and levels (nationwide or regional) they open themselves for offers from foreign firms (WTO, 2019q). Public procurement has similar effects as local content provisions that are prohibited by the TRIMS agreement and partly by the GATS treaty because it can ensure that domestic suppliers have a market, achieve the necessary capacity utilization and realize economies of scale. Legally, governments that did not join the Agreement on Government Procurement may clearly favour domestic suppliers over foreign suppliers in public tenders. And even if foreign suppliers are allowed to bid in public tenders, governments can require them to use local content (Weiss, 2015). Brazil, for example, has a law on state support for the electronics industry. In public procurement, locally produced electronic hardware is to be preferred, even if it is up to 20 per cent more expensive than imported hardware; locally produced software can be up to 18 per cent more expensive (van Wetering, Gomes and Schipper, 2015).

3.6 Enforcement

As Trasher and Gallagher (2008, p. 15) noted, "There exists no overarching global trade police to punish countries for violations." For a process to be set in motion at all and for countries to be made aware of any misconduct, another country must first report a violation to the WTO. The WTO Dispute Settlement Mechanism calls for the parties with a dispute to initially talk to each other and try to reach an agreement. If this does not succeed, a panel will be set up to deal with the allegations, check whether there has actually been an infringement and then write up a report. On this basis, recommendations are made. The parties to the dispute have the opportunity to appeal. If appealed, the procedure goes to the WTO Appellate Body. The Appellate Body, which consists of seven members appointed for a four-year term, can confirm, change or reverse the legal findings of the panel. In the end, the Dispute Settlement Body, which consists of all WTO members, must approve or reject the appeal. Rejection, however, is only possible unanimously (WTO, 2020a). What consequences does the country face if a violation is detected? First, the country is asked to cease the prohibited measure. If it fails to do so, the other country may retaliate. Often, this entails an increase in customs duties in the sector covered by the proceedings. In the case of dumping and prohibited export subsidies, countries that see themselves adversely affected can also take a different path, initiate their own investigation and take countermeasures. They must keep the WTO constantly informed of their detailed investigation and of the measures taken.

24 Compare GATT article III: 8a and GATS article XIII: 1.

25 Armenia, Canada, European Union (28), Hong Kong, Iceland, Israel, Japan, Republic of Korea, Liechtenstein, Republic of Moldova, Montenegro, Netherlands, with respect to Aruba, New Zealand, Norway, Singapore, Switzerland, Taiwan, Ukraine, United States.

26 Albania, Australia, China, Georgia, Jordan, Kyrgyzstan, North Macedonia, Oman, Russian Federation, Tajikistan.

27 Afghanistan, Kazakhstan, Mongolia, Saudi Arabia and Seychelles.

4 Bilateral investment treaties

Investment treaties have a long history, reaching back to the 1950s. The first bilateral investment treaty was signed between West Germany and Pakistan in 1959. The agreement was concluded at a time of mistrust and concern between many countries globally. In the post-war years, a climate of uncertainty and caution had developed, given the large-scale nationalizations and expropriations of both domestic and foreign firms, not only in the countries of the Eastern Bloc but also in Western Europe. In the former colonies, too, foreign investors were expropriated to gain control over national wealth, especially over national raw materials, and thus to strengthen political independence (UNCTAD, 2004).

Not surprising, protection against expropriation and regulations on compensation payments in case of expropriation form the core of bilateral investment treaties. Until the 1970s, investment agreements were rare, reflecting the low level of private capital flows from the Global North to the Global South. Starting in the 1970s, more and more deregulation of international private capital flows triggered an explosion of such capital movement during the next decades. The 1970s saw the first wave of investment agreements between the Western European States and the United States on one side and developing countries on the other (Ceyssens and Sekler, 2005). The second wave started in the 1990s, triggered by far-reaching events in the 1980s that led to a change of policy and attitudes. The debt crisis of the 1980s, mainly in Latin America, was certainly a decisive factor and led the IMF, the World Bank and the United States Treasury to the formulation of the Washington Consensus, which stressed privatization, deregulation and liberalization of markets as well as the important role of foreign direct investment for development (Williamson, 1989). The IMF and the World Bank began linking the provision of loans to the implementation of structural adjustment programmes.

In addition to the privatization of state-owned enterprises and economic deregulation, these programmes included, above all, the liberalization of trade, financial markets and the opening for foreign direct investment (Chang, 2006; Summers and Pritchett, 1993). At the same time, the attitude towards foreign direct investment in the Global South changed, and governments actively started to compete for the inflow of such investment (Eberhart, 2014). The collapse of the former Eastern Bloc States also increased the number of investment agreements concluded. Many transition States were considered corrupt and undemocratic. The investment agreements were intended to dispel concerns and suggest political stabilization and the establishment of a market economy (Ceyssens and Sekler, 2005).

Since the 1990s, the number of investment agreements has exploded. In 1991, bilateral investment treaties numbered 400; by 1996, there were more than 1,000 (Guzman, 1997). And as of May 2019, 2,346 bilateral investment treaties were in force, along with 313 treaties with investment provisions (UNCTAD, 2019). Investment agreements were initially concluded predominantly between the countries of the Global South and the Global North, and the most important content was protection from expropriation and nationalization as well as the free transfer of funds (UNCTAD, 2004). Today, investment agreements exist between all groups of countries, and the content is extensive, often going far beyond the simple protection of a foreign subsidiary from expropriation.

4.1 A brief overview of the main features of investment agreements

The scope of each investment agreement is determined by the underlying definition of the terms "investment" and "investor". Investment can cover everything from physical ownership over shareholding in firms to intangible assets. Most agreements contain a broad-based definition of investment, which then covers "any tangible and intangible assets in the host State (through an illustrative and open-ended list), directly or indirectly owned and controlled by covered investors" (UNCTAD, 2015, p. 93). This general and frequently used definition thus includes, among other things, "property and property rights of various kinds; non-equity investment, including several types of loans and portfolio transactions; and other contractual rights"[28] (UNCTAD, 2004, p. 23) and intellectual property rights not protected under domestic law (UNCTAD, 2014). Assets in all sectors of the economy are covered, such as agriculture, manufacturing and services. This also includes natural resources (Correa, 2004).

A broad definition of "investor" covers "all natural and legal persons originating from the other Contracting Party" (UNCTAD, 2015, p. 93). This general definition has many pitfalls. For example, it is possible that a "mailbox company" channels investment into the country and thus becomes a beneficiary to the agreement. In the case of Waste Management versus Mexico, for example, an American investor who owned a company in the Cayman Islands, which owned another company in the Cayman Islands, which in turn had a stake in a subsidiary in Mexico, invoked NAFTA to get financial compensation from Mexico even though NAFTA only covers the United States, Canada and Mexico. The nationality of the mailbox company (the intermediary) was ultimately deemed irrelevant (Vandevelde, 2009).

A further risk arises from so-called "treaty shopping" (Ceyssens and Sekler, 2005). Investors can establish subsidiaries in countries with the purpose of benefiting from investment agreements that are as favourable as possible for them. In the case of Tokios Tokelés versus Ukraine, Ukrainians owned and controlled 99 per cent of Tokios Tokelés, a company established in Lithuania under Lithuanian law that owned a publishing company in Ukraine. Tokios Tokelés felt harassed by the Ukrainian government, and the Ukrainian investors invoked the Ukraine-Lithuania Bilateral Investment Treaty. Although 99 per cent of the investors were Ukrainians, they were thus considered foreign investors and could avail of the treaty provisions because the company that owned the publishing company in Ukraine was established under Lithuanian law in Lithuania (METI, 2013).

Some countries have rather narrow definitions of "investment" and "investor". In a more recently concluded agreement, China explicitly stated that investments must have "characteristics" of an investment, and they ruled out the legitimacy of mailbox companies (Morosini and Sanchez, 2017).

The main rights for investors

In general, bilateral investment treaties prohibit the discrimination of foreign investors. The national treatment standard obliges a country to grant foreign investors no less favourable treatment than domestic investors that conduct a similar business within its territory (Sornarajah, 2010). It conversely means that foreign investors can receive more favourable treatment than offered to domestic firms. The most-favoured-nation standard ensures that a foreign investor from one treaty country is not placed in a worse position than a foreign investor from another treaty country (UNCTAD, 2004).

The most-favoured-nation provision can prove problematic. There are a number of lawsuits in which foreign investors have referred to the most-favoured-nation clause to, for example, replace a rather strict provision in one bilateral treaty with a more lax provision from another treaty or even to adopt provisions from a bilateral treaty that are not provided in their own bilateral treaty (Nikiéma, 2017).

Most bilateral investment treaties grant rights to investors and investments only after they have been allowed to enter the country ("post-establishment"), and governments retain the freedom to decide whether foreign investors in certain sectors may enter the country and, if so, under what conditions. Hence, there is no right of establishment. However, there is also the option to formulate these bilateral treaties so that the principle of national treatment and most-favoured nation also applies to investors and investments on a "pre-establishment" basis (Johnson, 2016). If a country wants to retain the ability to decide which investors are allowed to come into the country and impose conditions

28 To be more specific, these might include portfolio investment, sovereign debt instruments, commercial contracts for the sale of goods and services and assets for non-business purposes (UNCTAD, 2014).

on them, countries should preferably refrain from pre-establishment altogether (UNCTAD, 2015). When countries opt for pre-establishment, they can choose among three routes:

In the positive-list approach, countries can choose the sectors they want to liberalize. Only these sectors will then be affected by the rules in the agreement. The approach is therefore similar to that of the GATS. In the negative-list approach, countries name the sectors that are not covered. In general, negative-lists lead to a larger number of liberalized sectors. And as a third option, countries can grant full right of establishment, which gives investors full market access. Both the positive-list and negative-list approaches allow countries to maintain or introduce specified non-conforming measures. Governments may reserve the right to grant subsidies and loans only to domestic companies or to support minorities and disadvantaged groups, as well as vulnerable industries and small and medium-sized companies (UNCTAD, 2015).

Another widely used element in bilateral investment treaties is the standard of fair and equitable treatment, which is supposed to protect foreign investors from unfair practices and the arbitrary behaviour of States (UNCTAD, 2012). The standard is intended to cover situations and incidents that are not explicitly addressed by other standards and rules but that violate the actual objective of the agreement, namely the protection of foreign investment (Dolzer, 2013). Because the fair and equitable treatment principle is vague, tribunals interpret it differently from case to case. Schill (2006) counted seven normative elements that were brought into connection with the principle in jurisdiction: (a) the requirement of stability, predictability and consistency of the legal framework; (b) the principle of legality; (c) the protection of investor confidence or legitimate expectations; d) procedural due process and no denial of justice; (e) protection against discrimination and arbitrariness; (f) the requirement of transparency; and (g) the requirement of reasonableness and proportionality. Thus, investments enjoy full protection and full security in the host country.

The protection against expropriation is another essential provision in investment agreements because it has, at least in the past, represented one of the highest risks for investors. Regarding expropriations, a distinction is made between direct and indirect "takings". Direct takings, or the physical taking of property, fall into two categories: "nationalization" refers to takings in either all economic sectors or on an industry-specific basis, whereas "expropriation" usually labels firm-specific takings. Expropriation also includes land seizure by the State, which is then, for example, redistributed to landless people. Indirect expropriation is more relevant today but not clearly defined. This area includes both creeping expropriations and regulatory expropriations. Creeping expropriations include, for example, the forced disinvestment of shares, refusal of access to labour or raw materials, or excessive or arbitrary taxation. Regulatory expropriations can involve government measures that address a country's environment, health or economy. For example, increases of statutory minimum wages can be considered as an indirect expropriation.[29] An important element of the issue of expropriation concerns the calculation of compensation payments, which is also contractually regulated. Here, too, there are different methods. Some treaties state that the compensation should be appropriate. Others say that the compensation must be prompt, adequate and effective, which means that the full market value of a loss must be replaced (UNCTAD, 2004).

Foreign investors make investments to realize profits, and it is their priority to ensure that they can repatriate these profits to their home country as well as the invested capital if they want to do so (Sornarajah, 2010). Hence, the free transfer of funds constitutes another element of investment agreements. Some agreements contain clauses that stipulate that all transfers related to the investment have to flow freely and immediately in and out of the contract country's territory.

29 Veolia, a big French corporation with a waste management contract in Egypt, demanded compensation for an increase of minimum wages under a new labour law in Egypt. Its claim was for €174 million and was launched in 2012. In 2018, the International Centre for Settlement of Investment Disputes dismissed the claim (ISDS Platform, 2018).

This brings the discussion to the last important point: What happens if the rules laid down in a bilateral investment treaty are violated? Almost 95 per cent of all these bilateral treaties have a special instrument for dispute resolution, such as the investor-State dispute settlement mechanism.[30] This is a feature of newer-generation investment agreements that enables investors to assert their rights against States. When investors (firms, wealth owners or other stakeholders) feel their rights have been violated, they usually must sue in a national court against the government. However, most modern bilateral investment treaties give investors the opportunity to bring charges against a State before an investor-State dispute settlement body. This mechanism is a supranational system that allows investors to bypass national law and use it to demand compensation from a government when they see their rights, which are enshrined in the bilateral investment treaty, violated. This instrument is outstanding because usually under international law, only States have the possibility to hold other States liable (Sachs and Johnson, 2019).

The supranational system is intended to contribute to the "depoliticization" of disputes by preventing conflicts or unpleasant situations between the home country of an investor and the country in which the investment was made. The country into which the investment has flowed does not have to expect any repression (political or economic sanctions) from the investor's home country. Similarly, the home country does not have to engage in diplomatic conflict with the host country (Johnson and others, 2018).

An arbitration tribunal, which usually consists of three arbitrators, implements the investor-State dispute settlement mechanism. Both the State and the investor can appoint one arbitrator; and they elect the third, who is the presiding arbitrator, jointly. Most cases are negotiated at the International Center for the Settlement of Investment Disputes, an organization that is part of the World Bank Group and calls itself the "world's leading institution devoted to international investment dispute settlement" (ICSID, 2019). In recent years, the number of cases handled by the Center has increased exponentially. In 2017 alone, at least 65 new investor-State dispute settlement cases were filed, bringing the cumulative number of known cases to 855. There is a large number of unreported arbitrations, however, so the actual number is likely bigger (UNCTAD, 2018).

According to Gaukrodger and Gordon (2013), the average cost of an investor-State dispute settlement is US$8 million, but it can exceed US$30 million. In most cases, investors from developed countries use the mechanism against developing and emerging countries. However, the number of intra-European Union cases is also large, accounting for a quarter of all cases in 2016 (UNCTAD, 2018). So far, the arbitration institutions have tended to make the parties involved in the litigation bear their own costs. That way, States bear enormous costs even if they win the case (Eberhardt, 2014).

4.2 Elements of investment agreements that may restrict industrial policy

The following considers the extent to which agreements limit the possibilities of applying vertical industrial policy instruments.

Non-discrimination provisions

Certainly, major restrictions on applying vertical industrial policy instruments stem from the non-discrimination provisions. First of all, where the principle of national treatment applies to one sector, the government is no longer able to promote specifically domestic firms, for example, through tax relief. The idea of infant-industry protection in the case of economies of scale or technological backwardness is that the State promotes and protects domestic industries or firms from foreign competition until they are "grown up" and become internationally competitive. Multinational firms often have extremely large market power, and with unhindered market access, domestic firms can quickly be driven out of the market. The national treatment standard thus deprives governments of the opportunity to protect emerging domestic firms from the (unfair)

30 See the UNCTAD Investment Policy Hub homepage for the Mapping of International Investment Agreement Content. According to the data provided, 2,444 out of 2,577 mapped treaties include the investor-State dispute settlement mechanism.

competition with foreign corporations (Sornarajah, 2010).

Second, the national treatment clause stipulates that countries cannot require performance requirements from foreign investors that they do not require from domestic firms because they would otherwise be discriminated against (UNCTAD, 2015). Because foreign direct investment is not in itself positive for a country, governments have placed requirements on foreign investors to make the best possible use of that foreign investment for the development of the country. For example, governments can determine in which region a firm is established or require that local personnel be hired or that research and development be carried out in the host country. Such demands violate the principle of national treatment, if countries opt for the pre-establishment reach (Sornarajah, 2010). Some agreements, especially those with the United States, even explicitly limit performance requirements; for example, they contain a paragraph that prohibits the requirement of transfer of technologies, the recruitment of local workers, research and development expenditure and rules on where to establish the firm, etc. Some agreements also prohibit restrictions on nationality requirements for directors and officers.

The national treatment clause also has an impact on how state-owned enterprises are handled: There may be a violation if domestic state-owned enterprises are granted special benefits and advantages. This may impose restrictions and disadvantages for foreign enterprises (Johnson, 2016).

The national treatment standard establishes rules already defined by the TRIMS agreement, and in part by the GATS treaty (when countries have liberalized sectors in their schedule of commitments). Nevertheless, there are two important differences between the WTO agreements and the bilateral investment treaties: the first concerns the dispute settlement mechanism, whereby a treaty allows investors to turn to investor-State dispute settlement. The second difference concerns whether a treaty covers all sectors and activities (both goods and services) on a negative-list basis. A negative list implies that only sectors explicitly mentioned are excluded from the scheme (Johnson, 2016).

A problem that results from liberalizing sectors on a negative-list basis is the inability of countries to regulate sectors in the economy that did not exist in the country before or may be developing because of new innovation in the future. Because it is impossible to know which future economic sectors might be important for a country to develop or which financial innovations will emerge, these of course cannot be put on the list (Gallagher and Stenley, 2013).

Fair and equitable treatment

The fair and equitable treatment obligation offers maximum security to foreign investors, and at the same time, governments limit their ability to regulate because they can be held liable by investors. The fair and equitable treatment standard is particularly problematic when it comes to protecting the "legitimate expectations" of investors. If a State develops new regulations or changes old ones, it can have negative consequences for investors (UNCTAD, 2015). According to UNCTAD (2015), almost all cases that have so far been brought by investors against States have been raised on the basis of this principle.

As reported by Johnson (2016), investors in past cases have attacked local content regulations based on these standards because they had constrained their profitability. For instance, to correct the injustices created by the Apartheid regime, South Africa introduced in 2003 the Broad-Based Black Economic Empowerment Act, with the aim of increasing the economic participation of historically disadvantaged South Africans. This also had an impact on the licenses of mining companies. To obtain a new license, at least 26 per cent of the shares had to be held by historically disadvantaged South Africans. Italian investors sued South Africa. An agreement was reached before an arbitration award was made, and the allowances were smaller than the government had demanded (Morosini, 2019).

The use of capital controls may be prohibited

As noted, a competitive real exchange rate is also an important instrument of industrial policy. Central banks can intervene in the foreign exchange market to counter exchange rate appreciation, which can destroy the competitiveness of a country, can lead to unsustainable current-account deficits and destabilizing boom-bust cycles. However, these interventions have liquidity effects in the domestic economy that might be difficult to sterilize. A smoother solution would be to impose capital-import controls. Also, in balance of payments crises, capital outflows lead to depreciations and negative domestic effects, like an increase of debt denominated in foreign currency or an inflationary path-trough. Capital export controls are an important element to overcome such a crisis.

But the free transfer of funds constitutes another element in investment agreements, and certain provisions can limit the use of capital controls even further than is the case with the GATS. United States agreements are strict and do not allow restrictions on capital inflows and outflows, and there is no clause (except in NAFTA) to even allow capital controls to be deployed in the short term in the event of balance of payments crises (Gallagher, 2010).

In that vein, the IMF (2010) raised concerns that bilateral investment treaties conflict with its Articles of Agreement: The first concern related to the possible scenario that in times of a balance of payments crisis, a country introduces capital controls but refrains from doing so with the country with which it has a bilateral agreement that explicitly prohibits the use of controls. This would discriminate against other countries and would thus not be compatible with its Articles of Agreement, countered the IMF. It also would make capital controls ineffective because all funds would be transferred to the country that is not affected by capital controls. Second, the IMF pointed out, the use of capital controls is explicitly allowed in its Articles of Agreement because its resources that are transferred to a crisis country may not be sufficient. For this reason, the IMF reserves the right under certain circumstances, to require countries to use capital controls. Investment agreements that now explicitly prohibit the use of capital controls even in times of crises are in contradiction with the IMF Articles of Agreement.

According to Gallagher (2010), in the framework of bilateral investment treaties, capital controls regulating outflows can be interpreted as expropriation. This is what happened to Argentina, which imposed taxes on outflows during its 2000–2001 crisis. In most cases, however, investment agreements contain a safeguard clause allowing capital controls to be introduced in the event of balance of payments problems (IMF, 2016b).

Intellectual property rights

Bilateral investment treaties do not explicitly address intellectual property rights, but if the treaty is based on a general definition of investment, intellectual property rights are covered[31] (Ceyssens and Sekler, 2005). The impact of such treatise on intellectual property rights is not conclusive. For example, the granting of compulsory licenses, which is possible under the TRIPS agreement under certain conditions, could be considered as (indirect) expropriation because the patentee suffers a financial loss as a result of the granting. The revocation of a patent can also prove problematic (Correa, 2004).

4.3 Do investment agreements lead to more foreign direct investment?

Countries conclude an investment agreement because they hope it will generate an inflow of foreign direct investment. Whether investment agreements lead to an increase in foreign direct investment is a highly controversial debate. Quantitative studies have generated contradictory findings.[32] One strand of literature examined the influence of investment agreements through surveys. These studies concluded that investment agreements were not particularly decisive in determining where firms invest (Poulsen, 2010). The European Commission (2010), for instance, asked 300 European investors in a survey about the role of bilateral investment treaties when investing. Half of

31 To enforce a protection claim within a bilateral investment treaty, intellectual paroperty rights, such as patents, trademarks, industrial designs, etc., must first be registered in their country of origin. Consequently, the law in the host country does not protect the intellectual property of a foreign investor unless the foreign investor files a patent application in advance.

32 For a detailed literature overview, compare UNCTAD (2009) and Poulsen (2010).

those 300 respondents had never even heard about the agreements (European Commission, 2010, cited in Eberhardt, 2014, p. 5). In case of problems, of course, firms rely on existing bilateral investment treaties.

Empirical studies have concluded that factors other than bilateral investment treaties are far more relevant to foreign direct investment inflows.

- Although Brazil had no investment agreement that had entered into force until 2015, for the period 1990–2015, it was the country with the largest inflow of foreign direct investment, after China and Hong Kong (Morosini and Sanchez, 2017).

- After South Africa was sued for regulations concerning the Black Economic Empowerment Act, the government decided at the end of the 2000s to terminate existing treaties and develop a new model agreement (Morosini and Sanchez, 2017). One official regarding foreign direct investment declared: "We do not receive significant inflows of foreign direct investment from many partners with whom we have [bilateral investment treaties], and at the same time, we continue to receive investment from jurisdictions with which we have no [bilateral investment treaties]. In short, [bilateral investment treaties] are not decisive in attracting investment." (Raman, 2012 cited in Eberhardt, 2014, p. 5). Even after the government terminated its existing investment agreements, South Africa was still the country with the largest foreign direct investment inflows in Africa (Johnson and others, 2018).

Even though it is legally possible to terminate investment agreements, the contracts still have repercussions due to the so-called "sunset clause", or "survival clause", which allows investors a 10- to 20-year period in which to sue, even after the end of the contract.

States can search for alternatives for investor-State dispute settlement mechanisms without harming foreign direct investment. They may choose to allow access to the investor-State dispute settlement mechanism only to selected investors rather than giving all investors the chance to file a suit against the State (Olivet, 2017). In many cases, there is no need for an investor-State dispute settlement mechanism. Investors can enforce their rights before national courts in the host country, although, it is often said that national courts are not independent and hence supranational arbitration is needed. This argument does not apply to the vast majority of countries. It is democratic countries with an independent legal system that are mainly accused of violating bilateral investment treaties (Schulz and Dupont, 2014). After analysing 696 investment disputes handled by investor-State dispute settlement between 1993 and 2012, Pelc (2016) showed that the largest part, at 71 per cent, were actions based on indirect expropriation while only 17 per cent had claimed direct expropriation. He also showed through that even though firms lose in the lawsuit for indirect expropriation in most cases, the lawsuit does not remain without consequence. Because negotiations take a long time and are also costly, other governments might become reluctant to regulate out of fear of being sued as well. This is known as "regulatory chill".

As Pelc pointed out, "The greatest portion of legal challenges in the investment regime today seek monetary compensation for regulatory measures implemented by democracies" (2016, p. 2). And investors can seek further protection through insurance, such as private political risk insurance or insurance offered by the investor's home country. The Multilateral Investment Guarantee Agency of the World Bank offers political risk insurance and credit enhancement to private investors and lenders who engage in developing countries.

5 Free trade agreements

Since the mid-1990s, there has been a "rush to regionalism" in which a large number of North-North, North-South and South-South free trade agreement have been concluded. The trend is not slowing; new agreements are constantly being announced. Many of these agreements go far beyond trade liberalization and cover "WTO-plus" issues, which are matters that have not been decided at the multilateral level (Horn, Mavroidies and Sapir, 2009).

Free trade zones created by free trade agreements aim to eliminate tariffs or other trade restrictions between member States. However, each member State follows its own trade policy, including joining other free trade agreements and imposing specific tariffs with third countries. This means member States in a free trade area have different tariffs and trade regulations with third countries. Customs unions are different. They abolish trade restrictions between member States but have common external tariffs and trade regulations. The European Union, for example, is a customs union; NAFTA is a free trade area.

The main reason for the trend towards more regional agreements is the lack of consensus on a multinational level. For countries of the Global North, it has been the extraordinarily slow progress in the Doha Development Round, which started in 2001 and collapsed unfinished in 2008, that motivated regional free trade agreements. There has been pressure from firms to hold up with other countries in a "race for markets" and the fear of being left behind. In addition, countries of the Global South are keen on preferential market access in the Global North (Ahearn, 2011; Shadlen, 2005).

According to the WTO (2020b), as of January 2020, 303 regional trade agreements were in force. Each free trade agreement is individual, and there is much variation regarding the coverage of content. Nonetheless, certain trends are evident. Unlike the United States, the European Union has no blueprint for negotiating free trade agreements, and there is considerable variation (Woolcock, 2007). Compared with European Union agreements, the United States agreements tend to be more restrictive in respect to national space for economic policy. The South-South agreements are the most liberal in regard to national space for economic policy (Trasher and Gallagher, 2008).

The following highlights the various elements of free trade agreements.

5.1 Trade in goods

Technically, a free trade agreement contradicts the basic WTO principle of most-favoured-nation treatment. GATT Article XXIV(8b) grants an exemption and authorizes the establishment of a free trade area if "duties and other restrictive regulations of commerce […] are eliminated on substantially all the trade between" the participating parties. This is why in free trade agreements almost all tariffs are abolished. Quotas are also prohibited. Unlike the WTO rules, however, export taxes are often banned (Mendez Parra, Schubert and Brutschin, 2016).

On the use of safeguards, there are large variations in free trade agreements. They regulate what happens if a party to the agreement establishes global safeguards under WTO provision (see section 3.2.2 on safeguards under GATT), such as reacting to an enormous surge in imports of certain products that prove problematic for a country. If there is need for safeguards, most agreements refer to the WTO rules. But there are also cases that deviate from this, such as not taking into account the trigger of increased imports or even no mention of safeguards in the case of balance of payments problems. There are also significant differences concerning instruments or duration. For example, there are some agreements that exclude quantitative restrictions as an option (Crawford, McKeagg and Tolstova, 2013).

There is also no uniform pattern on the handling of duty-drawbacks in connection with export processing zones. The crucial point here is that, technically, export processing zones are outside a country's customs territory and it can thus be argued that goods produced outside should also not benefit from the advantages of a free trade agreement (Engman, Onodera and Pinali, 2007). The handling of duty-drawbacks and deferrals on condition of exports differ in free trade agreements. For example, there are European Union agreements that do not provide for any restrictions or that grant countries a transitional period. In the United States agreements, these practices are predominantly prohibited, and countries have to give up their free trade zones (Trasher and Gallagher, 2008).

While the prohibition of local content requirements is omnipresent in virtually all WTO agreements, a similar regulation is finding a comeback in regional free trade agreement, albeit under a new name. A standard found in all agreements are detailed "rules of origin" (Francis, 2017). To benefit from preferential treatment in a free trade area, goods must (a) originate in one of the countries belonging to the free trade area; (b) be accompanied by a certificate of origin; and (c) fulfil certain additional requirements. In this way, the participating parties to an agreement want to ensure that products from third countries are not granted preferential market access through "trade deflection". For example, if Viet Nam and the European Union sign a trade agreement, goods from China (although not included in the agreement) could be sold to a firm in Viet Nam, which adds minimal new value and sells the goods to the European Union with no or low tariff, according to the free trade agreement. Such a transaction may be based on a situation in which tariffs between Viet Nam and China are much lower than between the European Union and China. The purpose of selling Chinese products via Viet Nam is trade deflection. Trade deflection is prevented by rules of origin, which enshrine that the privileges of the free trade agreement only can be enjoyed if a certain percentage of value of a product is added in a country belonging to the free trade agreement (Dünhaupt, 2017). In a customs union with identical external tariffs, such rules of origin are not needed.

The NAFTA, for example, contains rules of origin for the automotive sector. For a car to be sold duty-free between the three countries that are party to the agreement, 62.5 per cent of a car's content must come from within the three countries. In the recently negotiated United States-Mexico and Canada Agreement, this amount increased to 75 per cent. Another rule stipulates that 70 per cent of the steel and aluminium in cars must come from North America, and 40–45 per cent of the car must be manufactured by workers who earn on average US$16 an hour (EPRS, 2018).

5.2 Trade in services

Similar to the GATT, the GATS treaty contains conditions that must be fulfilled by regional integration to be allowed to deviate from the most-favoured-nation principle. The first condition demands that agreements have "substantial sectoral coverage", and the second condition asks for the elimination of existing discriminatory measures and/or a prohibition on new measures. In effect, this means that maintaining the current status quo is sufficient, and at least the GATS treaty does not oblige countries participating in free trade agreements to open up access to more sectors. The third condition demands that free trade agreements do not lead to greater trade and investment barriers against third countries (Mattoo and Sauvé, 2008).

As with the GATS treaty, countries determine which sectors they grant national treatment and market access. This is done either by the positive list, in which the sectors that are opened are explicitly named, or by the negative list, in which the sectors that are not opened are explicitly named. In the GATS treaty, investments in services fall under the mode 3 category. Those agreements, which are based on GATS and contain a positive list, also specify the four modes of supply. The other agreements that contain a negative list predominantly contain a separate chapter on investment, which then also sets the rules for investment in services (Latrille and Lee, 2012). These investment chapters predominantly mirror bilateral investment treaties (see section 5.4).

Free trade agreements concluded by Canada and the United States often contain a clause prohibiting the requirement of a local presence (UNCTAD, 2005). This is particularly relevant for e-commerce and finance companies.

As in the GATS treaty, most free trade agreements do not contain rules on how to deal with subsidies. Other agreements, such as NAFTA or NAFTA-inspired agreements, even explicitly exclude the handling of subsidies from the agreements (Latrille and Lee, 2012).

5.3 Intellectual property rights

Although there are variations in free trade agreement regarding the protection of intellectual property rights, almost all agreements contain the "TRIPS+ rules", or rules that go far beyond the TRIPS agreement. The most relevant TRIPS+ rules are highlighted here. As an example, we use the United States free trade agreements, which belong to the most far-reaching ones.

Regarding pharmaceutical products, Correa (2006) pointed to five features in the United States agreements that go far beyond the TRIPS agreement. First, there is a difference in the number of years for which a patent is granted. Here, the 20 years apply, as with the TRIPS. However, while the 20-year period in the TRIPS starts with the application, United States agreements often stipulate that the patent may be valid for longer if "unreasonable" delays occur, either due to the procedures for marketing approval of a medicine or the examination application. The maximum duration of this extension is not specified.

Second, there is a difference regarding the handling of test data. Under the United States agreements, parties to the agreement are required to provide at least five years of exclusivity on test data for pharmaceutical products submitted for approval. Exclusivity even takes place when the product is not patented. A Singapore-United States agreement even goes so far as to prohibit the competitor from referring to test data submitted abroad for domestic marketing approval (Fink and Reichenmiller, 2006). For the competitors, this means that they must carry out clinical trials for marketing approval themselves, which are costly and take a long time (Correa, 2006).

Third, the United States agreements call for a link between the registration of drugs and patent protection. One of the consequences of this practice—if a patent exists—is that the marketing approval of a generic product is prohibited, and the patent owner must be informed about the application for approval.

Fourth, some free trade agreements limit the possibilities of parallel imports because they allow the patentee to prohibit them by contractual means.

Fifth, even though the granting of compulsory licenses is legal in free trade agreements, it is more difficult for governments to issue them (Shadlen, 2005). This is because compulsory licenses may only be used under certain conditions, such as in the case of "anti-competitive practices, public non-commercial use, national emergency or other circumstances of extreme urgency" (Correa, 2006, p. 401).

Some agreements extend the scope of what can be patented, including plants or even life forms (Fink and Reichenmiller, 2006).

Last but not least, the United States is demanding "pipeline protection" in its agreements. Patent law is actually regulated in such a way that an invention must be new for a patent to be granted. Many pharmaceutical companies have not patented any products in developing countries. Pipeline protection means that products that have been available on the market for some time can also be patented. The duration of the patent is then identical to the duration of the patent in the first country (Shadlen, 2005).

5.4 Government procurement

As only a few countries have joined the WTO Government Procurement Agreement and because government procurement is extremely lucrative, the issue explicitly included in more and more free trade agreements (Rickard and Kono, 2013). For example, in many free trade agreements, the European Union and its trading partners "offer each other access to procurement by certain public authorities and bodies for certain goods and service" (European Commission, 2019). The majority of United States free-trade agreements also contain a chapter on government procurement (Office of the United States Trade Representative, 2020).

5.5 Investment

Most free trade agreements negotiated in recent years both cover trade in goods and/or services and contain an investment chapter. The first free trade agreement to include an investment chapter that was as detailed and far-reaching as a bilateral investment treaty was NAFTA, which served as an inspiration for a new generation of agreements. Modern investment chapters are broadly similar to bilateral investment treaties in terms of structure and provisions (see the detailed discussion in section 4).

According to Alschner (2018), the parallel existence of bilateral investment treaties and investment chapters can become problematic for countries. For instance, investors can opt for the contract that gives them the best protection. As a result, innovations and limitations achieved by countries in more recently negotiated contracts erode. As well, investors can get something like a second chance; if their first lawsuit under one contract is rejected, they can try again under another. And because contracts often contain different standards, confusion can occur.

An important and problematic point is that while bilateral investment treaties can be terminated relatively easily and are sometimes only concluded for a certain period of time, it is neither easy nor uncomplicated to terminate a free trade agreement, especially if several countries are involved.

5.6 Enforcement

There are three variations of dispute settlement mechanisms that can be found in free trade agreements: (a) political or diplomatic dispute settlement; (b) systems based on a standing tribunal (for example, the European Court of Justice); and (c) systems relying on an ad hoc arbitration panel, which is reminiscent of the WTO system of dispute settlement and which is the most prevalent. If agreements have a separate investment chapter, the investor-State dispute settlement mechanism dominates (Porges, 2010).

6 Summary

The main point of this paper is to analyse the scope that governments still have to pursue industrial policy. This is an important question, especially for developing countries because the market mechanism under free trade and free capital flows does not automatically lead to an economic catching-up. The opposite is actually the case. The logic of comparative advantages pushes developing countries to low-tech and labour-intensive production with little potential to achieve high value-adding production or develop the capabilities of self-reliant technological production. Also, internal and external economies of scale and scope, which are based on the law of mass production and network effects, are widespread in industrial production and many service areas and lead to low development chances for less-developed countries and the reproduction of underdevelopment.

There is no doubt, however, that industrial policy in developing countries is justified and necessary to catch-up to a living standard of per capita income comparable to developed countries, not to mention the need for industrial policy to transform economies towards ecological sustainability.

Industrial policy in developing countries should not only consist of the horizontal type (general support for research or education or investment in infrastructure). Vertical industrial policy is equally necessary, which in a focused and comprehensive way supports upgrading in global value chains, the development of economic clusters, the creation of comparative advantages and entry to promising industries or even firms in new areas. It is widely acknowledged that all successful countries have used comprehensive vertical industrial policy in the past (Chang, 2002; Stiglitz, 1996). But times have changed. International trade and international capital flows have increased substantially, at least until the financial crisis and Great Recession of 2008–2009. Deregulation under the WTO (like the regulation of services or foreign direct investment), free trade agreements and investment agreements reduce the scope of national policies. In addition, low transportation and communication costs have reduced the protection of countries from foreign competition.

Thus, the question for now: Which instruments for vertical industrial policy are still available today under the WTO rules and the free trade and bilateral investment agreements? (Table 4 gives an overview.)

Let's start with the WTO rules. As a rule of thumb, policy measures that directly impact on exports and imports of goods and services are forbidden. All other types of government interventions are acceptable—at least as long as no other country in the WTO feels harmed by the government action (Chang and Andreoni, 2016). The WTO wants to ensure that competition is fair, and measures that distort exports and imports and prices are thus prohibited. The most-favoured-nation rule (a member country is not allowed to discriminate between trade partners) and the principle of national treatment (foreign products and firms should be treated in the same way as domestic products and firms) form its philosophical basis. The WTO policy is to implement these principles as far as possible in the international trade of goods and services.

The first column of table 4, titled Multilateral agreements, provides an overview of the policy space that countries still have under WTO agreements. The scope of each country depends on the concessions it has made. A country can, in a differentiated way, decide which product groups should be regulated by the WTO rules. Especially in the area of tariffs, there can be a lot of space if countries (a) have not bound all product groups and (b) have set the maximum tariffs high. Countries can then exploit the "water" in the tariff system.

Quantitative restrictions of exports and imports are prohibited. But there are exceptions. In emergency situations, such as a shortage of food or a balance of payment crisis, safeguards in the form of quantitative restrictions are possible. These can be introduced temporarily in times of crises. Also, national security reasons can be used as an argument for quantitative trade restrictions.

Export taxes are still allowed, which is particularly important for commodity-exporting countries.

The agriculture sector is regulated by a separate agreement. Developed countries obviously have high interest to protect and subsidize their agricultural production because of national security or lobbying by farmers. Attempts to reduce tariffs and subsidies in the agriculture sector have been not very successful. In the European Union, for example, there are still high levels of agricultural tariffs and subsidies. For many developing countries, this is a thorn in their side because they are especially competitive in this sector. We can expect that the COVID-19 crisis of 2019–2020 will further reduce the willingness of developed countries to deregulate the agriculture sector.

Export subsidies and subsidies contingent upon local content are prohibited. This applies both to direct support and to all measures whereby a government creates for exporters conditions that are better than the market norm, such as subsidizing export credits or reducing enterprise taxes for successful exporters. Here, developed countries have the strategic advantage that their development banks can refinance themselves cheaply on the market and then give cheap export loans, which do not fall under the category of subsidies.

In the event of distorting subsidies, countries can react with anti-dumping measures, such as tariffs. Least-developed countries are allowed to use export subsidies. But they can be actionable, which implies that other countries that feel harmed by such subsidies can start actions against countries using them. Other subsidies are only actionable if they are found to be specific and cause adverse effects on other countries. Hence, there is a universe of subsidies and other supports that governments can provide to the national economy, from supporting research and education to stimulating investments. Subsidies for innovation and research, environmental protection and for regional development are frequently used by developed countries and were, until now, almost never reported as harmful for other countries. If it is financially feasible, developing countries should use these types of subsidies extensively.

In the field of services, the individual scope of a country depends strongly on the concessions made because each country can decide which sectors and which modes of supply it allows market access and national treatment. If countries do not open up sectors, they still have a vast range of performance requirements that they can demand from foreign service providers in exchange for market access. In any case, there is no prohibition on subsidies. Countries can impose capital controls that are in line with the IMF regulations as long as they have not listed the financial sector under modes 1 and 3 in their schedule of commitments. In the event of balance of payments problems, in spite of opening up the financial sector, they have the right to introduce capital controls. This is also the case if the IMF recommends capital controls for a country.

As table 4 indicates, under the WTO rules, there are also many performance requirements regarding foreign direct investments producing goods (as previously noted, foreign direct investment in the service sector is differently regulated) that countries can demand from foreign investors. Host countries, for example, can demand joint ventures, transfer of technology, export performance requirements, local use of services, etc. There is no right of establishment, so countries can decide to whom they grant market access.

There is also scope in the field of intellectual property rights that countries can and should exploit. The space is determined by a country's legislation. Patents on animals and plants may be excluded in national law, and exceptions may be made for research. In addition, the granting of compulsory licenses and parallel imports are permitted. At this point, it is worth emphasizing that least-developed countries are exempt from the TRIPS agreement. These possibilities should not be underestimated. Bangladesh, for example, has established a flourishing pharmaceutical industry through targeted industrial policy.

Many freedoms exist regarding government procurement. In the WTO rules, it is once again the concessions made by the individual countries that matter. If no concessions have been made, governments can privilege domestic firms and service suppliers and make demands for local content.

For many years, there was little progress at the multilateral level regarding further liberalization and integration; thus, there was a tremendous increase in bilateral investment agreements and free trade agreements, which often go far beyond WTO rules. For industrial policy, this means that such agreements reduce the freedom for countries for national policies even more. Of course, the extent of the reduced space for national policy depends on the individual free trade and investment agreements. The topic is complex, and within the limits of this paper, we could only highlight some critical points. In the case of investment agreements, much depends on the underlying definition of "investment". Does investment only concern physical investments or anything from portfolio investments to intellectual property rights? Table 4 indicates the typical restrictions.

Massive restrictions arise when countries grant national treatment pre-establishment. Then the hands of host countries are practically tied. The same applies, of course, if performance requirements are explicitly excluded in the agreement. What makes investment treaties particularly dangerous and restricts the freedom of governments is how the vast majority of these agreements allow foreign investors to sue governments in private arbitration if they see their rights violated. Investment agreements can thus become a double painful experience: hands are tied yet the agreement may become problematic in the event of litigation—with an obscure procedure, an unpredictable outcome and possibly high costs.

Because there is so far no robust relationship between the conclusion of investment agreements and the inflow of foreign direct investment, countries should consider how useful these agreements are to them. If possible, they should decide against investor-State dispute settlement.

There is also large variation in the available flexibilities for national policy in free trade agreements. As a general trend, these often far exceed the WTO rules because it is a requisite for WTO approval. The possibilities of protecting infant industries and policies to create new comparative advantages often are substantially reduced as a result. And yet, new options are emerging. The prohibition of local content measures (apart from government procurement) runs through all WTO agreements. In regional free trade agreements, a standard is created that can also promote the local economy, namely rules of origin.

What is left then, under the WTO and even under far-reaching free trade and investment agreements? Overall, the WTO leaves relatively ample freedom for industrial policy. This freedom can be used for comprehensive and focused vertical industrial policy. Free trade and investment agreements can substantially constrain industrial policy. Countries should be cautious to keep space for national and industrial policy in their free trade and investment agreements, and if it is not given, then the agreements should be terminated. Governments especially should have the freedom to use public procurement to support domestic firms and sectors. Deregulations in this field are harmful for industrial policy as well as the unregulated opening of sectors for foreign direct investment.

To discuss which industrial policies in the present situation of almost all countries are still possible, several points are important: First, indirect subsidies, especially to support research and innovation, foster education and training, to develop certain regions, to push ecological transformation, etc. are possible and should be used extensively for industrial policy. Countries should test to what extent such policies can be used; even the most developed countries use them extensively. Second, development banks and state-owned banks can be used to provide long-term credits and influence credit allocation in the direction of economic upgrading. Third, state-owned enterprises can be used for industrial policy purposes as well.

Successful and still allowed vertical industrial policy is very much concentrated around cluster policy. Coherent policy packages must be developed and implemented to upgrade in global value chains, create new comparative advantages and exploit external and internal economies of scale. Economic policy instruments range from focused infrastructure projects over specific training and education, financing and subsidizing certain activities to organizing cooperation among and between firms, employers' organizations, trade unions, universities, research institutes and so on (see table 1).

And there is plenty of room for social policies that can be integrated into industrial policy. Sector-level wage bargaining to punish inefficient firms and reward good ones, which earn high profits and gain room to grow, is only one example. To integrate trade unions in education activities, structural changes and the formation of industrial policy on different levels is another example.

Demand stimulation in general and of specific sectors is important for new promising sectors in the economy and the exploitation of internal and external economies of scale. Exchange rate policy combines demand stimulation and support for the domestic industrial and export sector in general. In the philosophy of the WTO rules and the free trade agreements, it is a contradiction that exchange rate policy is to be completely neglected. By managing the exchange rate, countries can undervalue their currency and realize current account surpluses. A real undervaluation has the same effect as a general tariff for imports or a general subsidy for exports. Common strategies to achieve undervaluation are foreign exchange interventions, accumulation of foreign reserves by the central bank, capital import controls and stimulation of strategic capital exports.[33] A successful real depreciation can be considered a part of successful industrial policy with positive structural and demand effects (Rodrik, 2005). Developing countries should strictly follow policies to avoid current account deficits.

Public investment and the provision of public goods as part of a long-term strategy are important for demand stimulation and also industrial policy. This can add to a sustainable macroeconomic demand development as well as a relatively equal income distribution.

Last but not least, the government should create a spirit of innovation and development. It should develop with stakeholders a vision of how the country should develop and adjust the vision to changing circumstances. The State should also facilitate structural change via building new institutions, managing conflicts and compensating losers (Chang, 1994).

33 For foreign exchange interventions, countries like China, Germany and Japan are good examples. Germany used development aid in the 1960s to prevent the appreciation of the mark (Emminger, 1986).

Table 4. Policy space left in multilateral agreements, free trade agreements, and bilateral investment treaties

Domain	Instrument	Multilateral Agreement		Free Trade Agreement		Bilateral Investment Treaty
Trade in goods	Tariffs	✓	Up to the maximum bound tariff	×	To be abolished	
	Quantitative restrictions • Import quota • Import licensing • Voluntary export restraint	×		×		
	Export taxes	✓		×		
	Safeguards for injurious imports	✓		(✓)	Mostly allowed	
	Safeguards for critical food shortages	✓		✓		
	Safeguards for balance of payments problems	✓		(✓)	Mostly allowed	
Subsidies	Subsidies contingent upon exports	× (✓)	 Except for developing countries; but actionable	×		
	Export credit	(✓)	If they comply with the OECD arrangement on export credits	(✓)	If they comply with the OECD arrangement on export credits	
	Subsidies contingent upon the use of domestic content	×		×		
	Duty-drawbacks and deferrals for exporting firms	✓		(✓) (×)	In European Union agreements, mostly allowed In United States agreements, mostly prohibited	

✓: permitted, (✓): in some cases, permitted, ×: forbidden, (×): in some cases, forbidden, otherwise permitted

Domain	Instrument	Multilateral Agreement		Free Trade Agreement		Bilateral Investment Treaty
Trade in services				*Note: If a free trade agreement does not contain a separate investment chapter, the service chapter is similar to GATS; for agreements with an investment chapter, compare the column on bilateral investment treaty.*		
	Require joint ventures	✓ ×	If sector is not listed in the schedule of commitments If sector is listed in the schedule of commitments	✓ ×	If sector is not listed in the schedule of commitments If sector is listed in the schedule of commitments	
	Require use of local resources	✓ ×	If sector is not listed in the schedule of commitments If sector is listed in the schedule of commitments	✓ ×	If sector is not listed in the schedule of commitments If sector is listed in the schedule of commitments	
	Local equity requirement	✓ ×	If sector is not listed in the schedule of commitments If sector is listed in the schedule of commitments	✓ ×	If sector is not listed in the schedule of commitments If sector is listed in the schedule of commitments	
	Local presence requirement	✓		(×)	US agreements prohibit local presence requirement	
	Grant fiscal, financial or other incentives to domestic firm	✓		✓		
	Capital controls	✓ ×	If financial service sector is not listed under modes 1 and 3 in the schedule of commitments If financial service sector is listed under modes 1 and 3 in the schedule of commitments	✓ ×	If financial service sector is not listed under modes 1 and 3 in the schedule of commitments If financial service sector is listed under modes 1 and 3 in the schedule of commitments	
	Capital controls in the event of balance of payments problems	✓		(✓)		

✓: permitted, (✓): in some cases, permitted, ×: forbidden, (×): in some cases, forbidden, otherwise permitted

Domain	Instrument	Multilateral Agreement	Free Trade Agreement	Bilateral Investment Treaty
Investment		*Note: Here, investment refers to investment in goods defined by the TRIMS Agreement; for investment in services see Services (covered by GATS)*	*Note: Here, investment implies that a free trade agreement also includes an investment chapter.*	*Note: In investment agreements, the degree of coverage varies according to the underlying definition of investment.*
	Local content requirements	×	×	×
	Trade balancing requirements	×	×	×
	Foreign exchange restrictions	×	×	×
	Domestic sale requirements	✓	×	×
	Requirement to employ local labour	✓	(×) If national treatment applies pre-establishment (×) If explicitly ruled out by prohibition of performance requirements	(×) If national treatment applies pre-establishment (×) If explicitly ruled out by prohibition of performance requirements
	Requirement to put nationals on board of directors or in senior management	✓	(×) If national treatment applies pre-establishment (×) If explicitly ruled out by prohibition of performance requirements	(×) If national treatment applies pre-establishment (×) If explicitly ruled out by prohibition of performance requirements
	Requirement to locate regional headquarter in the host State	✓	(×) If national treatment applies pre-establishment (×) If explicitly ruled out by prohibition of performance requirements	(×) If national treatment applies pre-establishment (×) If explicitly ruled out by prohibition of performance requirements
	Requirement to locate research and development in the host State	✓	(×) If national treatment applies pre-establishment (×) If explicitly ruled out by prohibition of performance requirements	(×) If national treatment applies pre-establishment (×) If explicitly ruled out by prohibition of performance requirements
	Requirement to establish operations in a particular region in the host State	✓	(×) If national treatment applies pre-establishment (×) If explicitly ruled out by prohibition of performance requirements	(×) If national treatment applies pre-establishment (×) If explicitly ruled out by prohibition of performance requirements
	Requirement to transfer technology	✓	(×) If national treatment applies pre-establishment (×) If explicitly ruled out by prohibition of performance requirements	(×) If national treatment applies pre-establishment (×) If explicitly ruled out by prohibition of performance requirements

✓: permitted, (✓): in some cases, permitted, ×: forbidden, (×): in some cases, forbidden, otherwise permitted

Domain	Instrument	Multilateral Agreement	Free Trade Agreement	Bilateral Investment Treaty
Investment		*Note: Here, investment refers to investment in goods defined by the TRIMS Agreement; for investment in services see Services (covered by GATS)*	*Note: Here, investment implies that a free trade agreement also includes an investment chapter.*	*Note: In investment agreements, the degree of coverage varies according to the underlying definition of investment.*
	Requirement to use local service providers	✓	(×) If national treatment applies pre-establishment (×) If explicitly ruled out by prohibition of performance requirements	(×) If national treatment applies pre-establishment (×) If explicitly ruled out by prohibition of performance requirements
	Requirement to form joint ventures	✓	(×) If national treatment applies pre-establishment (×) If foreign firm is already established, national treatment, fair and equitable treatment and other provisions may restrict introduction of joint venture requirement	(×) If national treatment applies pre-establishment (×) If foreign firm is already established, national treatment, fair and equitable treatment and other provisions may restrict introduction of joint venture requirement
	Domestic equity participation requirement	✓	(×) If national treatment applies pre-establishment	(×) If national treatment applies pre-establishment
	No right of establishment	✓	(×) If national treatment applies pre-establishment	(×) If national treatment applies pre-establishment
	Export performance requirement	✓	(×)	(×)
	Capital controls in the event of balance of payments problems	(✓) Special regulation for developing countries; here reference is made to the GATT and how to deal with balance of payments problems.	(✓) Most agreements contain a safeguard clause (×) The majority of United States agreements do not even allow capital controls in times of balance of payment crisis	(✓) Most agreements contain a safeguard clause (×) The majority of United States agreements do not even allow capital controls in times of balance of payment crisis

✓: permitted, (✓): in some cases, permitted, ×: forbidden, (×): in some cases, forbidden, otherwise permitted

Domain	Instrument	Multilateral Agreement		Free Trade Agreement		Bilateral Investment Treaty	
Intellectual property rights	Limit protection for plants and animals	✓		(×) (✓)	Mostly prohibited by United States agreements Mostly allowed by European Union agreements		
	Exceptions for research	✓		(×)	United States agreements mostly demand at least five years of exclusivity		
	Compulsory licenses	✓		(✓)	Only under certain conditions	(×)	Could be considered as (indirect) expropriation
	Parallel imports	✓		(×)	Can be prohibited by patent holder	(×)	Could be considered as (indirect) expropriation
	Narrow patentability requirements	✓		(×)			
Government procurement	Local content requirement	✓ (✓) ×	If country did not sign Agreement on Government Procurement If country signed Agreement on Government Procurement, but did not open particular area to other members that take part in the agreement If country signed Agreement on Government Procurement and listed specific part of government procurement to other members that take part in the agreement	(×)	If agreement contains a chapter on Procurement and listed specific parts of government procurement		

✓: permitted, (✓): in some cases, permitted, ×: forbidden, (×): in some cases, forbidden, otherwise permitted

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