

TRANSFORMATIVE INDUSTRIAL POLICY FOR AFRICA



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ACRONYMS

ABDI	Brazilian Industrial Development Agency
ACP	African, Caribbean and Pacific
ADBC	Agricultural Development Bank of China
ADNOC	Abu Dhabi National Oil Company
AfDB	African Development Bank
AGOA	African Growth and Opportunities Act
ASEAN	Association of Southeast Asian Nations
ATPA	Andean Trade Preferences Act
BDVC	Buyer-Driven Value Chain
BITs	Bilateral Investment Treaties
BNDES	Banco Nacional de Desenvolvimento Econômico e Social (Brazilian Development Bank, also known as National Bank for Economic and Social Development)
BoP	Balance of Payments
CBE	Commercial Bank of Ethiopia
CBI	Caribbean Basin Incentive
CDB	China Development Bank
CEMAC	Central African Economic and Monetary Union
CEN-SAD	Community of Sahel-Saharan States
CEO	Chief Executive Officer
CMT	Cut, Make and Trim
CNDI	Council for Industrial Development
CODELCO	Corporación Nacional del Cobre de Chile
COMESA	Common Market for Eastern and Southern Africa
CONICYT	Consejo Nacional de Investigación en Ciencia y Tecnología (National Council on Innovation, Science and Technology)
CORFO	Corporación de Fomento (Chile's Production Development Corporation)
CU	Customs Unions
CV	Countervailing Duties
DBE	Development Bank of Ethiopia
DNPEA	National Agricultural Research and Experiment Department
DRC	Democratic Republic of the Congo
DUCAB	Dubai Cable
EAC	East African Community
EAP	East Asia and Pacific
EBA	European Banking Authority
EBRD	European Bank for Reconstruction and Development
ECCAS	Economic Community of Central African States
ECOWAS	Economic Community of West African States
EDPRS	Economic Development and Poverty Reduction Strategy
EIB	Emirates Industrial Bank
EMAL	Emirates Aluminium
EMBRAPA	Empresa Brasileira de Pesquisa Agropecuária (Brazilian Agricultural Research Corporation)
ENAMI	Empresa Nacional de Minería (National Mining Corporation of Chile)
EPA	Economic Partnership Agreements

EPB	Economic Planning Board
EPRDF	Ethiopian People's Revolutionary Democratic Front
EPZ	Export Processing Zone
EU	European Union
EXIM	Export-Import
E&E	Electric and electronic
FCh	Fundación Chile
FDI:	Foreign Direct Investment
FOB	Free on board
FTA	Free Trade Agreements
GATS	General Agreement on Trade and Services
GATT	General Agreement in Tariffs and Trade
GDP	Gross Domestic Product
GFCF	Gross Fixed Capital Formation
GIC	General Industries Corporation
GM	General Motors
GSP	Generalised System of Preferences
GVCs	Global value chains
HOS	Heckscher-Ohlin-Samuelson
ICSID	International Centre for the Settlement of Investment Disputes
ICT	Information and communication technology
IFOP	Fisheries Development Institute
IGAD	Intergovernmental Authority on Development
ILO	International Labour Organisation
ILP	Industrial Linkage Programme
IMF	The International Monetary Fund
IPRs	Intellectual property rights
ISDS	Investor State Dispute Settlement
ISI	Import-Substituting Industrialisation
JICA	Japan International Cooperation Agency
LDCs	Least-developed countries
MAPA	Ministry of Agriculture, Livestock, and Food Supply
MDIC	Ministry for Development, Industry and Foreign Trade
MED	Ministry of Entrepreneur Development
MFN	Most Favoured Nation
MIDA	Malaysian Industrial Development Authority
MIIT	Ministry of Industry and Information Technology
MPOB	Malaysian Palm Oil Board
MPOPC	Malaysian Palm Oil Promotion Council
MUBADALA	Mubadala Development Company
MVA	Manufacturing value-added
M&A	Mergers and acquisition
NAFTA	North American Free Trade Agreement
NAMA	Non-Agriculture Market Access
NDP	New Development Policy
NEP	New Economic Policy
NIEs	Newly Industrialised Economy
NKEAs	National Key Economic Areas

OECD	Organisation for Economic Co-operation and Development
PDVCs	Producer-Driven Value Chains
POCPA	Palm Oil Credit and Payment Arrangement
PBM	Plano Brasil Maior (Bigger Brazil Plan)
PERNAS	Permodalan Nasional (National Corporation - Malaysia)
PDP	Productive Development Policy: Innovate and Invest to Sustain Growth
PITCE	Industrial, Technology and Foreign Trade Policy
PMP	Portable multimedia players
PNB	Permodalan Nasional Berhad
PORIM	Palm Oil Research Institute of Malaysia
PORLA	Palm Oil Registration and Licensing Authority
PPP	Public-private partnership
PROCHILE	Export Promotion Bureau of Chile
PSF	Private Sector Federation of Rwanda
PTA	Preferential Trading Arrangements
QRs	Quantitative Restrictions
RDB	Rwanda Development Board
RTAs	Regional Trade Agreements
R&D	Research and Development
SACU	Southern African Customs Union
SADC	Southern African Development Community
SCM	Agreement on Subsidies and Countervailing Measures
SERNAP	Servicio Nacional de Pesca (Chile's National Fisheries Service)
SERPLAC	Secretaría Regional de Planificación y Coordinación (Regional Planning and Coordination Secretary)
SMEs	Small and medium-sized enterprises
SMIDEC	Small and Medium Industrial Development Corporation
SMP	Second Malaysia Plan
SOEs	State-owned enterprises
SSAXSA	Africa excluding North Africa and South Africa
SVA	Supplier Volume Allocation
TIFA	Trade and Investment Framework Agreements
TISA	Trade in Services Agreement
TNCs	Transnational corporations
TOT	Terms of trade
TRIMS	Trade Related Investment Measures
TRIPS	Trade Related Intellectual property Rights
TTAs	Technology Transfer Agreements
TVET	Technical and vocational education and training
UAE	United Arab Emirates
UK	United Kingdom
UN	United Nations
UNDP	United Nations Development Programme
US	United States (of America)
USTR	United States Trade Representative
VINATEX	Vietnam National Textile and Garment Group
WAEMU or UEMOA	West African Economic and Monetary Union
WTO	World Trade Organization
WWI	First World War
WWII	Second World War

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ECA hopes that this report will be effective in promoting structural transformation and inclusive growth on the continent and support African government and policy makers to fast-track with their industrialization efforts.

ABOUT THE REPORT

Africa is at a crossroad. After a long history of exploitation (slave trade and colonialism), violent conflicts (liberation struggles, civil wars, and military coups), and economic turmoil (the varied experiences of initial post-colonial economic development, devastation due to the Structural Adjustment Programmes of the 1980s and the 1990s), it has finally seen a decade of improved economic growth and greater political stability.

Once written off as a continent uniquely suffering from structural impediments to economic growth and development – poor climate, disadvantageous geography, - varying degrees of ethnic diversity, poor institutions, cultural prejudice etc – there is now widespread optimism about the future of the continent. The talk of ‘African growth tragedy’ is being replaced by a talk of ‘Africa rising’, with metaphors like ‘African lions’ – in obvious homage to that of ‘Asian tigers’ – flying around.

It is important that African countries begin to think seriously about – and implement – ways to upgrade their commodity sectors and, more importantly, promote the development of higher-productivity sectors, especially manufacturing but also some high-end services.

However, it is not yet clear whether Africa can turn the recent economic recovery into sustained economic development. First of all, the acceleration in economic growth over the last decade in several countries in the continent is owed to one-off factors, like the finding of important oil or mineral reserves (e.g., Equatorial Guinea) or the end of a prolonged civil war (e.g., Chad). More importantly, most of the acceleration in economic growth has been based on high prices of primary commodities³, and at that with relatively little upgrading within the commodity sectors themselves (e.g., making cocoa butter and powder instead of exporting cocoa beans). As such, the recent fall in commodity prices, likely to last for a while, is dimming the prospect of growth in the short- to medium-term⁴. More importantly, the failure of most African countries to use the recent commodity-based growth to start a more sustainable growth based on the development of the manufacturing sector

(including but not exclusively the processing of primary commodities) is making the continent’s long-term prospect worrisome – no country, except a few states exceptionally rich in oil (e.g., Qatar, Kuwait, Brunei) or very small financial havens (e.g., Monaco, Liechtenstein), has achieved high and sustainable standards of living without developing a significant manufacturing sector.

3 By primary commodities we mean goods that are not processed. This includes unprocessed agricultural goods (e.g. cocoa beans and tea leaves), natural resources (e.g. oil, natural gas and minerals) and unprocessed precious stones (e.g. diamonds and rubies).

4 Although in the case of primary commodities of which some African countries are net importers, especially oil, the fall in their prices can have positive impacts on those African countries.

In light of this, it is important that African countries begin to think seriously about – and implement – ways to upgrade their commodity sectors and, more importantly, promote the development of higher-productivity sectors, especially manufacturing but also some high-end services. This report is intended as a contribution to that thinking process.

After critically discussing the discourses of ‘African growth tragedy’ and of ‘Africa rising’ in Chapter 2, the report moves on to Chapter 3, where we discuss various theories arguing why developing countries need to use industrial policy that mainly (although not exclusively) target the manufacturing sector in order to transform their economies. We will show that there are a lot more economic theories that justify industrial policy than what even many supporters of industrial policy acknowledge. We will also examine theories that caution against, or even denigrate industrial policy and show how some of these theories have flimsy bases while even the more robust of them are often applied in an excessive way.

In Chapter 4, the report will provide empirical evidence demonstrating that virtually in all cases of successful economic development – both economy-wide and at the industry level – an active industrial policy has played an important transformative (and often decisive) role. We will show this by examining the historical experiences of today’s developed countries not just in the recent past (since World War II) but also when they faced similar challenges to the ones faced by African countries today, that is a more distant past between the 18th and the early 20th centuries. We will also examine the role of industrial policy in developing country that has had some success with it. A broad range of cases will be examined – not just the more developed ones (China, Brazil, Chile, Malaysia, and the United Arab Emirates) but also the less developed ones (Ethiopia, Rwanda, Vietnam, and Uzbekistan). We will look at not just the manufacturing sector (e.g., electronics, aluminum smelting, and shipbuilding) but also primary sectors (e.g., soybean, salmon, palm oil, horticulture) and services (e.g., tourism).

Having shown how industrial policy has played a critical role in real-world economic success stories, Chapter 5 examines two changes in the global economic environment that are supposed to have made it impossible for today’s poor countries, including the African ones, to draw lessons from the experiences of the more economically advanced countries in the past. One is the shrinkage in ‘policy space’ that has followed the establishment of the WTO and the proliferation of bilateral (and some regional) trade and investment agreements. The other is the proliferation and the strengthening of global value chains (GVCs) controlled by giant global corporations that make ‘nationalistic’ industrial policy less effective and less productive. In Chapter 5, we examine these arguments and show that, while they have changed what industrial policy measures can be used and are the most effective, these changes have not invalidated all types of industrial policy. There are still many industrial policy measures that can be used. Moreover, if anything, these changes have made it even more necessary for developing country industrial policy-makers to be ‘smart’ about devising development strategy and designing industrial policy measures.

Chapter 6 provides the summary and the conclusion of the report.



Chapter 1

Introduction

Africa's development experience over the past decade has yielded unprecedented economic growth rates, fuelled by internal consumption, the prolonged boom in primary commodity prices and demand, accompanied by prudent macroeconomic policies and strategies. This created a new-found optimism that developed into the "African rising" narrative, which we have maintained external to the real need for more profound changes that will generate growth with quality. Six of the world's fastest growing countries in the past decade are African, with a similar economic prospect projected for the coming decade. However, African countries also figure in the 10 most unequal societies in the world. The high demand for commodities, and their rising prices, have until now underpinned high growth rates, but have not generated sufficient productive employment, improved living conditions or a significant decline in poverty and inequality.

Broadly speaking, those shortfalls are linked to the limited investment and growth in the domestic economies of many African countries. Given the demographic profile, considerable action is required to diversify production structures into higher employment-intensive activities, as 10 million new formal jobs are needed each year to absorb the massive youth population entering the market. African countries must step up and capitalize on recent gains by creating opportunities for social change, including critical human capital investments in education and skills.

In order to avoid the negative effects of a commodity crisis, African countries must focus on building opportunities to advance industrialization. With a coherent policy, countries have the potential to drive inclusive, broad-based growth and development to achieve structural transformation. A major lesson learned from successful industrial policy is that Governments should act as facilitators and enablers. That is why I have championed the industrialization agenda.

As African countries prepare to take their place in the future global economy, I believe we have a real opportunity to promote economic transformation through the industrialization process, by capitalizing on the continent's abundant natural resources, adding value to them, while also supporting the development of infant industries. The evidence from history, from eighteenth-century Britain to the more recent successful experiences, such as the Republic of Korea, Taiwan Province of China or Singapore, shows that an active industrial policy has been essential for advancing national economic development efforts. The spectacular rise of China would not have been possible without a State developmental role that is now the subject of immense interest and vast literature.

The manufacturing sector in particular has been the engine of economic development for the majority of developed countries, and very few countries have developed their economies without a strong manufacturing base, so much so that the terms "industrialized" and "developed" are often used interchangeably when referring to a country. In developing such strategies, policies must ensure concomitant investments in infrastructure, human capital

and energy, all of which are critical for expanding the manufacturing sector. The Economic Commission for Africa (ECA) estimates that Africa's share in world manufacturing value addition has remained very low, standing at 1.5 per cent in 2010, down from 1.9 per cent in 1980. For many African countries, the manufacturing sector will be essential for yielding employment, diversifying technological capabilities that promote and expand the skills base and deepening individual countries' industrial structures.

Expanding the industrial sector will not be easy without stronger regional integration, which provides opportunities for intra-Africa trade. We now know that trade liberalization prematurely exposed local industries in Africa to unfair competition. There is growing evidence that large sections of the manufacturing sector in Africa have disappeared owing to underperformance caused by de-linking policy design and implementation, in particular the alignment of trade and industrial policies, weak infrastructure and governance and unfair competition from cheap imported products. There is also empirical data that suggests the pursuit of an African industrial revolution can only occur where large markets drive competitive production and build economies of scale in the context of regional integration.³

It is clear that, as latecomers, the conditions under which African countries could advance industrialization are difficult. Their industrial policy measures need to be context-based and address the conditionalities of “free market” policy orthodoxy, through careful rebranding and refitting. Measures for “smart specialization” and capitalization on regional value chains will facilitate the stronger participation of Africa in global value chains. This would entail addressing supply-side constraints, crafting a business strategy to engage global value chains and the large multinational corporations that dominate them.

Transformative industrial policies present an opportunity for reclaiming the policy space, as Governments can develop industrial policies that build the necessary capabilities, which respond to national and regional needs, within the confines of global rules. This would call for a systematic review of current trade and investment policies and agreements with a view to negotiating or renegotiating such agreements and, where possible, manoeuvring through the available flexibilities to ensure reciprocal control mechanisms are in place. It would also entail looking into possibilities for “smart protectionism” measures — such as the use of tariffs, subsidies, foreign direct investment and other policies at the disposal of African countries — that are not directly trade-related and therefore not covered by the World Trade Organization or other trade and investment agreements.

3 See www.uneca.org/stories/regional-integration-primary-condition-africa%E2%80%99s-industrial-revolution.

... there is a need for a paradigm shift in the application of industrial policymaking, taking lessons from how past experiences have established a unified message, applying mechanisms to support an in-depth understanding of relevant sectors.

In essence, there is a need for a paradigm shift in the application of industrial policymaking, taking lessons from how past experiences have established a unified message, applying mechanisms to support an in-depth understanding of relevant sectors. There are many opportunities for Africa if measured frameworks of engagement are put in place to address opportunities and challenges.

All too often, countries have adopted a swathe of incentives to industrialize, yet they lack focus, instead ushering in opaque discretionary and arbitrary practices and insulating inefficiencies and offering rewards without results. Such incentives should not amount to a “free lunch”. Unfocused policies also mean giving narrow windows of opportunity because of incoherence or slowness. Africans fought hard to obtain preferential rules of origin for least-developed countries at the Ninth Ministerial Conference of

the World Trade Organization, held in Bali, Indonesia, in 2013. However, African countries have neither called for the implementation of those preferential criteria in their bilateral negotiations with the European Union under the Economic Partnership Agreements, nor taken them into account in the African Growth and Opportunity Act, sponsored by the United States of America. When engaging in bilateral negotiations with large trading partners, more vigour is necessary. Although the least developed countries had obtained an extension of the transition period for the implementation of the Agreement on Trade-related Aspects of Intellectual Property Rights, an opportunity for Africa to innovate and promote new technologies, this ultimately did not materialize.

With the African economic and political landscape ripe for change, it is incumbent on leaders and Governments to drive industrial policies as part of structural reforms, characterized by Africa’s increasingly assertive and vibrant citizenry and private sector. Establishing the right political base requires a Government to have an embedded autonomy that invests in solutions rooted in the needs of its society while having the conviction to execute “best fit” policies. The role of the State is therefore critical in shaping macroeconomic planning. Successful implementation also requires state pragmatism, risk-taking and constant adaptability to the changing local, regional and global conditions.

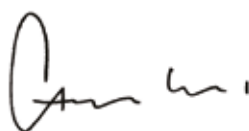
Africa’s economic and political systems should be internally driven. A prime example of such an approach is the case presented in this report of the Viet Nam shipbuilding industry,

which, although non-existent in 2002, had by 2014 become the seventh largest in the world. Viet Nam had developed a detailed plan to develop that industry, including the creation of a State-owned enterprise, providing subsidized loans, retaining corporate tax for reinvestment, exempting export taxes and land rent, increasing local content and extending loan payments for infrastructure costs of new projects. Such determination shows deliberate policies to effect change, linking the State with the private sector and enhancing backward and forward linkages that can lead the shipbuilding industry to contribute to boosting domestic investment, employment and output in the transformation process.

This specialized report has been crafted to help overcome the reluctance to undertake industrial policy resulting from the mindset of an era of conditionalities and liberalization. It provides a comprehensive review of the possibilities, highlighting the complexities and shedding light on the debate on selective and general industrial policy. It makes a basic point: policy amounts to choice. The report proposes supporting infant industries while making use of comparative advantages that have long been the focus of industrial policymaking. It serves as a guide to identify capacity development and advisory services required for the integration of transformative industrial policies into national development plans.

Lastly, industrial policymaking may yield different results and have different outcomes, like any other policy. There is a need to monitor implementation, learn from the experiences of multiple role models — the forerunner in particular — and adapt those lessons.

African leaders, policymakers and researchers and, indeed, the wider public, which has a genuine interest in promoting African structural transformation, will certainly enjoy the read.



Carlos Lopes

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Chapter 2

From 'African growth tragedy' to 'Africa rising'

- Debunking the myths

In May 2000, The Economist devoted a special edition to Africa, under the headline “The hopeless continent”. The main thrust was that Africa’s outlook is gloomy because of brutality, despotism and corruption – “acts not exclusively African (...) but African societies, for reasons buried in their cultures, seem especially susceptible to them” (The Economist, 2000, p. 1). Culture is difficult to change in a short period of time (some may say it never changes), so assuming that The Economist’s arguments are still valid, it would seem that Africa is doomed for underdevelopment in the near future.

The line of argument that deems Africa’s performance and prospects slim because of deep-rooted ‘meta-structural’ factors is not just confined to culture. Climate, geography and history are equally emphasised by many of today’s world leading economists – whether it’s being stuck in a tropical climate prone to more diseases and lower agricultural productivity; lack of access to the sea or navigable rivers; or a history of ‘too much’ ethnic diversity and negative experiences with European colonisation.

While these ‘African growth tragedy’ arguments remain popular to date, an alternative, more positive narrative on Africa has emerged. Interestingly, once a champion of the ‘tragedy’ narrative, The Economist is now a leading proponent of the narrative that Africa is now on the ‘rise’, thanks to a more stable political environment, less macroeconomic imbalances (e.g. reduction of public debt) and improvements in the quality of institutions, among other things. In light of the change in discourse, it is worth exploring in greater detail the extent to which economic development of the continent is happening, or if the ‘rise’ is just a hype.

Now, in discussing these arguments, we would like to emphasise that, although in many instances we talk of Africa as if it is a homogeneous entity, we are well aware that it is a continent of 54 countries with very varied natural and human conditions. Insofar as most African economies look rather similar to each other economically, it is not because they are in the same continent but because all economies – in whichever continent they are – at low levels of development look rather similar to each other, due to the lack of specialisation and diversification in the production structure, which then leads to high degrees of homogeneity in occupational structures, social organisations, and lifestyles.

Bearing this important point let us analyse in greater detail the arguments that claim Africa’s development to be bound by ‘meta-structural’ factors, or, in contrast, that the continent is on the ‘rise’.

2.1. THE AFRICAN GROWTH TRAGEDY

2.1.1. The arguments

Arguably the most popular of the meta-structural explanations of the African growth ‘tragedy’ in the recent period has been those based on climate (most importantly, see Diamond 1997, 2012; Sachs, 2003). Most importantly, their proximity to the equator make African countries suffer from tropical diseases, such as malaria. Tropical diseases (mostly parasitic diseases) are worse than temperate diseases, it is argued, because a tropical climate doesn’t kill as many parasites outside our bodies as a temperate climate does. These diseases hold back economic development by reducing worker productivity and raising healthcare costs. It is not just the diseases. It is also pointed out that agricultural productivity in the tropics is lower than in temperate areas when measured by nutritional value, for several reasons. First, higher average rainfall in tropical areas means more nutrients are being leached out of the soil by rain. Second, temperate plants store more energy in parts edible by humans. Third, glaciers repeatedly advanced and retreated over temperate areas, creating more nutrient rich soils.

In terms of geography, it has been emphasised that many African countries are landlocked and thus are disadvantaged in integrating into the global economy through international trade (most importantly, see Collier 2007; Bloom and Sachs, 1998; Sachs, 2012). Many of them are also said to be in ‘bad neighbourhoods’: they are surrounded by other poor countries that have small markets, which restricts their trading opportunities; many of them suffer from violent conflicts, which often spill over into neighbouring countries, with obvious negative consequences for economic development.

Ethnic diversity (see Easterly and Levine, 1997) and colonialism (see Acemoglu et al., 2001; Acemoglu and Robinson, 2012) are two aspects of African history that are said to be obstacles to the continent’s economic development. Most African nations are made up of diverse ethnic groups. Ethnic diversity makes their people distrust each other, raising transaction costs while encouraging violent conflicts, especially if there are a few ethnic groups of similar strengths rather than many small groups, which are more difficult to organise. The continent’s unique colonial history is argued to have produced low-quality institutions, such as weak protection of private property rights, which have impeded economic development. Most importantly, it is said that the European colonisers did not settle in large numbers in Africa due to the high risk of often fatal tropical diseases and thus

The continent’s unique colonial history is argued to have produced low-quality institutions, such as weak protection of private property rights, which have impeded economic development.

only installed minimal institutions designed to extract income and wealth from society to benefit a governing elite ('extractive institutions' of Acemoglu et al., 2001). It is also pointed out that institutions in Africa are worse than elsewhere because, generally, evidence shows us that a long history of government permits good institutions while a short history of government does not (Acemoglu and Robinson, 2012).

Culture is another popular meta-structural factor that is said to explain Africa's growth tragedy. Bordering on racism, the argument is that Africans possess cultures that are inimical to economic development; they do not work hard, do not plan for the future, and cannot cooperate with each other. The explanation of the economic divergence between South Korea and Ghana, two countries that were at similar levels of economic development in the 1960s, offered by Samuel Huntington, of *The Clash of Civilizations* fame, is typical: "Undoubtedly, many factors played a role, but ... culture had to be a large part of the explanation. South Koreans valued thrift, investment, hard work, education, organisation, and discipline. Ghanaians had different values, in short, "cultures count" (Huntington, 2000, p. xi). Daniel Etounga-Manguelle (2000), a Cameroonian engineer and writer, observes: "The African, anchored in his ancestral culture, is so convinced that the past can only repeat itself that he worries only superficially about the future. However, without a dynamic perception of the future, there is no planning, no foresight, no scenario building; in other words, no policy to affect the course of events" (p. 69). And then he goes on to say that "African societies are like a football team in which, as a result of personal rivalries and a lack of team spirit, one player will not pass the ball to another out of fear that the latter might score a goal" (p. 75). More recently, a viral video on YouTube called *Why Some Countries Are Rich and Others Poor* points to the fact that most people in African countries are overwhelmingly religious, and that in general, religiosity is connected with passive acceptance of current conditions.

2.1.2. The criticisms

There is nothing wrong with meta-structural arguments per se. Indeed, it will be strange if things like climate, geography, culture, and history did not affect the course of economic development at all. However, the meta-structural arguments used as explanations of Africa's growth tragedy have serious problems, as we will discuss below (see Chang, 2010, Ch. 11, for further details).

Before we start picking individual arguments apart, let us point out two common problems with all the arguments based on meta-structural factors.

The first is that all those factors – 'bad' history, disadvantageous geography, crippling climate, and anti-developmental culture – have existed throughout Africa's post-independence period but the continent's growth performance fluctuated substantially. In the 1960s and 1970s, GDP per capita in Africa grew at an annual rate between 1 and 2 per cent, at a negative rate of 0.4 per cent in the 1980s and 1990s, and then at above 2 per cent since the 2000s. These kinds of dramatic reversals should not have happened if meta-structural factors were the explanation of Africa's growth performance.

The second is that the experiences of individual African nations fly right in the face of these meta-structural arguments, sometimes in dramatic ways. For example, in the last decade, of all countries in Africa not dependent on exports of minerals or oil, the two best growth performers, namely, Ethiopia and Rwanda, have been landlocked countries. Ethiopia has confounded the meta-structural argument even further by growing faster since it became landlocked after the secession of Eritrea in the 1990s.

(a) Climate

Against the climate argument, it should be pointed out that many of today's rich countries used to suffer from their climates.

First of all, a number of today's countries have suffered from tropical diseases, if not necessarily from agricultural conditions. Singapore, which is bang in the middle of the tropics, is an obvious case, but the US, Italy, Japan, and South Korea all had significant incidences of malaria and other tropical diseases – at least in parts of the country and during the summer. These diseases do not matter in those countries anymore because their incidences have fallen dramatically due to improved sanitation and because the treatment of the cases that still occur have become more effective due to enhanced medical capabilities. Both improved sanitation and enhanced medical capabilities have mainly been the results of economic development.

Second, several rich countries – Finland, Sweden, Norway, Canada, and the US (in parts) – have frigid and arctic climates, which can be as debilitating for economic development as tropical climate.³ In such climate, machines seize up, fuel costs skyrocket, and transportation is blocked by snow and ice. Due to freezing of the sea, the Scandinavian countries used to be effectively landlocked for half of the year, severely restricting their abilities to trade with the outside world, until the advent of the ice-breaking ship in the late-19th century. Once again, few people even think of cold climate as being a potential obstacle to economic development in these countries because they have acquired the money and the technologies to deal with it.

Thus seen, blaming Africa's under-development on climate is to confuse the cause of underdevelopment with its symptoms. Adverse climate does not cause under-development. A more accurate way to see the relationship between climate and economic development is to view a country's inability to overcome the constraints imposed by its adverse climate as a symptom of under-development.

Blaming Africa's under-development on climate is to confuse the cause of underdevelopment with its symptoms. Adverse climate does not cause under-development.

³ Indeed, when you think about it, there is no a priori reason to believe that cold climate is better than hot climate for economic development. Indeed, in *Politics* (Book VII, chapter 7), Aristotle argued that the European societies are not very developed because their climate is too cold, which makes their people, well, stupid. He said: "Those who live in a cold climate and in Europe are full of spirit, but wanting in intelligence and skill; and therefore they retain comparative freedom, but have no political organization, and are incapable of ruling over others. Whereas the natives of Asia are intelligent and inventive, but they are wanting in spirit, and therefore they are always in a state of subjugation and slavery. But the Hellenic race, which is situated between them, is likewise intermediate in character, being high-spirited and also intelligent. Hence it continues free, and is the best governed of any nation, and if it could be formed into one state, would be able to rule the world." (Aristotle, 2001, p. 1286)

(b) Geography

It is true that quite a few African countries are landlocked. It is also true that, in a world with low sea freight costs, other things being equal, it is more expensive for landlocked countries to trade with the outside the world.

But if being landlocked is such an obstacle to economic development, how do we explain that Uzbekistan, the most successful post-Soviet republic (and at that using very ‘heterodox’ policies), is one of only two countries in the world that are double-landlocked (the other is Liechtenstein) (see section 4.3.3 below)? Equally puzzling are the economic successes of Switzerland and Austria. These are two of the richest economies in the world, but they are both landlocked. Some may retort that those two countries could develop despite being

landlocked because they had good river transport, but many landlocked African countries are potentially in the same position; e.g. Burkina Faso (the Volta), Mali and Niger (the Niger), Zimbabwe (the Limpopo), and Zambia (the Zambezi). As in the case of climate, the argument is based on confusion between the cause and the symptom – it is the lack of investment in the river transport system due to lack of resources and policy vision, rather than the geography itself, that is the problem.

Being in a ‘bad neighbourhood’ may not be as disadvantageous as it may seem. India is a good counter-example. In the last couple of decades, it has grown fast, despite being in one of the worst neighbourhoods in the world. South Asia, where India is located, is literally the poorest region in the world

– poorer than Africa (excluding North Africa). South Asia is also a highly conflict-ridden region. India’s own Hindu-Muslim tension, which frequently erupts in violent clashes, and its perennial military conflict with Pakistan, are well known, but the country also hosts one of the largest guerrilla forces that remain in the world today – the so-called Naxalites, a Maoist group. Neighbouring Nepal also suffered from a civil war with the Maoist guerrillas between 1996 and 2006, while the Tamil-Sinhalese ethnic war in Sri Lanka lasted 26 years, between 1983 and 2009.

(c) History

Most African countries are ethnically diverse, not least because of their unfortunate colonial history. However, it is not true that Africa is uniquely saddled with ethnic diversity.

Even ignoring ethnic diversities in immigration-based societies like the US, Canada, and Australia, many of today’s rich countries in Europe have suffered from ethnic divisions based on linguistic, religious, and ideological differences – especially of the ‘medium-degree’ (i.e. a few, rather than numerous, groups) that are supposed to be most conducive to violent conflicts. Belgium has two (and a bit, if you count the tiny German-speaking minority)

But if landlockedness is such an obstacle to economic development, how do we explain that Uzbekistan, the most successful post-Soviet republic, is one of only two countries in the world that are double-landlocked (the other is Liechtenstein).

ethnic groups. Switzerland has four languages and two religions, and has experienced no less than four mainly-religion-based civil wars between the 17th and the 19th centuries. Spain has serious ethnic tensions with the Catalans and the Basques, which have even involved terrorism. Due to its 560-year rule over Finland (from 1249 to 1809, when it was ceded to Russia), Sweden has a significant Finnish minority (around 5 per cent of the population) and Finland a Swedish one of similar proportion. The examples can go on.

Even more striking are the East Asian countries, like Japan, Korea, and Taiwan, which are often believed to have uniquely benefited from their ethnic homogeneities. These countries in fact have had serious ethnic and other divisions. People think Taiwan is ethnically homogeneous, as its citizens are all 'Chinese'. However, to begin with, there is actually a tiny native population of Polynesian origin (the so-called Kaoshan people). Moreover, even the 'Chinese' population, who have settled since the 17th century, consist of two (or four, if you divide them up more finely) ethnic groups (the 'mainlanders' vs. the Taiwanese) that are hostile to each other. Japan has serious minority problems with the Koreans, the Okinawans, the Ainus, and the Burakumins. South Korea may be one of the most ethno-linguistically homogeneous countries in the world, but that has not prevented it from having deep internal divisions. For example, people from the Southeast and the Southwest have had a history of mutual distrust and hate, so much so that at the nadir of their relationship in the mid- to late 20th century, there were people who would not allow their children to marry someone from 'the other place' for the simple reason that he/she is from there. In this regard, it is very important to note that Rwanda, where the 1994 genocide took place is actually nearly as homogeneous in ethno-linguistic terms as Korea is. The examples of Korea and Rwanda show that 'ethnicity' is a political, rather than a natural, construction.

The above examples show that countries suffer from ethnic heterogeneity not only because they have it but because they have failed to create a sense of unity through what is known as 'nation-building', which, we should note, may be an unpleasant and even violent process. Indeed, Tanzania is a great example of this (on the examples of nation-building, see Hobsbawm and Ranger (eds.), 1995; Weber, 1976). It is genetically the most heterogeneous country in the world, but it has not had any serious ethnicity-based conflicts because it has succeeded in building a sense of Tanzanian nationhood.

As for the other main history-based argument, namely, the argument that bad institutions are holding back Africa, it should be put into perspective. Between the 18th and the early 20th century, when their levels of material development were similar to those of Africa today, the institutions of today's rich countries in Europe and North America were in much worse shape than those of today's African countries: they didn't even have basic transparency in market exchange (e.g. firms selling their shares didn't even have to publicise their balance sheets); they protected property rights, especially intellectual property rights, very poorly; they didn't even pretend to recruit their government officials through competitive processes; many of them openly sold government offices and the sale of legislative votes was an open secret (for further details, see Chang, 2002, Ch. 3; Chang (ed.), 2007a). For more recent examples, in the 1960s and 1970s, the governments of South Korea and Taiwan operated with poor formal institutions, oiled by plenty of corruption. The fact is that today's rich countries built the good institutions not before but after, or at least in tandem with, their economic development. This suggests that high-quality institutions are as much outcomes as they are the causes of economic development.

(d) Culture

Most of those who blame Africa's development problems to 'bad' cultures do not even realize that all those 'negative' cultural traits of Africa cited today are the ones that used to be attributed to many of today's rich countries when they were poor themselves (Chang, 2007 b, Ch. 9).

Until the mid-19th century, when German economic development started, British visitors to German states would often describe the Germans as being mentally slow, laid back, dishonest, and excessively emotional. For example, John Russell, an early-19th century British traveller in Germany remarked: "The Germans are a "plodding, easily contented people ... endowed neither with great acuteness of perception nor quickness of feeling ... It is long before [a German] can be brought to comprehend the bearings of what is new to him, and it is difficult to rouse him to ardour in its pursuit" (Russell, 1828, p. 394). When travelling in Germany, Mary Shelley, the author of *Frankenstein*, complained that "the Germans never hurry" (Shelley, 1843, p. 276). Commenting on excessive German emotion, Sir Arthur Brooke Faulkner, a physician serving in the British army, observed that "some will laugh all sorrows away and others will always indulge in melancholy" (Faulkner, 1833, p. 155). Sir Arthur also described the Germans as dishonest: "the tradesman and the shopkeeper take advantage of you wherever they can, and to the smallest imaginable amount rather than not take advantage of you at all ... This knavery is universal" (p. 57). The list can go on, but the point is that the picture emerging from these observations is the exact opposite of the German national stereotype today – highly skilled, coldly rational, ruthlessly efficient, and rule-abiding people – and exactly the sort of things that people would use to describe the Africans.

The Japanese have often been derogatorily described as worker ants. However, in the 19th and the early 20th century, they were typically described as lazy. When he visited various factories in Japan in 1915, at the request of the Japanese government to advise it on how to improve the country's industrial productivity, an Australian engineer remarked: "My impression as to your cheap labour was soon disillusioned when I saw your people at work. No doubt they are lowly paid, but the return is equally so; to see your men at work made me feel that you are a very satisfied easy-going race who reckon time is no object. When I spoke to some managers they informed me that "it was impossible to change the habits of national heritage." (Japan Times, 18 August, 1915). Even Sidney Gulick, an American missionary who lived in Japan for 25 years and later became a champion of Asian-American human rights when he went back to the US, had to admit that many Japanese "give an impression ... of being lazy and utterly indifferent to the passage of time" (Gulick, 1903, p. 117).

Samuel Huntingdon may peddle Korea as a country that has succeeded because it had the 'right' culture, but back in 1912, the Koreans were described as "12 millions of dirty, degraded, sullen, lazy and religion less savages who slouch about in dirty white garments of the most inept kind and who live in filthy mud huts". What is particularly shocking about this comment is that it came from one of the most progressive personages of the time – Beatrice Webb, one of the founders of the Fabian movement (Webb and Webb, 1978, p. 375).

Thus seen, the cultures of Germany, Japan, and Korea seem to have been transformed beyond recognition over the last couple of centuries. This reveals a very important point about the relationship between culture and economic development. Cultural transformations of these countries happened mainly because of economic development, which created societies in which people have to behave in more disciplined, rational, and cooperative ways than in agrarian societies (for more detailed arguments, see Chang, 2007 b, Ch. 9). If anything, culture is more of an outcome, rather than a cause, of economic development. Therefore, it is highly misleading to blame Africa's (or any region's or any country's) poor economic performance on its culture.

...It is highly misleading to blame Africa's (or any region's or any country's) poor economic performance on its culture.

2.2. AFRICA RISING

2.2.1. The arguments

While some people continue to emphasise the ‘meta-structural’ factors to explain persisting underdevelopment in Africa, others have recently adopted a new discourse presenting a bright outlook for the continent. After the ‘lost’ decades of the 1980s and 1990s (in which GDP was declining), economic growth in Africa has picked up. Between 2000 and 2014, annual GDP growth in Africa has been 4.6 per cent on average (UNCTAD STAT, 2015). A debate about the sustainability and the developmental impacts of this growth experience has taken hold, most notably sparked by some positive narratives in the media, such as The Economist article, “The sun shines bright”, in 2011 and Time magazine’s piece, “Africa Rising”, in 2012. Backed up by more analytically rigorous accounts (e.g. McKinsey, 2010; Radelet, 2010; Robertson et al, 2012; Andersen and Jensen, 2013), a number of reasons have been offered to explain why this time around the growth has come to stay.

First, it is argued that, after the end of the Cold War and the apartheid regime, the political domain in Africa has become more open and authoritarian or even dictatorial regimes have been forced to give way to more democratically accountable regimes. Between 1989 and 2003, the number of democracies in Africa increased from 3 to 23 (Radelet, 2010).

Second, there has been a significant drop in the level of violence. Between 2002 and 2011, Africa’s share of worldwide violent conflict dropped from 55 per cent to 24 per cent (Africa Progress Panel, 2012). Especially West Africa and the Great Lakes region have become more peaceful.

Third, lessons have also been learned from the policy mistakes of the 1960s and the 1970s. By the mid-2000s, median inflation had been halved from that of the mid-1990s (Devarajan and Fengler, 2012) while fiscal deficits had been slashed by more than half from their levels in the 1980s and the 1990s. Trade policy has also been considerably liberalized and the business environment has become friendlier towards foreign investors.

Fourth, some claim that a technological revolution has taken hold across the continent, most dramatically illustrated by an increase in the use of cellular phones. In the mid-2000s, few people in Africa had cellular phones. By 2013, there were more cellular phones than adult people on the continent (Fengler and Rowden, 2013). The increased availability of cellular phones and other information and communication technology (ICT) devices has made it easier for people to participate in social and political life, especially in remote villages. These devices have also had big impacts on people’s economic lives by, for example, increasing the efficiency of storing and spending money and making it easier for farmers to market their crops. The increase in the availability of educational tools for children that

ICT devices bring and the consequent improvement in the quality of education, it is argued, will change the nature of economic and social life in Africa for the better in the long run.

Fifth, there has been a significant improvement in social indicators. Malaria death rates, child mortality rates and infant mortality rates have fallen. Immunization and vaccination rates have improved. People are becoming better educated – between 2000 and 2008, secondary school enrolment increased by nearly 50 per cent (Ibid). It is natural that healthier, more educated, and longer-living people generate more growth.

Sixth, spatial and demographic developments are supposed to bode well for the future of African economic growth. Today, over 41 per cent of Africans live in cities, a figure which is increasing by about one percentage point every two years. Sustainable economic growth has historically been positively correlated with increasing urbanization because cities provide better operating environments for businesses and provide better services for people than rural areas. Africa also looks to be reaping a demographic dividend in the foreseeable future, with an increasing ratio of people in the working population per 'dependent'. In 2010, Africa's share of the population eligible for work (ages 15 – 64) was estimated at 42 per cent (460 million out of a total population of 1.1 billion). This share is predicted to increase to 50 per cent in 2030 (Devarajan and Fengler, 2012).

Many of these developments are decidedly good, especially the improved state of health and education and the reduction in violent conflicts, even though the impacts of some others, such as trade liberalisation, are more debatable. However, a more nuanced analysis shows that that the 'Africa rising' narrative misses out a number of important aspects.

...a more nuanced analysis shows that that the 'Africa Rising' narrative misses out a number of important aspects.

2.2.2. The criticisms

(a) Putting recent African GDP growth performance into perspective

Recent growth performance in Africa may seem impressive, but it pales in comparison when we put it against developing countries in East Asia and Pacific (EAP) – another group of countries that has grown particularly fast in recent years. **Figure 2.1** compares GDP growth rates in Africa and EAP during 2000-2014 (the period of Africa’s ‘rise’), excluding high-income countries in both regions⁴.

Per capita growth rates provide the best comparison, given that birth rates in Africa have been considerably higher than that in East Asia. Over the period under consideration, per capita growth in developing countries in EAP averaged 7.71 per cent, whereas developing countries in Africa registered 2.09 per cent. In other words, developing countries in EAP have been growing over three times faster. One might, of course, point out the average growth rate for Africa obscures the fact that some countries have grown exceptionally fast. This is correct – to an extent. The average per capita growth rate in the five fastest growing economies in Africa for the period under consideration⁵ (Angola, Ethiopia, Mozambique, Nigeria, and Rwanda) at 5.0 per cent (WDI, 2015) differs significantly from the average continental performance. And some of these countries, like Rwanda and Ethiopia (whose industrial policy experiences will be addressed in detail in chapter 4) are growing at these impressive rates without being dependent on natural resources. Still, the average growth rate of these five fast-growing economies falls well short of that of the EAP region by roughly ³ percentage points.

The fact that recent African growth, especially in per capita terms, has not been as spectacular as the advocates of the ‘Africa rising’ story make it out to be is problematic enough, but the bigger problem is that even this relatively modest growth performance is unlikely to be sustained in the long run in most countries. As Arbache and Page (2009) rightly point out, the improved economic performance in Africa after 1995 can be mainly attributed to the reduction in the frequency of growth declines and the increase in growth accelerations of resource-dependent countries (with a few notable exceptions, as mentioned in the above paragraph).^{6,7} The problem is that, with the end of China’s super-growth and

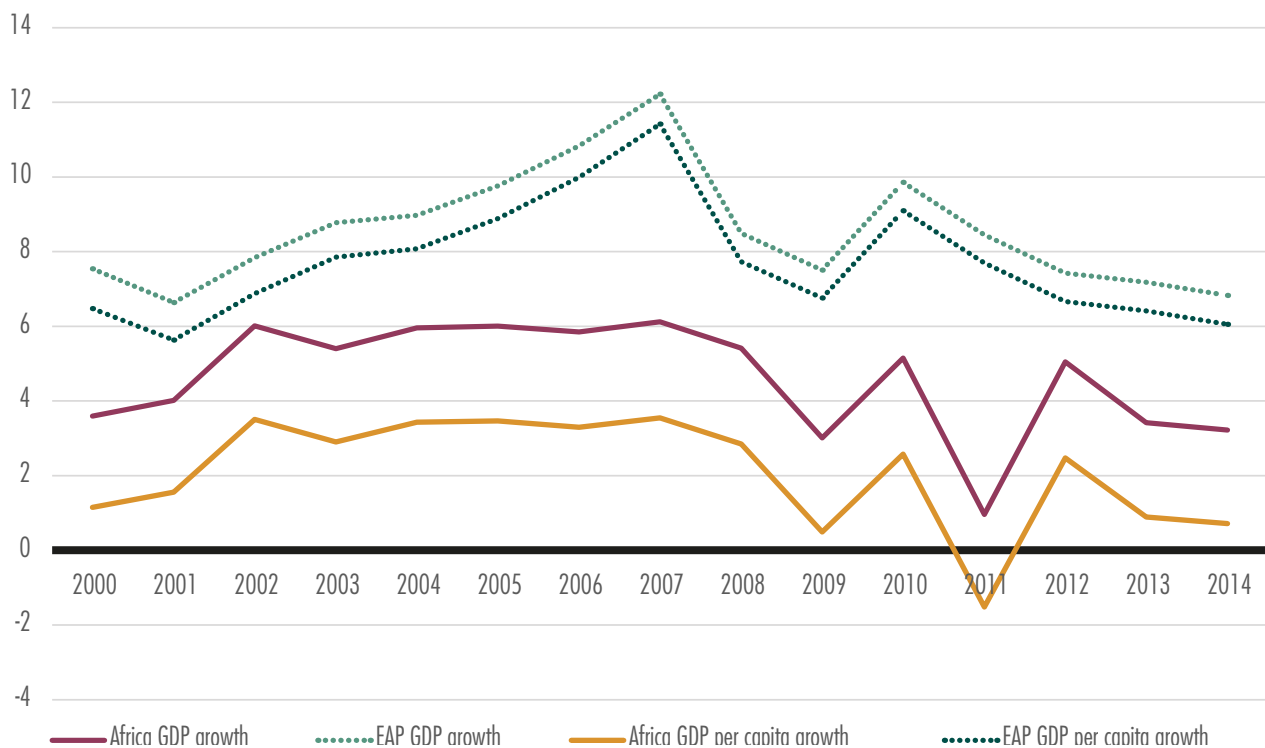
4 Excluding high-income countries in Africa hardly makes any difference (as there are none apart from the Seychelles, which has a tiny population – roughly 100,000). It makes a difference in EAP as it excludes Japan, Singapore and South Korea. The rest of the EAP are Cambodia, China, Indonesia, Lao PDR, Malaysia, Mongolia, Myanmar, Papua New Guinea, the Pacific Islands (10 countries with a total of 2.3 million people), Philippines, Thailand, Timor Leste, and Vietnam

5 Disregarding Equatorial Guinea, whose per capita income increased 56-fold in 15 years (between 1995 and 2010 from \$371 to \$20,703) due to the finding of a massive (considering that, at around 0.7 million, it has the smallest population on mainland Africa) oil reserve.

6 Arbache and Page classify a country as resource-rich if: (a) a country’s income from energy, minerals and forests exceeds 5 per cent of GNI (this is called the ‘initial year’); (b) the forward moving average of such income exceeds 10 per cent of GNI; (c) the share of primary commodities in its exports exceeds 20 per cent for at least a 5-year period following the initial year. Apart from being overly elaborate (we get almost identical classification, if we just use a slightly different version of the export indicator – 25 per cent instead of 20 per cent - as we show in table 2.1), this definition is problematic in that it confuses ‘resource dependence’ and ‘resource abundance’. A resource dependent country may be abundantly endowed with natural resources or not. Despite being very poorly endowed with natural resources, South Korea was highly dependent on natural resources in the 1950s – over 80 per cent of it’s at the time were natural resources (e.g. tungsten ore, fish), because it produced very little of other things. Similarly, many natural resource-dependent African countries are not very well endowed with natural resources (see Chang, 2006b).

7 We should make a note of the fact that a boost in services output (most importantly in wholesale, retail, tourism and transport) and increases in agricultural productivity has also contributed moderately to accelerating growth in Africa (see ECA (2015)).

Figure 2.1 Annual GDP Growth (%)



Source: Authors' calculations from WDI 2015

thus the current commodity price boom, the prospect for growth in those economies is dimming, and, together with it, the prospect for the whole continent. These resource-dependent economies account for over 60 per cent the continent's total GDP, with the combined GDP of the two largest economies on the continent, Nigeria and South Africa, alone accounting for roughly 30 per cent (IMF, 2015).⁸ Furthermore, some of the really large resource-dependent economies, like Angola, Algeria, Nigeria and Sudan, are close to entirely resource dependent (see note 2 to table 2.1). Given all these, the continent's good growth performance can easily evaporate.

b) Quality of growth: Impacts on employment and poverty

Even if Africa can sustain its recent growth performance, the poor quality of recent growth in Africa in terms of employment and poverty makes it doubtful that it will have significantly positive impacts on the lives of most people.

Because much of the recent economic growth in Africa has been the result of a boom in the prices and exports of natural resources, its effect on decent employment generation has been marginal. Most people who enter the labour market in Africa end up in vulnerable jobs, such as informal jobs and undeclared work. In 2013

⁸ Algeria (\$209 billion), Angola (\$124 billion), and Sudan (\$66 billion) are the other large resource-dependent economies.

Table 2.1 The manufacturing idiosyncrasies of African economies

Country	1990 MVA per capita, \$	2010 MVA per capita, \$	2013 GDP per capita, \$	Resource-dependent	2014 Population, Thousands
Seychelles	622	1300	15,186	0	91
Mauritius	522	803	9,483	0	1,200
South Africa	551	567	6,889	1	54,000
Swaziland	311	496	3,474	0	1,200
Tunisia	253	501	4,316	0	11,000
Egypt	177	370	3,204	0	83,300
Namibia	92	363	6,038	1	2,300
Morocco	180	239	3,160	0	32,400
Libya	319	230	10,702	1	6,200
Gabon	163	201	10,965	1	1,700
Botswana	124	184	7,117	0	2,000
Cameroon	126	179	1,334	1	22,800
Algeria	179	175	4,633	1	39,900
Cape Verde	108	147	3,631	0	503
Cote D'Ivoire	112	99	1,403	0	20,800
Lesotho	44	97	1,201	0	2,000
Rep. Congo	62	67	3,222	1	4,500
Angola	26	62	5,245	1	22,100
Sao Tome and Principe	34	61	1,567	0	197
Senegal	57	56	1,047	0	14,500
Mozambique	15	47	604	1	25,800
Kenya	49	46	1,321	0	45,500
Tanzania	19	45	944	0	50,700
Zambia	36	44	1,845	1	15,000
Burkina Faso	26	39	720	0	17,400
Sudan	19	37	1,838	1	38,700
Zimbabwe	106	36	1,028	0	14,600
Madagascar	30	28	462	0	23,500
Ghana	20	26	1,900	0	26,400

Country	1990 MVA per capita, \$	2010 MVA per capita, \$	2013 GDP per capita, \$	Resource-dependent	2014 Population, Thousands
Togo	22	25	638	0	6,900
Uganda	9	25	694	0	38,800
Djibouti	37	22	1,592	0	900
Mauritania	27	22	1,438	0	3,900
Benin	21	22	805	0	10,600
Nigeria	15	21	3,082	1	178,500
Rwanda	56	21	696	0	12,100
Malawi	21	17	223	0	16,800
Liberia	34	16	480	1	4,300
Gambia	19	16	479	0	1,900
CAR	21	15	335	0	4,700
Chad	22	15	1,176	1	13,200
Guinea	12	15	559	1	12,000
Guinea-Bissau	26	14	557	0	1,700
Comoros	14	12	872	0	752
Niger	13	9	451	0	18,500
Burundi	16	7	303	0	10,400
Ethiopia	8	9	524	0	96,500
Eritrea	9	7	544	0	6,500
Mali	13	6	723	0	15,700
Somalia	8	5	N/A	N/A	10,800
Sierra Leone	9	3	802	1	6,200
DRC	16	1	410	1	69,300

Source: Authors' calculations based on UNIDO and UNCTAD (2011), UNIDO (2013), IMF (2015) and WDI (2015).

Notes

1. The data for Equatorial Guinea is not available. South Sudan's data are included in Sudan's.
2. We classify a country as resource dependent, if 25 per cent or more of its exports have been made up of fuels and/or mining products since the year 2000. Some countries in the table have extremely high resource dependence (over 80 per cent of exports are in natural resources). These countries include Angola, Algeria, Guinea, Libya, Nigeria, and Sudan.

the vulnerable employment rate in Africa (excluding North Africa) was estimated at 77.4 per cent of all jobs, the highest of all developing regions in the world, and only 2.3 percentage points lower than in 2001 (ILO, 2014). All other developing regions showed a larger reduction in the vulnerable employment rate over the same period, including those who have experienced slower economic growth, such as Latin America and The Caribbean (ibid).

From 2000 to 2011, the population share in Africa (excluding North Africa) living on less than \$2 a day (PPP) was reduced from 77.5 per cent to 69.5 per cent. However, over a longer period of time, this figure has shown almost no improvement – in 1981 (earliest data available) it registered 72.2 per cent.

The Economist recently published a report on the dismal state of ‘decent’ job creation in Africa, noting that a given firm in Africa typically has 24 per cent fewer people on its books than equivalent firms elsewhere because so many are informally employed in African firms (The Economist, 2014). The coming wave of young people eligible for work might simply not be able to find jobs other than dubious ones in the informal sector or toiling for their families. The supposed demographic dividend awaiting Africa might therefore turn out to be a demographic disaster.

Africa’s recent growth was also of poor quality in terms of its impacts on poverty. It is true that the poverty situation has improved (slightly) since the dawn of Africa’s ‘rise’. From 2000 to 2011, the population share in Africa (excluding North Africa) living on less than \$2 a day (PPP) was reduced from 77.5 per cent to 69.5 per cent. However, over a longer period of time, this figure has shown almost no improvement – in 1981 (earliest data available) it registered 72.2 per cent (WDI, 2015).

Comparison across developing regions in the world gives a cause for even greater concern. Developing countries in EAP have steadily reduced this rate, from 92.4 per cent in 1981 to 22.7 per cent in 2011. The same goes for developing countries in Latin America and the Caribbean, where it stayed above 20 per cent until 2002, before falling dramatically to 9.3 per cent up until 2011 (Ibid). In 1999, Africa accounted for 21 per cent of the world’s poverty. By 2008 that figure had reached 29 per cent (Africa Progress Panel, 2012), despite the fact that the continent accounted for only 15 per cent of the world’s population in the same year. From 2002 to 2010, Africa’s share of the world’s middle-class⁹ has remained unchanged at about 2 per cent, while other developing regions are gaining shares (ibid.).

Given these meagre impacts on poverty of Africa’s recent growth, it is questionable whether its continuation is going to have significant positive impacts on the lives of most people on the continent – that is, even if it can be sustained.

9

The ‘global middle class’ – a term invented by the Brookings Institution – includes those who have between \$10 and \$100 (PPP) per day.

c) The state of African manufacturing and its implication for Africa's future development

What largely explains why GDP per capita growth has been so low compared to those of the developing countries in East Asia and why employment generation and poverty reduction has been far slower than in other developing regions is Africa's negligible manufacturing base (see Szirmai and Verspagen, 2011; Noman and Stiglitz, 2011; and ECA, 2015).

In fact, in 1980-2013, the share of manufacturing in economic output on the continent declined from more than 12 per cent to around 11 per cent, currently the lowest of all developing regions in the world (ECA, 2015). Page (2012) interestingly compares the state of value addition across all sectors in African countries to that of a range of countries in Asia – China, India, Indonesia, Korea, Malaysia, Philippines and Thailand – when they reached lower middle-income status, set as a benchmark of \$996 in 2009¹⁰. The most striking finding is in the manufacturing sector, whose share both in employment and in value added in a 'typical' low-income African country is about half of the benchmark value. Furthermore, a majority of manufacturing firms in African countries are small, informal, and produce natural resource-based goods. These are characteristics typically associated with low productivity manufacturing firms.

Against this, it may be pointed out that manufacturing performance has been heterogeneous across countries. **Table 2.1** indeed shows that per capita MVA in Africa in 2010 ranged from \$1,300 (Seychelles) to \$1 (DRC). However, this diversity is rather deceptive, if we focus on Africa (excluding North Africa).

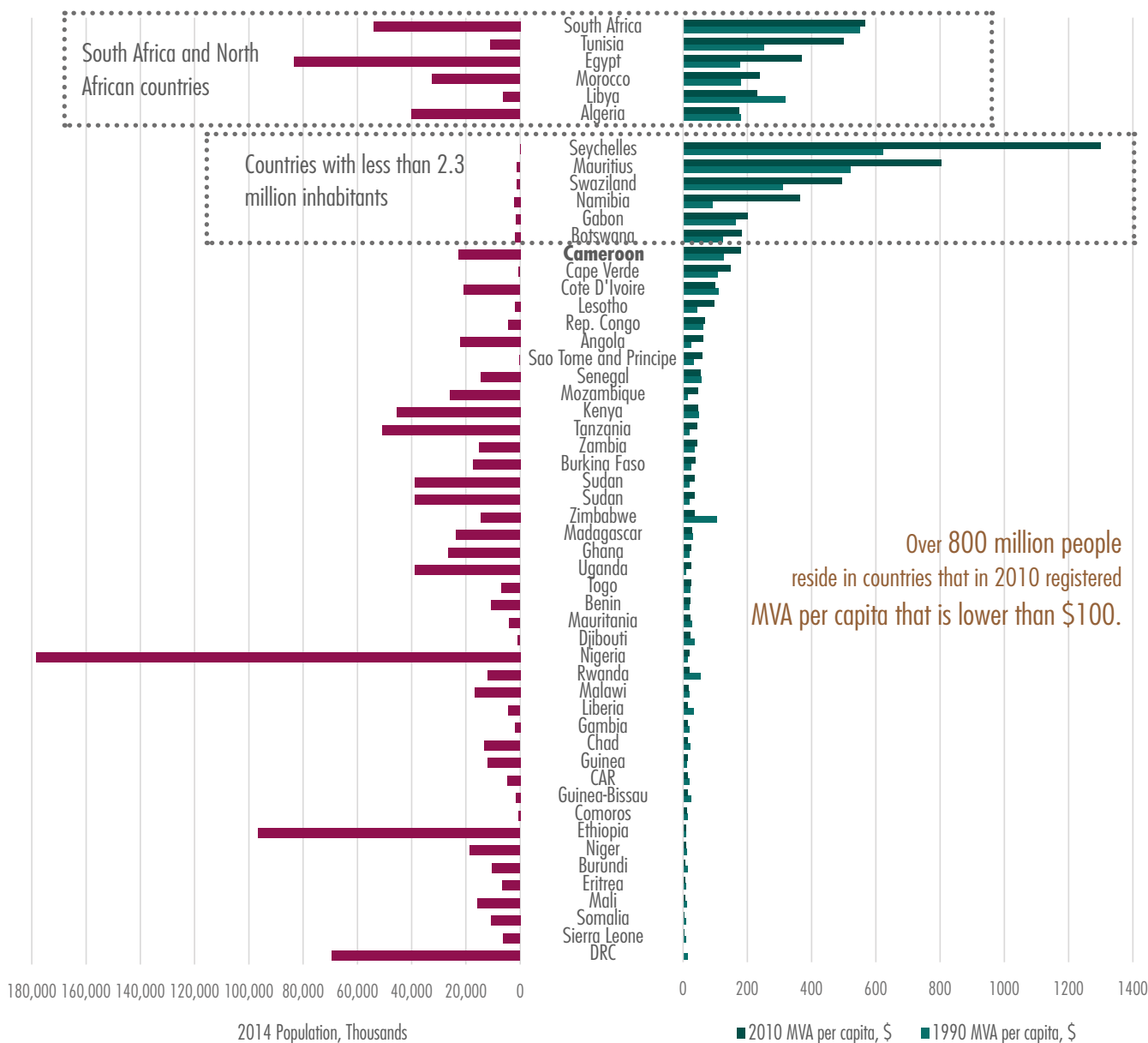
If we exclude North African countries (Tunisia, Egypt, Morocco, Libya, and Algeria) and South Africa, all the countries with high MVA scores have very small population – Botswana (2 million), Gabon (1.7 million), Mauritius (1.2 million), Namibia (2.3 million), Seychelles (91,000) and Swaziland (1.2 million) (all as of 2014). If we exclude these very small countries, the country with the highest MVA per capita in Africa (excluding North Africa and South Africa) is Cameroon, with a MVA of \$179 per capita. To put it another way, if we exclude South Africa, roughly 95 per cent of the population in Africa (excluding North Africa) – over 800 million people – reside in countries that in 2010 registered MVA per capita that is lower than \$100. To put this in perspective, MVA per capita in 2010 was \$622 in Brazil, \$820 in China, \$3,162 in the UK and \$5,222 in the United States.¹¹ In other words, if we exclude North Africa and South Africa, the dismal state of the manufacturing sector in Africa is strikingly homogenous.

Another prominent feature observable from **figure 2.2** is the sound correlation between MVA per capita and GDP per capita. Apart from Cape Verde - a small service-oriented economy - no countries in Africa, except for Botswana, with MVA per capita less than \$200 have managed to exceed GDP per capita of \$1,900 without being exceptionally rich in minerals or oil.

10 Lower middle-income status is defined by the World Bank as falling in the range \$996 – \$3,945, at 2009 prices.

11 These four countries have been chosen as they all have big populations, but differ in geography, income and manufacturing performance.

Figure 2.2 African countries MVA and population



Over 800 million people reside in countries that in 2010 registered MVA per capita that is lower than \$100.

Source: Authors' calculations based on UNIDO and UNCTAD (2011), UNIDO (2013), IMF (2015) and WDI (2015).

2.3. CONCLUSION

This chapter has argued that ‘bad’ climate, geography, history and culture, are insufficient to explain the poor economic performance of Africa. Many countries in the 19th and 20th century defied these meta-structural factors to achieve economic development. Singapore has developed well despite its tropical climate, while the Scandinavian countries, Canada, and the US have developed despite their arctic and frigid climates, which can be as hostile to economic development as tropical climate. Landlocked Switzerland and Austria have become two of the richest countries in the world. Ethnic divisions in Switzerland, Belgium, and other European countries did not prevent their economic development. All of today’s developed countries in the past and China today have had many of the same ‘bad’ institutions that a history of colonisation is supposed to have created in Africa. Germany, Japan, and Korea defied those who had thought they have cultures that are hostile to economic development and went on to engineer economic ‘miracles’. Economic development has enabled all the above-mentioned countries to overcome these conditions. In other words, correlation and causation have been confused in the arguments emphasising meta-structural factors.

Given the reversal of sluggish growth and improved political and economic climates in most African countries, some people have enthusiastically embraced a new discourse, claiming that Africa is ‘rising’. And in many ways Africa is doing better – compared to 15 years ago, fiscal deficits have been reduced, there are fewer violent conflicts, people are healthier, and public access and use of ICT devices has grown rapidly. However, in terms of the development of productive capabilities¹² – the essence of economic development – we have shown that the ‘rise’ is mostly hype. Per capita GDP growth is in fact quite low, poverty rates and vulnerable employment rates haven’t improved much, and industrialisation is not happening, making the sustainability of the recent growth doubtful.

All countries that have defied meta-structural impediments to growth have done so by increasing their productive capabilities: they reorganised and transformed their production activities. Historically, this has happened through an expansion of the manufacturing sector, which has higher productivity and greater scope for productivity growth than do other sectors. Moreover, the manufacturing sector in an economically backward country cannot develop without an intelligent and coherent industrial policy, as various economic theories and historical experiences show. The theories and the history of industrial policy are the issue that we respectively turn to in the next two chapters.

¹² Productive capabilities refer to the skills, productive knowledge and experience that are embedded in physical agents and organisations (see Andreoni (2011) for a more detailed taxonomy of productive capabilities). The development of productive capabilities includes not only the development of capabilities of firms to produce more technologically advanced goods but also the infrastructure (e.g. roads and electricity) and institutions (e.g. financial system) to support this.



Chapter 3

Theoretical perspectives on industrial policy

The debate on industrial policy has arguably been the most ideological one in the history of economics. The best proof of the ideological nature of the industrial policy debate is shown by the debate on the ‘economic miracles’ in the East Asian countries, like Japan, (South) Korea, and Taiwan. It is hard to believe it today, but until the 1980s, many mainstream economists were denying the existence – not to speak of the efficacy – of industrial policy in those countries. Why did these economists do that, when a quick look through financial newspapers and magazines – not to speak a short visit to those countries – would have revealed how extensive and intrusive their industrial policies are? They did so because their view was based on the ideological conviction that a successful economy cannot possibly be based on interventionist policies (see Chang, 1994 a, Ch. 3, for a review of this earlier literature on East Asian industrial policy).¹³

Having said that, differences in opinion on the desirability of industrial policy is not simply ideological. There are differences owing to genuine differences in theoretical perspectives. Therefore, it is important to review the key theoretical arguments for and against industrial policy in the debate and the differing assessments of their empirical importance.

3.1. DEFINITION OF INDUSTRIAL POLICY: GENERAL VS. SELECTIVE INDUSTRIAL POLICY

One thing that has made the industrial policy debate particularly contentious is that there hasn’t even been an agreement on what an industrial policy is. The most straightforward definition would be any policy that affects the evolution of industry; especially of the manufacturing sector (‘industry’ includes not just manufacturing but also sectors like mining and electricity). But most people engaged in the debate tend to define industrial policy as what is known as ‘selective industrial policy’ or ‘targeting’, which is the definition we adopt in this report. This is a policy that deliberately favours particular industries – or even firms – over others, against market signals, usually to enhance efficiency and to promote productivity growth for the targeted industries as well as for the whole economy, but also to manage the industries’ decline smoothly (see Chang, 1994 a, Ch. 3, and Chang, 2011, for some discussions on the definition of industrial policy).

These days, contrary to the heyday of market fundamentalism in the 1980s and the 1990s, few people would deny that there are instances where state intervention in industrial development is justified. However, the mainstream view these days insists that industrial policy should be of ‘general’ (or ‘functional’ or ‘horizontal’), rather than ‘selective’ (‘sectoral’

¹³ For example, as late as in 1988, Bela Balassa, the eminent neoclassical trade economist was arguing that “apart from the promotion of shipbuilding and steel, [the role of the state in Korea] has been to create a modern infrastructure, to provide a stable incentive system, and to ensure that government bureaucracy will help rather than hinder exports” (Balassa, 1988, p. S286).

or 'vertical'), kind. They argue that the state should concentrate on providing things like education, R&D, and infrastructure that benefit all industries equally (but are likely to be under-provided by the market), rather than trying to 'pick winners' by favouring particular industries or even firms (more on this later).

The first problem with this view is that the distinction between selective and general industrial policies cannot take us very far. In a world with scarce resources, every policy, however 'general' it may look, has discriminatory effects that amount to targeting. This point is easier to see in relation to R&D – a government giving out R&D subsidies implicitly favour the more R&D-intensive high-tech sectors. However, the point also applies to infrastructure and education, especially at the higher ends of them. We do not build some abstract infrastructure but either a road between the horticultural export region and an airport or a railway between a copper-smelting factory and a seaport. Building the railway, instead of the road, means that the government is favouring the copper industry. Likewise, we do not educate some generic engineers but either chemical engineers or electronics engineers. Therefore, a government providing more funding to electronics engineering departments than to chemical engineering departments is in effect selecting the electronics industry over the chemical industry. The only policies that may be called truly 'general' are policies regarding basic education and health, calling which industrial policies is really stretching the concept beyond reason.

Viewed from this perspective, there is selectivity and targeting involved in virtually every industrial policy measure, even though it may be commonly defined as a 'general' measure. To put it dramatically, to target or not to target, that is not the question. The real question is how precisely to target what.

If some degree of targeting is unavoidable, it may worth asking whether a policy that is less targeted is better? This cannot be the case, as the more targeted a policy is, the easier the monitoring of the beneficiaries becomes. This, in turn, means that policy 'leakages' (say, due to sub-optimal efforts at productivity increase made by the beneficiaries of the policy, or due to corruption) are going to be less, making the policy more cost-effective. Indeed, mainstream economists recommend more precise targeting in social policy for this reason (on targeting in social policy, see Mkandawire 2005). Of course, targeting has its costs. For example, too precise a targeting may, in a world with fundamental uncertainty, be bad because it 'puts all eggs in one basket'. Or it may make lobbying easier, thereby allowing firms to continue to receive state supports despite failing to deliver the expected results. Or if a policy is too precisely targeted, it will make the beneficiaries too easy to identify, making it difficult for the government to maintain the necessary myth that its policies are impartial. And so on.

Thus seen, targeting – like any other type of human action – has both costs and benefits and whether the likely net benefit of a less targeted policy will be higher depends on a host of factors: the nature of technology¹⁴, the administrative capabilities of the state¹⁵, the organization of the industry concerned¹⁶, and the political economy of the country¹⁷. If we can make any generalizable statement about targeting at all, it will be that the relationship between the degree of targeting and policy success is likely to be non-linear – some degree of targeting is inevitable, while some more of it may be desirable, but too much of it may not be good. Given all of this, we should drop the pretence that it is possible ‘not to target’ and try to attain the best possible degree of targeting, which may differ across industries and countries.

3.2. WHY MANUFACTURING?

Before we discuss whether the government should try to ‘artificially’ develop selected industries through industrial policy, we need to discuss whether the subjects of ‘industrial’ policy should be manufacturing industries.

In theory, a country’s economic development can be based on any industry – manufacturing, services, or agriculture (and other natural resource industries), as we pointed out in the section above (section 3.1). And indeed in practice, there are many examples of successful industrial policies targeted at agriculture (e.g. Danish agriculture in the late 19th and the early 20th century, as discussed in Chang, 2009; agro-industry in Brazil and Chile, as we discuss in Chapter 4) or at services (e.g. financial services in Britain or Dubai, logistics in Singapore; tourism in Rwanda, as we discuss in Chapter 4). Furthermore, there is a growing opinion that services are becoming more important than manufacturing and therefore countries should – and can – develop on the basis of services.

So, before we move on to the discussion of theories of industrial policy in the next section; in this section, we discuss what the justifications are for the focus on manufacturing in development strategy, whether this focus is still justified (if it ever was), and, more specifically, whether Africa can – and indeed should – pursue a different development strategy from the one pursued by today’s rich countries in the past, focusing more on services.

14 Developing an industry with a more complex – and thus more difficult-to-learn technology – technology may require more custom-made policy supports than developing an industry with a simple technology.

15 A state with weak administrative capabilities may be better off with implementing narrowly-focused policies targeted at a few industries, rather than general policies that require a lot of on-the-ground monitoring (e.g. subsidized loan programmes for a large number of small and medium-sized enterprises).

16 A strong industry association will make a more targeted industrial policy more cost-effective, as it can monitor policy compliance better and thus reduce leakages.

17 A country with a lot of high-level corruption but little low-level corruption may be better off with generalized policies, as it will reduce the risk of hijacking of industrial policy programmes by powerful lobby groups. In contrast, a country with the opposite combination of corruption may be better off with more targeted programmes managed at the top, as it will make leakage at the ground level through corruption less likely.

3.2.1. Manufacturing as the engine of economic development

Throughout the history of capitalism, the manufacturing sector has been the engine of economic development. Very few countries have developed their economies without developing a strong manufacturing base – so much so that the term ‘industrialised country’ and ‘developed country’ are often used interchangeably. There are good reasons why this should be the case, but two of them stand out (see Chang et al., 2013, and Chang, 2014, for further details).

First of all, thanks to the fact that it lends itself much more easily to mechanisation and chemical processing than do other types of economic activities, the manufacturing sector has faster productivity growth than agriculture or services. Productivity increases in agriculture are highly constrained by nature in terms of time, space, soil, and climate. By their very nature, many service activities are inherently impervious to productivity increases. In some cases, the very increase in productivity will destroy the product itself – if a string quartet trots through a 27-minute piece in nine minutes, we won’t say that its productivity has trebled. For some other services, the apparently higher productivity may be due to the de-basement of the product. A lot of the increases in retail service productivity in countries like the US and the UK have been achieved by lowering the quality of the retail service itself – fewer shop assistants, longer drives to the supermarket, lengthier waits for deliveries, etc. The 2008 global financial crisis has also revealed that much of the recent productivity growth in finance had been achieved through the de-basement of the products – that is, the creation of overly complex, riskier, and even fraudulent products.

Second, the manufacturing sector acts as the ‘learning centre’ of the economy in the sense that it plays the leading role in diffusing technological progress. Because of its ability to produce productive inputs into other sectors, what happens in the manufacturing sector has been extremely important for productivity growth in other sectors. The manufacturing sector has produced a range of productive inputs for agriculture (e.g. chemicals, fertilisers, pesticides, and agricultural machinery) and services (e.g. transport equipment, computer technology, and mechanised warehouses) that have raised productivity in those sectors. The technological diffusion to other sectors also takes form through organizational innovations originating from the manufacturing sector. For example, these days, many fast food restaurants use ‘factory’ techniques, turning cooking into an assembly job and sometimes even delivering food on conveyor belts. For another example, large retail chains – be they supermarkets, clothes shop chains, or on-line retailers – apply modern inventory management techniques developed in the manufacturing sector. Even in the agricultural sector, productivity has been raised in some countries through the application of manufacturing-style organisational knowledge, like computer-controlled feeding or temperature control (Dutch agriculture is the prime example here).

Throughout the history of capitalism, the manufacturing sector has been the engine of economic development. Very few countries have developed their economies without developing a strong manufacturing base...

3.2.2. Have we entered a post-industrial age? Manufacturing vs. services

The services sector has come to dominate the economic structure of many economies in the latter half of the 20th century and even more so in the 21st century, both in terms of output and employment. There is a growing belief that we have now entered a ‘post-industrial age’ and therefore services should be the engine of economic development. This is especially apparent in the advanced economies, but also in many African countries, the growth of services (especially tourism and telecommunications), rather than manufacturing, has become a core strategy to diversify away from dependence of primary commodities (see ACET, 2014 and ECA, 2015). There are good reasons to take the rise of the service sector seriously.

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Given massive increases in firm size, it is now more profitable to procure some services from specialist providers rather than produce them within a manufacturing firm (the latter largely being the case in the past). Telecommunications finance, and business services are now organised in a way that resembles the manufacturing sector, as scale economies and technological advance are more easily incorporated into these services to increase efficiency. In some digitalised services, in especially advanced economies, marginal costs of providing an additional unit of service have come close to zero, making scale economies even more prevalent than in the manufacturing sector.

Moreover, the revolutions in ICT and transport technology have made more services tradable, making it easier to expand output. India is often provided as an example of an economy that has achieved success through exporting services like software, accountancy and the reading of medical scanning images. Another example is Rwanda, a country that in the last 10 years has increased its foreign exchange earnings considerably through the expansion of tourism, such as gorilla viewing.

Thus seen, there are good reasons why services should play a more important role in the formulation of a country’s development strategy today, compared to, say, just 30 or even 20, years ago. However, there are also good reasons to be sceptical of the discourse of ‘post-industrial age’.

First, the decline in the importance of manufacturing is partly an illusion. Much of the apparent fall in the manufacturing sector’s share of GDP in advanced economies is due to the decline in the prices of manufactured goods, relative to the prices of services. This is thanks to faster productivity growth in their production. Just think how computers and mobile phones have

become cheaper (holding the quality constant), compared with the costs of haircuts or eating out. When this relative price effect is taken into account and the shares of different sectors are recalculated in constant prices (that is, applying the prices of the starting year to the quantities produced in the subsequent year), as opposed to current prices, the share of manufacturing has not fallen very much in most rich countries (Chang, 2014, p. 265). In some of them, like the US, Switzerland, Finland, and Sweden, when calculated in constant prices, it has actually risen.¹⁸

Second, the growth of the services sector is also a bit of an illusion. A lot of services that are now supplied by independent companies at home or abroad used to be provided in-house in manufacturing firms (for example, catering, security guards, some design and engineering activities).

Third, many services that have grown rapidly in the last few decades are heavily dependent on manufacturing firms as customers. These include banking, communications, insurance, and even more importantly producer services, such as transport, design, retail, engineering, and management consulting. These services cannot prosper without a strong manufacturing sector. To an extent, a country can specialise in exporting these high-value producer services, but, given the benefits of co-location of manufacturing firms and services that supply to them, those countries that lose their manufacturing bases are eventually likely to lose those service providers too.

Fourth, low tradability characterises most services because they require consumers and producers to be in the same location, like cleaning, grooming, public utilities, or education. No one has yet invented ways to provide haircut or house cleaning long-distance. This means that countries that rely on their services sector for economic growth will eventually struggle with trade balance constraints. Services have in fact been stuck at around 20 per cent of international trade since the 1990s. Between 2004 and 2011, even in India, which is supposed to be a model of ‘service-based economic development’, trade surplus in services covered only 17 per cent of its trade deficit in goods (Chang, 2014). Sooner or later, India will have to face this trade balance issue.

3.2.3. Manufacturing and the African countries

The beneficial traits that manufacturing has for economic development discussed so far apply to both high and low income countries. But for African countries, which are often characterised by dependence on primary commodities there are additional advantages of diversifying their economies towards manufacturing.

First, as the Prebisch-Singer hypothesis postulates, the terms of trade (TOT) for primary commodities will deteriorate over time, making the prospect of economic development based on primary commodities dim in the long run (Spraos, 1983, provides a comprehensive review of the subject). There are a number of reasons for this. First is the Engel’s Law, or low income-elasticity of demand for agricultural products – as incomes grow worldwide, the relative demands for those products fall. Second is the fact that countries specialising in

¹⁸ In the US and Switzerland, its share has risen by around 5 per cent in the last couple of decades. In Finland and Sweden, the share has actually risen by as much as 50 per cent over the last few decades.

manufactured products have the ability to come up with synthetic substitutes for primary commodities – as it happened with products like guano, saltpetre, and natural dyes, the invention of synthetic substitutes reduce demands for primary commodities and thus drive their prices down. Third is the fact that, unlike the manufacturing industries, primary commodity industries are characterised by competitive markets. This means that primary commodity producers (mostly based in developing countries) have to pass on all the surpluses generated by productivity growth to consumers, while manufacturing producers (mostly based in rich countries) can appropriate such surpluses more easily by charging customers higher prices because most of them operate in oligopolistic markets.

The beneficial traits that manufacturing has for economic development discussed so far apply to both high and low income countries. But for African countries, which are often characterised by dependence on primary commodities (oil, minerals, or agricultural goods in unprocessed form), there are additional advantages of diversifying their economies towards manufacturing.

Second, the manufacturing sector tends to be strongest driver for paid employment, especially in developing countries (ILO, 2014). As we have mentioned earlier, the majority of Africa's working force are stuck in vulnerable jobs – non-contractual arrangements in the informal sector, mostly in farming. Most manufacturing jobs (at least those in exporting firms) in developing countries are offered through formal channels and provide a much steadier stream of income. They are also subject to a country's labour laws and minimum wage legislation.

Third, diversifying towards more manufacturing will reduce the macroeconomic risks associated with dependence on primary commodities. At least since the 1970s, prices of primary commodities have been much more volatile than manufactured goods¹⁹. This makes macroeconomic management and stabilisation policies a more difficult task, especially for countries whose export revenues are highly dependent on primary commodities. Moreover, the relative ease of collecting tax revenues from international trade combined with the fact that alternative tax handles are lacking in African countries, means that African fiscal revenues are highly vulnerable to fluctuations in prices of their exports.

¹⁹ The price volatility of commodities can in part be explained by their sensitivity to global supply and demand changes. The end of international commodity agreements in the 1980s, which aimed to stabilise commodity prices through supply management schemes and marketing boards, has also had an impact. Nissanke (2010) point out that after the global downturn in equity markets in 2002, futures and derivatives markets have expanded to target commodities as part of their portfolio diversification strategy. Therefore, the presence of traders with little interest in physical commodity trading, so-called noise traders, have increased. These traders are known to make asset prices more volatile than what pure 'market fundamentals' would imply.

3.3. TWO CONTENDING VISIONS OF INDUSTRIAL POLICY IN ECONOMIC DEVELOPMENT: COMPARATIVE ADVANTAGE AND INFANT INDUSTRY PROMOTION

As we shall see in section 3.4, there are many arguments for and against industrial policy. However, in relation to industrial policy in developing countries, the fundamental division is between two different visions of economic development, namely, the theory of comparative advantage and the theory of infant industry promotion. Therefore, before we discuss more detailed arguments in section 3.3, we need to understand how these two visions differ but, contrary to the common perception, also overlap in some important ways. This is the task we turn to in this section.

3.3.1. The theory of comparative advantage

The notion of comparative advantage is often misunderstood. Even many professional economists say things like “such and such poor country does not have comparative advantage in anything”, even though this is a logical impossibility. All countries, however inefficient it may be by international standards, have to have comparative advantage in something. Having comparative advantage in something does not mean that the country is better at it than other countries are; it simply means that of all the possible activities it could be conducting, the country is the best at that activity. In other words, a country has comparative advantage in an activity in which it is the least bad at – or the most good at, if you are a country near the top of the international economic hierarchy.

The beauty of the concept is that, even if a country is the most (least) efficient in producing everything, it will still benefit from trading with other countries, because specialising in the products in which it is the most good at (or the least bad at) allows it to maximise its output and, through international trade, consumption. It follows that any industrial policy that tries to promote industries in which the country does not have comparative advantage is harmful.

The notion of comparative advantage was first systematically developed by the Classical economist, David Ricardo. However, the Classical version of the theory of comparative advantage is very different from the modern neoclassical version, known as the HOS (Heckscher-Ohlin-Samuelson) version. In the Classical version, the source for comparative advantage lies in the differences in technologies – or their productive capabilities, to use a more modern terminology.²⁰ In contrast, in the Neoclassical

²⁰ In the Classical version, which is based on the Labour Theory of Value, this difference is shown by the different numbers of labour hours that different countries need in order to produce the same product.

(HOS) version (which we will focus on in the rest of the section, as it is the dominant version of the theory of comparative advantage today); productive capabilities do not even feature.

In the HOS version, it is assumed that there is one best practice technology (defined in terms of the combination of capital and labour used) for each product and, more importantly, that any country can use that technology – in other words, all countries are assumed to have the same productive capabilities. The source of comparative advantage in the HOS version is in the differences in the endowments of the factors of production across countries (capital and labour – sometimes land, as a proxy for natural resources, is added). So, in this version, if a country like Ethiopia is not producing things like Lexus, it is not because it cannot but because it shouldn't – the technology used for producing Lexus is highly capital-intensive while Ethiopia has (in relative terms) a lot of labour and very little capital, which means that Ethiopia does not have comparative advantage in Lexus and therefore would be worse off specialising in it, even though it may be perfectly capable of producing it.

This flies in the face of economic realities. As the infant industry argument, which we will shortly review, emphasises, what really makes poor countries poor is their poor productive capabilities. Indeed, even in the industries in which they are supposed to have comparative advantage (such as garment, textile, and shoes); producers in poor countries struggle to establish themselves because they lack the necessary technological and organisational capabilities to organise the production and sell the products (especially in export markets) in an effective way.

Thus seen, the main challenge for developing countries is to find a way to deliberately change those capabilities – through an appropriate combination of private sector efforts (to increase productive capabilities through investments in physical equipment, worker training, the development of management skills, R&D, and so on) and public policy intervention (especially industrial policy but also more 'horizontal' investments to improve physical infrastructure, economic institutions, education, basic R&D, and so on).

One way of seeing the importance of deliberate state action in shaping a country's trade pattern and the subsequent pattern of economic development is to recall that many of the supposedly natural comparative advantages possessed by developing countries are anything but 'natural'. Kenya has comparative advantage in the 'natural' resource called tea only because the British stole tea plants from China and set up tea plantations in its colonies. Ghana and Cote d'Ivoire have 'natural' comparative advantages in cocoa, a plant from Mexico, only because the British and the French respectively decided to grow the cacao plant in their West African colonies. The same can be said of Malaysian rubber (the British smuggled it out of Brazil), Indonesian coffee (the Dutch brought it over from Africa), and Argentinian beef and leather (the Spanish brought the cattle over from Europe). In other words, many countries' 'natural' comparative advantages are the products of somebody else's industrial policy!

Given all of this, it is not unreasonable to say that the Neoclassical (HOS) version of the theory of comparative advantage assumes away the main challenge of economic development – namely, the difficulty of increasing productive capabilities. Or to put it slightly differently,

the problem with the HOS version is not so much that it is wrong within its confines but it is the wrong theory to analyse economic development with.

Having spelt out its limitations, we emphasise that the theory of comparative advantage should be taken seriously.

First of all, even when a country is using industrial policy in order to promote industries against its comparative advantage, the theory can still be a useful guide for industrial policy-makers in figuring out what the possible gains of their policy will be and how much risk is being taken. Generally speaking, if the new industry's technological requirements (if you use the Classical version) and factor requirements (if you use the Neoclassical version) are very different from those used for the industries in which the country currently has comparative advantage, the gains from succeeding will be large but also the costs of failure will be large too.²¹ Thus seen, the theory of comparative advantage is like a compass – it is useful in being able to tell you where you are at the moment, but it does not tell you where to go or how to get there.

Second, even when a country tries to develop a number of comparative-advantage-defying industries, the bulk of its export earnings and jobs have to come from comparative-advantage-conforming industries, so industrial policy-makers need to take those industries seriously. For most countries, export earnings will provide the bulk of the foreign exchanges with which to buy advanced technologies (either through the importation of machines or through the purchase of technology licensing). Indeed, in the 1970s and the 1980s, even while it was busy developing industries like steel, automobile, shipbuilding, or semiconductors, the South Korean government made sure that it encouraged comparative-advantage-conforming industries like textile, garment, and shoes. Moreover, the Korea government had to (as developing countries of today, like Vietnam and Ethiopia are doing) use industrial policy to keep these industries internationally competitive. It provided these industries with export subsidies, export marketing supports (through the state agency, KOTRA), subsidies for physical investments aimed at technological upgrading, and incentives for FDI in the EPZs designated for those industries²².

21 This statement is in line with – but goes much further than – the modified neoclassical theory of comparative advantage, developed by Lin (2012) and others. They have suggested that developing countries should not follow their current comparative advantages but should anticipate their future comparative advantage by deliberately developing industries that have comparative advantages in other countries that are more – but not a lot more – developed themselves (Lin's practical guideline is countries with 2–4 times the per capita income). Of course, once you accept that countries can, and should, deviate from their *current* comparative advantage, the decision becomes risk-taking along a continuum: logically, there is no industry that a country cannot promote against its current comparative advantage – it is only that the further away from a country's current comparative advantage an industry is, the riskier it becomes to promote it but the bigger the reward will be.

22 For example, foreign investors in these industries were given tax exemptions and allowed to have 100 per cent ownership, which was banned outside the Export Processing Zones. The already-weak labour law was suspended in the EPZs.

3.3.2. The theory of infant industry promotion

The theory of infant industry promotion offers a very different vision of economic development from the one offered by the theory of comparative advantage. In this theory, the poverty of productive capabilities is seen as the main cause of underdevelopment and the development of such capabilities as the essence of economic development.

Many people may find it surprising that the theory of infant industry promotion is even older than the Classical version of the theory of comparative advantage – not to speak of the neoclassical version; it was articulated in the late 18th century, whereas Ricardo's theory was developed in the early 19th century. They would find it even more surprising that the theory was articulated by none other than the very first finance minister of the current champion of free trade, namely the US.

Alexander Hamilton, the first Treasury Secretary of the US (or what would be called the finance minister in other countries) submitted his Report on Manufactures, to the US Congress in 1791. In this Report, Hamilton argued that the government of a backward economy (like the US in the late 18th century) needs to protect and nurture its 'industries in their infancy' (his expression) through policy measures until they grow up and can compete with superior producers from abroad – in the same way in which we protect and nurture our children before they can grow up and compete with adults in the labour market (see Chang, 2007 b, Ch. 3, titled, 'My six year old son should get a job', for a user-friendly extension of this central idea).

Hamilton suggested a range of policies for the purpose of promoting infant industry. Some of them would have been called selective industrial policy these days – provision of tariff protection and subsidies for strategic industries. Other policies, such as infrastructural development and the promotion of the patent system (to encourage technological progress), would have been called general industrial policy. Hamilton also advocated institutional developments – especially of the banking system and the government bond market.

Re-cast in modern terminologies, the key insight behind the theory of infant industry is that, in a free-trade environment, producers in backward economies cannot enter higher-value-added industries because they have inferior productive capabilities to those possessed by their counterparts from more advanced economies. In other words, the theory abandons the very assumption that makes the neoclassical version of the theory of comparative advantage inadequate for the analysis of economic development, that is, the assumption that countries differ only in their factor endowments but not in their productive capabilities. In assuming that different countries have different productive capabilities, the theory of infant industry is in the same camp with the Classical theory of comparative advantage. However, it differs from the Classical theory in arguing that these productive capabilities can be – and should be – enhanced over time through deliberate policy intervention.

In modern terms, the idea is that the protection from superior competitors provides the domestic producers with bigger markets, which has two benefits. First of all, in the short run, having a larger market allows the infant producers to achieve scale economies more easily and thus reduce their unit cost, making them more cost-efficient and internationally competitive. Second, and in the longer run, having a larger market and thus greater

production experiences lead to acceleration in productivity growth. This in turn has two channels. The first is what Arrow (1962) called ‘learning by doing’, that is, the increase in productivity through accumulation of production experiences. The second is through greater physical investments (which raises productivity), induced by the prospect of larger markets, as emphasised by Kaldor (1966).

A more sophisticated version of the infant industry argument, informed by modern economics of technology, will also emphasise that government support for infant industries is not enough to produce substantial increases in productive capabilities by the firms in the protected industries. The point is that protection, subsidies, and other help from the government only create the space in which the firms can ‘grow up’. The growing-up process requires that, having been given the space, the infant industries need to invest in enhancing their productive capabilities – through investments in equipment, worker training, management skills, and R&D, among other things.

This implies that the state needs to make it sure that these investments happen by putting in place an incentive system that forces and encourages these capability-enhancing investments by the firms receiving the protection. This may be done by imposing particular conditions regarding physical investments, worker training, or R&D on the recipient firms or may be done by simply stopping or reducing supports for industries that are not ‘delivering’ productivity growth (thereby leaving the firms to decide how to achieve it).

The validity of the theory of infant industry promotion is borne out by history. As we will discuss in greater detail in chapter 4, almost all of today’s rich countries used the theory of infant industry promotion to develop their economies. They refused to accept that they should stick to their comparative advantage and actively promoted industries in which they had no business of specialising (according to the theory of comparative advantage). It is not an exaggeration to say that, unbeknownst to most people, the theory of infant industry promotion is the economic theory that has done the most to change the world.

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3.3.3. Concluding remarks

In this section, we have shown that there are two contending visions of economic development, represented by the theory of comparative advantage (which is currently the dominant vision) and the theory of infant industry promotion. We have argued that the theory of comparative advantage, especially the currently dominant neoclassical (HOS) version, has limited usefulness as a framework for understanding economic development. We have pointed out that the theory of infant industry promotion, enriched by more modern economic theories of technological progress and learning, should be the guiding framework for understanding economic development – as indeed proven by the central role that the theory played in the development of most of today’s rich countries in the last couple of centuries (as we shall see in greater detail in chapter 4).

However, this doesn’t mean that industrial policy-makers in developing countries can comfortably ignore the theory of comparative advantage. The theory of comparative advantage can be a useful guide to knowing how much risk a country is taking in promoting particular infant industries. Moreover – although this is not an aspect that the advocates of the theory of comparative advantage highlight – even while they are raising their infant industries, countries need to rely on their comparative-advantage-conforming industries in order to generate export earnings and create employment, without which access to advanced technologies would be limited.

Thus seen, while it has critical limitations as a perspective to understand economic development, the theory of comparative advantage can be a useful complement to the theory of infant industry promotion, which captures the essence of economic development far more accurately – namely, the challenge of developing productive capabilities.

3.4. ARGUMENTS FOR INDUSTRIAL POLICY

Having examined the ‘big picture’ theories of industrial policy in the developing country context, let us examine more specific arguments for industrial policy in developing country context, grouped according to three themes – interdependence, capabilities, and risk/uncertainty.

3.4.1. Interdependence arguments

(a) Demand complementarities

The most well-known of what we call the interdependence arguments for industrial policy are those based on the idea of demand complementarities (Toner, 1999; Andreoni and Scazzieri, 2014). It has two varieties.

The first is the balanced growth model, which is also known as the big push argument (Rosenstein-Rodan, 1943; Nurkse, 1952). This argument stems from the rather obvious observation that industries buy and sell from each other (say, the car industry buying inputs from the steel, the glass, or the tire industry and selling its cars to workers from those industries). This means that their returns depend on all the complementary industries being set up at the same time. This requires a coordination of investment between the related industries. In theory, such coordination can be achieved through private contracting, but this is difficult to arrange – to use modern terminologies, the transaction costs of coordinating investments through private contracting is likely to be prohibitive due to the difficulty of making credible commitments. Therefore, the government can make such coordination possible by imposing a plan from the above.

Using a similar insight, Hirschman (1958) developed the so-called linkages argument, which deliberately promotes industries with particularly strong interdependences (linkages) with other sectors, whether as suppliers of inputs into other industries (forward linkages) or as buyers of outputs of other industries (backward linkages). The linkages argument is also known as the unbalanced growth model, as it argues that the government should focus on promoting a small number of industries with the greatest number of linkages, rather than trying to promote all related industries at the same time, as recommended by the balanced growth – or the big push – model.

(b) Externalities

Another ‘interdependence’ argument for industrial policy is based on the idea of externalities. Some interdependences exist in the form of externalities, in the sense that the performer of an economic activity does not keep the whole benefits (positive externalities) or does not bear the whole costs (negative externalities) of the activity in question (Scitovsky, 1954, is the classic article).

Activities like R&D or worker training are classic examples of activities that generate positive externalities. For example, technological knowledge that cannot be patented or skills that workers can carry with them when changing employers can be used by other producers that have not invested in R&D or training. Given this, economic agents will under-invest in them from the social point of view. In such a situation, an industrial policy-maker may use subsidies (e.g. R&D subsidies) or regulations (e.g. requiring firms over a certain size to invest in training) to raise investments in such activities so that there would be socially-optimal amount of these activities.

More recently, an argument for industrial policy based on the notion of ‘information externality’ has been developed (Hausmann and Rodrik, 2003; Rodrik, 2004 and 2008; Lin, 2012). The logic is that insufficient investments are made in new (infant) industries because the potential ‘pioneer’ firm knows that it is bound to provide a ‘free experiment’ to potential competitors, which can imitate the pioneer firm without running the risk involved in the ‘experiment’. In this case, subsidising the potential pioneers through trade protection, subsidies, and other measures of industrial policy can bring the investments in new industries to the socially optimal level.

(c) Coordination of competing investments

Not well recognized in academic circles but very important in real life is the argument for industrial policy based on interdependences between competing – rather than complementary – activities. Simultaneous investments by competing firms may result in excess capacity in an industry, which may force firms to scrap some of their production capacities or even push some of them into bankruptcy.

In a frictionless world that we see in the text book, this does not matter, as the resources released through capacity reduction or bankruptcy can be quickly re-deployed elsewhere. However, in reality, investments fixed in physical capital equipment (machine) or embodied in workers (in the form of better skills) cannot easily be re-moulded, if at all, so the redundant machines and skills are likely to be thrown to scrap heap, resulting in social waste (see Chang, 1994a, pp. 66-7; Amsden and Singh, 1994).²³

23 Coordination problems among competing investments may be related not only to investment but also to situations of temporary disinvestment or structural change in the industrial sector, especially in the context of the rich countries. Recession cartels and mechanisms of negotiated exit have been widely used to face periods of economic crisis or accompany structural transformation (Dore, 1986, is the classic study). More generally, support for declining sectors may be seen as an attempt to socialise risk to encourage and sustain the process of structural change and productivity growth, from which economic development derives.

This is why there was so much concern for ‘wasteful competition’ among industrial policy-makers of countries like Japan and Korea. These policy-makers tried to minimize wasteful competition by staggering new entries and/or additional investments in large-scale capital-intensive industries. This was done either through direct government regulation or by letting private-sector companies organise ‘investment cartels’.

3.4.2. Capabilities arguments

The theory of infant industry promotion justifies industrial policy on the ground that developing countries need to enhance their productive capabilities and that the enhancement requires state support. Within this big picture, there are additional capabilities-based arguments that suggest more fine-tuned industrial policy measures, based on the recognition that the process of accumulating productive capabilities is a time-consuming and costly process, which requires more than making infant industries profitable through protection or subsidies (Lall, 1992 and 2001; Chang, 1994a; Lall and Teubal, 1998; Loasby, 1999; Andreoni, 2014).²⁴

(a) Regulation of direct technology imports

A developing country can import technology directly, through FDI or technology licensing, or indirectly, through imports of machinery. In cases of direct technology import, there is less incentive than in the case of indirect import to create technological capabilities on the part of both the buyer and the seller.

Since it is costly to develop the capabilities to adapt and improve the imported technologies, the potential buyer of technology usually find it cheaper to import ‘easy’ (usually obsolete) technologies (which can be used without investing much in technological capabilities) or import up-to-date technologies but become dependent on the seller for their use, adaptation, and improvement. The seller is naturally reluctant to transfer core technologies, for fear of creating a future competitor. The combined result is the importation of low-quality technologies and the under-development of technological capabilities.

In order to counter these from happening during the process of direct technology import, the government of technology-importing countries can use policies to ensure that core technologies are transferred and, more importantly, that the relevant local technological capabilities are created. Many countries – Japan, Korea, Finland, and even FDI-friendly China and Singapore – have done this. The policies included ‘carrots’ and ‘sticks’. The ‘carrots’ include policies that make the establishment of R&D facilities by TNCs easier (e.g. R&D subsidies, customised provision of necessary skills). The ‘sticks’ were measures such as requirements for TNCs concerning technology transfer, local sourcing, hiring of local workers (especially in higher-level jobs), and exports (as export markets typically have higher quality requirements).

²⁴ Productive capabilities are personal and collective skills, productive knowledge and experience that are embedded in physical agents and organisations (Andreoni, 2011).

Some governments, such as that of Japan and Korea, also required approval for technology imports when companies (both domestic ones and the subsidiaries of TNCs) were seeking technology licensing, to ensure that overly obsolete technologies are not imported while the licensing fees for up-to-date technologies are not excessive.

(b) Supports for small and medium-sized enterprises (SMEs)

Many support measures for small and medium-sized enterprises (SMEs) are introduced on capability considerations. This is because capability accumulation usually requires some indivisible inputs that small producers cannot provide on their own – R&D, expensive machinery, worker training, or export marketing.

These inputs can be directly provided by the government through public R&D, training of workers in public universities and training institutes, and the provision of ‘extension service’ (technical advice) for small firms (and small farmers). Governments can also encourage the provision of these inputs by subsidizing R&D, training, or physical investments (say, through credit guarantees) by SMEs themselves. In addition, the government may provide legal and other backings for voluntary cooperative arrangements among SMEs – such as tax advantages for cooperatives of small producers or subsidies for particular joint activities among SMEs (e.g. R&D, processing, export marketing), or, more controversially, the exemption of export cartels by SMEs from anti-trust law (surprisingly many countries, including the US, does this).

3.4.3. Risk and uncertainty

Many justifications for industrial policy are based on the recognition that there are discrepancies in the ability to deal with risk and uncertainty between individual producers (whether they are corporations or individual workers) and the society as a whole, represented by the government.

(a) The ‘deepest pocket’ argument

The most frequently heard risk-based justification of industrial policy is that the government has the ‘deepest pocket’ – or the greatest ability to bear risk – in the economy. In most economies, the government is the richest single entity. It also has the ability to ‘print money’ – unless it is part of a currency union (e.g. CFA countries) or has voluntarily abandoned its national currency (some Latin American countries that have ‘dollarized’ their economies). Therefore, the government has the best ability to take on investment projects that involve high risk but can potentially bring very high returns in the future.

Even in the economically most advanced countries, high-risk projects have been directly and indirectly subsidized by the government – starting from the woollen textile industry in 18th century Britain, through to heavy and chemical industries in 19th century US, Germany, and Sweden, down to the computer, semiconductor, aircraft, pharmaceutical, and many other industries in the post-WWII period (more on this in Chapter 4).

Especially when it comes to backward economies entering industries that require large capital outlays and a large amount of technological and organizational learning, the risk is incalculable and thus turns into uncertainty. In such cases, establishing state-owned enterprises (SOEs) may be the only solution. Korea's steel-maker (POSCO), established in the late 1960s when the country's income was only 4 per cent of the US income, and Brazil's aircraft manufacturer (EMBRAER), established in the late 1950s when the country's income was only 8 per cent of the US income, are the supreme examples of this kind.

(b) Under-writing downside risk

Sometimes firms and industries have to go through major re-structuring due to factors beyond their controls, such as a major macroeconomic shock, sudden trade liberalization, dramatic technological changes, or a sudden emergence of strong international competitors. The scale of money involved in such restructuring may be too large to be bearable by the firms alone and the government may have to get involved. This is not often discussed in the academic literature on industrial policy, but a lot of real-life industrial policy is of this variety – that is, government under-writing of downside risk.

In such a situation, governments have frequently deployed industrial policy measures to restructure major companies. In some cases, it involved nationalization (and usually, although not always, subsequent privatization) of the trouble firm (e.g. nationalization of GM and Chrysler in the US after 2008) or even the entire industry (e.g. the nationalization of the shipbuilding industry in Sweden in the 1970s). It could also take the form of the government propping up the enterprise in trouble by taking a minority equity stake in it. It has also taken the form of state-mediated mergers and take-overs involving troubled firms. In the 1980s, the Japanese government was famous for engineering coordinated capacity scrapping in industries in trouble, such as shipbuilding (see Dore, 1986, for examples). The government can also provide financial help to facilitate private-sector-led restructuring by providing loan guarantees or subsidies intended to help the restructuring process (e.g. public subsidisation of severance payments).

(c) Under-writing workers' risk

In a fast-changing world, workers are exposed to levels of risk that they cannot simply bear on an individual basis – skills suddenly become redundant due to technological changes, jobs suddenly dry up due to financial crises or industrialization at the other end of the globe.

Recognising this, many countries have provided insurance against such risk for workers – unemployment insurance, job search services, subsidised retraining, and even subsidies for re-location in the case of some Scandinavian countries (e.g. government providing bridging loans to workers who have to sell their house to move to their new jobs) (Landesmann, 1992; Chang, 1994b).

These are not industrial policies in the sense we have defined in this report but they help industrial development. This is because these insurance measures promote industrial restructuring by reducing the resistance of workers to redeployment and retrenchment, on the one hand, and facilitating the movement of labour from declining to rising sectors, on the other hand.

3.5. IMPLEMENTATION ISSUES

So far, we have seen that there are a lot of respectable theoretical justifications for industrial policy. The natural question that follows is: if there are so many justifications for industrial policy, why have there been so many failures of industrial policy across time and space (although not as many as the critics of industrial policy usually make it out to be)?

The short answer is that successful policies don't just need theoretical justifications but also good implementation. Indeed, many arguments against industrial policy have been based on the argument that, while it may work in theory, it is very difficult to make it work in practice (World Bank, 1993, is the classic example). The discussion on the implementation issues has evolved a lot since the 1980s (Chang, 2011, OECD, 2013a), so it is worth examining the key arguments.

3.5.1. Policy design: Realism and adaptability

By definition, policies have to be designed well in order to succeed. Of course, a 'well-designed' policy will differ across different policy actors and also depends on who is making the judgment, but we can discuss some general principles. Two aspects – policy realism and policy adjustment – need consideration.

(a) Policy realism

In order to be successfully implemented, policies need to be realistic. Policy targets need to be commensurate with the productive capabilities of the producers – not just their current capabilities but also the likely development trajectory of their future capabilities. If the government is providing industrial policy support in order to develop an industry that is too difficult for the local producers, the risk of failure will be too high. Given the risk, it seems reasonable to say that a country should not try to leap too far from where it currently is (or where its comparative advantage lies). However, this argument has two problems, as we mentioned when we discussed the principle of comparative advantage (see section 3.2.1).

First of all, it is actually difficult to determine how far is too far. The entries of Japan into automobile in the 1950, of Korea into steel in the 1960s, of Brazil into aircraft in the 1960s are some classic examples of countries taking big leaps but succeeding beyond all expectations (Chang in the Lin-Chang debate emphasises this point; see Lin and Chang, 2009).

One reason why it is difficult to predict the success of policy is due to the difficulty of knowing exactly what productive capabilities are actually there – As Hirschman (1958) put it eloquently, economic development “depends not so much on finding optimal combinations for given resources and factors of production as on calling forth and enlisting for development purposes resources and abilities that are hidden, scattered, or badly utilized” (p. 5). Until you find and learn to effectively use those ‘hidden, scattered, or badly utilized’ resources and abilities, you cannot know what is exactly possible. Another reason is that it is difficult to predict how much investments will be made in capability building – by the promoted infant producers themselves and by the government and other actors (e.g. universities or research institutes jointly funded by the government and the private sector).

The second reason why the ‘don’t jump too far’ argument is problematic is that the fact that something is risky does not mean that it should not be tried. If a country takes no risk and refuses to make any leap from its current comparative advantages, it is likely to be stuck with economic activities that only require low productive capabilities. So, some risk-taking is absolutely necessary in industrial policy, like in any other attempt to change one’s current situation (e.g. corporations investing in new technologies, individuals taking out a loan to go to university).

The challenge is to take up a portfolio of projects with different risk profiles; none in some areas, a little in some others, and a lot in a small number of areas. Getting this portfolio right is, of course, not easy, but it can be – and has been – done, as you see in cases like Japan, Korea and Taiwan, in which the government supported through industrial policy some very risky comparative-advantage-defying industries (e.g. steel, automobile) while sticking to – and even further promoting – some safe comparative-advantage-conforming industries (e.g. textile, shoes).

...policies have to be designed well in order to succeed. Of course, the difficulty is that what is a ‘well-designed’ policy will differ across different policy actors and also depends on who is making the judgment, but we can discuss some general principles. Two aspects – policy realism and policy adjustment – need consideration.

(b) Policy adaptability

Like all other policies, industrial policy needs to be adapted to changing conditions. There are many possible factors whose changes will call for policy adaptation, but let us discuss a few important ones.

First of all, industrial policy needs to be adapted according to whether the target industries are improving their productive capabilities in line with the initial projection. If the improvement is slower than the projection, the government needs to identify the reasons and adjust policies in appropriate ways. For example, it could be that the initial projection was too optimistic, in which case government supports may need to be strengthened or the policy be dropped altogether. Alternatively, the improvement may not be happening because the firms receiving government supports are not making sufficient investments in raising productive capabilities. In this case, extra carrots and sticks (including the expulsion of poorly performing firms from the industry) may need to be introduced to induce further investments.

Second, even if each individual industrial policy is successfully implemented, the focus of overall industrial policy needs to be shifted over time. For example, as the country moves up the technological ladder, the focus of industrial policy needs to shift in order to promote technological innovation, rather than imitation and adaptation. This will require greater investments in skills, R&D capabilities, and management techniques by the firms concerned and also the government. And given that these investments take time to bear fruits, support for such investments need to be introduced in anticipation of the country's foray into new industries.

Third, even the best-designed industrial policy can be de-railed by changes in external conditions. For example, an industry may experience difficulties because of the emergence of a large and more efficient competitor (e.g. the recent rapid rise of Chinese firms in many industries). For another example, it may get into trouble because of the rise in key input prices (e.g. aluminium smelting, being an energy-intensive, is very sensitive to changes in energy prices). For yet another example, an export-oriented industry may find it difficult to grow due to a sudden change in consumer taste or a major economic downturn in the main importing countries. Some of these changes may be temporary (e.g. rise in input prices or economic downturn in the importing countries), but some are more permanent and thus necessitate fundamental change in policy. It may have to be accepted that the prospect for future growth has been permanently diminished and future investment plans have to be changed. It may become necessary to re-direct export to another market (with the concomitant adjustments in the specification of the product). And so on.

3.5.2. Political economy

The debate on industrial policy over the last three decades has highlighted that the success of industrial policy depends critically on the country's political economy (Toye, 1987; Chang, 1994 a and 2011; Evans, 1995). We consider three key aspects of it.

(a) Class politics

A successful industrial policy (like any other policy) needs to have the right political base. It is well known that countries with a strong landlord class or a strong financial capitalist class find it difficult to implement good industrial policy, as those classes want policies that may be detrimental to industry, especially the manufacturing sector.

For example, in the US, for over two decades, Hamilton's infant industry programme could not be implemented due to resistance from the landlord class of the South, which did not want to subsidise inefficient Yankee manufacturers. It was only at the end of the Anglo-American War (1812-6), which made it clear that the US needs to develop manufacturing industries, that the supporters of Hamilton's idea could put it into practice.

For another example, in the last few decades, the strong financial capitalist classes of the UK and Brazil have used their political power to have governments implement macroeconomic and financial-sector policies that lead to overvalued currency, thereby destroying large swathes of their export-oriented manufacturing industries.

All of this, however, is not to be interpreted as meaning that a country's political economy is determined by its history. New political coalitions can be, and have been, built and policies changed.

For example, in 1860, the Northern manufacturing states of the US started establishing a new national hegemony by establishing the Republican Party, which (unlike its predecessor Whig Party) succeeded in drawing in the Western states, traditionally in favour of free trade, by offering them free distribution of public land (embodied in the Homestead Act of 1862). The Northern states completed their acquisition of hegemony by winning the Civil War (1861-1865), in the making of which the disagreement on protectionism was an important factor.

In late 19th century Prussia, Bismarck persuaded the landlord class (the Junkers) to accept high tariff protection and other industrial policy measures for the emerging heavy and chemical industries by providing it with its own protection too – in the so-called 'marriage of iron and rye'.

In the 1930s, the industrial capitalists in a host of Latin American countries broke the grip of the landlord class on economic policy by building a new political coalition the urban working class. On this new political basis, they implemented industrial policies, called the Import-Substituting Industrialisation (ISI) programme. The Cardenas regime in Mexico and the Vargas regime in Brazil are the two most successful examples.

A successful industrial policy (like any other policy) needs to have the right political base. It is well known that countries with a strong landlord class or a strong financial capitalist class find it difficult to implement good industrial policy, as those classes want policies that may be detrimental to industry, especially the manufacturing sector.

In the 1940s and the 1950s, land reform destroyed the grip that the landlord class had on Korean politics. This created the space for a pro-industrialisation military regime to come to power in the 1960s.

(b) State-capital relationship

It is not just the relationship between different classes that defines a country's political economy surrounding industrial policy. The relationship between the government and the industrial capitalist class is another critical dimension of the political economy of industrial policy.

Following the pioneering work on Japanese industrial policy by Johnson (1982), many researchers on industrial policy in East Asia have emphasised the importance of continuous dialogue and exchange of information between the government and the private sector in making the policy well informed. However, it is also important that the government does not get beholden to particular industrial interests and thus avoid the danger of 'capture'. Peter Evans (1995) has captured this point beautifully in his notion of 'embedded autonomy'.

The notion of embedded autonomy means that, in order to be effective in its intervention, the government needs to have roots in the society ('embeddedness') but also has to have the power to impose its own will on the private sector and the rest of the society, if necessary ('autonomy'). Autonomy without embeddedness can create a state that imposes a vision that is incompatible with underlying social and economic forces and thus is prone to failure, while embeddedness without autonomy will turn the state into a vehicle for furthering the interests of powerful private sector firms – or what Karl Marx called the executive committee of the bourgeoisie. Evans used the case of Japan, Korea, and Taiwan to illustrate this point, but other countries – most notably Singapore, Germany, Italy (local governments), and Finland – also fit the description (see Chang et al., 2013, for further country details).

(c) Ideology

The nature of prevailing ideology about industrial policy matters in the determination of a country's political economy surrounding it.

If the dominant ideology is too rigid, a country is likely to use industrial policy of wrong type in wrong quantity – or refuse to use it even when it is necessary. For example, the adherence to free-market ideology by successive UK governments since that of Margaret Thatcher has made industrial policy a 'taboo' subject and prevented the country from using significant industrial policy even when the economic case was there and there was no significant political resistance from any powerful group. At the other end of the political spectrum, the autarchic communist ideology practised in Mao's China prevented the country from using industrial policies that involve using foreign technologies on a major scale or involving foreign companies.

Most of the successful cases of industrial policy intervention have shown considerable degree of flexibility in ideological terms, with Singapore as the ultimate example of ideological flexibility and pragmatism, mixing some of the most ‘free market’ measures with some of the most ‘socialist’ ones – the country may boast free trade and its welcoming attitude towards foreign investors, but 90 per cent of land is publicly owned, 85 per cent of housing is provided by government Housing Development Board, and a staggering 22 per cent of GDP is produced by SOEs (Chang et al., 2013). In contrast, in the Korean case, the effectiveness of industrial policy got compromised when the free-market, anti-industrial-policy ideology became dominant in the 1990s (Chang and Evans, 2005).

Most of the successful cases of industrial policy intervention have shown considerable degree of flexibility

3.5.3. Management of the implementation process

Even with realistic, adaptive policies and the right political-economic conditions, successful industrial policy implementation requires good capabilities to manage the implementation process. Let us discuss two key issues that have emerged from the industrial policy debate of the last three decades – namely, the question of administrative capabilities and the issues related to incentive design (for further details, see Chang, 1994 and 2011).

(a) Administrative capabilities

Needless to say, effective policy implementation requires capable people to do it. At the centre of it are the government officials working in ministries and other public agencies (e.g. public research institutes working with industries, agencies providing extension services to SMEs). But we also need capable people in the private sector agencies that actually implement some of the policy measures (e.g. the employers’ association, industry associations, trade unions).

Having said this, one critical point of note is that improving administrative capabilities here do not mean training in economics (and at that narrow neoclassical economics), as many of the ‘policy capacity building’ programmes run by international organisations, like the World Bank, believe.

People are usually surprised to hear that most industrial policy-makers of the East Asian ‘miracle’ economies, especially in the early years, were non-economists – lawyers in Japan and, to a lesser extent, Korea, on the one hand, and scientists and engineers in Taiwan and China, on the other hand. They are even more surprised to hear that, especially until the 1970s, what little economics these non-economists knew was mostly of the ‘wrong’ kinds – Marxist economics, the theory of infant industry promotion, old-style development economics of Rosenstein-Rodan and Hirschman (see Chang, 2010, Ch. 23).

The East Asian examples show that the capabilities that good policy-makers need are not the knowledge of supposedly ‘relevant’ subject, like economics, but general intelligence, the ability to learn, skills to manage complex projects, and the ability to maintain organisational coherence.

Moreover, administrative capabilities are not just those possessed by the individuals working in the government and other related organisations. Organisations themselves possess capabilities in the forms of particular command structure, institutional routines, and organisational ‘memories’ (e.g. records and processing of past activities). The quality of these capabilities is as important as, if not more so than, capabilities possessed by the individuals who work in them.

Last but not least, it is not only the capabilities of the individual organisations implementing industrial policy but also the interaction between them that is important. The relevant bodies (public and private) need to have good working relationships with each other. They also need some mechanisms to coordinate their actions, whether through some intellectual exercises (e.g. indicative planning, foresight exercise) or through organisational structures that makes coordination easier (e.g. some super-ministry, such as France’s Planning Commission or Korea’s Economic Planning Board [EPB], coordinating the activities of different ministries through development planning).

The challenge, of course, is that many developing countries lack administrative capabilities at all levels (individuals, organisations, network of organisations). And indeed many critics of industrial policy have warned developing countries not to use it at least partly on the ground that countries with poor administrative capabilities cannot handle ‘difficult’ policies, like industrial policy (World Bank, 1993, is a classic example).

In the very short run, this may be a valid point, but in the longer run, it is a very misleading argument. It is true that building administrative capabilities takes time and investments. However, they are not as difficult to build up as many critics of industrial policy would like us to believe. Indeed, many countries – including Korea and Taiwan, two of the most prominent success stories of industrial policy in recent history – built up such capabilities over time despite having been initially criticised for having poor-quality public administration (see Chang, 2011). Indeed, given the existence of ‘learning by doing’ in the acquisition of administrative capabilities (and not just in the acquisition of productive capabilities, as in the original formulation of the notion of ‘learning by doing’ by Arrow, 1962), a government that never tries to implement industrial policy is unlikely to acquire the administrative capabilities necessary for implementing industrial policy.²⁵

25 An interesting consideration in the context of poor developing countries is that they can be locked up in what Pritchett et al. (2012) calls ‘capability trap’. This refers to a situation in which a developing country government develops only a narrow set of standard capabilities that are necessary for the continuous attraction of foreign aid, which in the long run undermine its ability to develop policies that are genuinely necessary for the country. OECD (2013a) also discusses this issue.

(b) Incentive design

The possession of good administrative capabilities does not mean that industrial policy implementation will be successful. The incentive system for the recipients of industrial policy supports should be designed well. The most important principle behind such design is rather obvious – the recipients should be rewarded for good performance and punished for bad performance. However, translating that obvious principle into practice is not easy.

The main difficulty is that the recipients of industrial policy support are likely to manipulate the definition and the measurement of performance indicators so that they can exaggerate good performance and underplay bad performance. In order to counter this, a number of measures can be taken.

First, in line with the theory of embedded autonomy, the performance targets for industrial policy should be set in consultation with the business community but not purely on the basis of what businessmen say, as they are likely to over-state the difficulties and under-state their strengths. This means that there have to be independent third-party opinions provided by technical experts, academics, journalists, and the like. The deliberation councils that were used in Japan and, less effectively, in Korea show how this process can be managed (Johnson 1982; Dore 1986; World Bank 1993).

Second, once the targets are set, they should be clearly specified and the reporting requirements on them set. Publicly announcing the targets will make their subsequent manipulation more difficult. However, that will make the revision of targets more difficult, reducing policy adaptability, which we discussed above. There is no easy answer to this dilemma. An increase in policy adaptability can only be bought at the increased risk of policy manipulation, even though the shape of this trade-off differs across time and space.

Third, more attention should be paid to the trends in performance targets, rather than their absolute levels at any given point of time. When it comes to industrial policy programmes with a long time horizon, it should be expected that the protected industry cannot survive without subsidies or protection for years, if not decades. However, even for those cases, it is important that performances improve over time.

Fourth, whenever possible, export performance should be given a high status as a performance indicator, as it was the case in the East Asian countries. This is because export performance indicators are far less open to manipulation by the recipients of industrial policy supports than are domestic market performance indicators, especially when the firms in question have significant market powers.

The possession of good administrative capabilities does not mean that industrial policy implementation will be successful. The incentive system for the recipients of industrial policy supports should be designed well. The most important principle behind such design is rather obvious – the recipients should be rewarded for good performance and punished for bad performance. However, translating that obvious principle into practice is not easy.

3.6. CONCLUSION

In this chapter, we have examined various economic theories related to industrial policy.

First, we discussed the issues surrounding the definition of industrial policy (section 3.1). In particular, against the widespread view that industrial policy should be general (or horizontal), rather than targeted (or selective), we argued that, in a world with scarce resources, all industrial policies involve some degree of targeting and therefore that there is no such thing as truly general industrial policy. We also pointed out that there can be no presumption that a less targeted industrial policy is better.

In the next two sections (sections 3.2 and 3.3), we explored some ‘big picture’ issues about economic development, providing backgrounds to the theories of industrial policy that we examine later in the chapter. First we discussed why industrial policy needs to focus on manufacturing, especially in developing countries, despite the growing popularity of the discourse of ‘post-industrial age’. Then we discussed the two competing visions of industrial policy in economic development in developing countries – namely, the theory of comparative advantage and the theory of infant industry promotion. We argued that the theory of infant industry, complemented by considerations of comparative advantage, offer the best perspective on industrial policy in developing countries.

...The debate on industrial policy has been conducted in theoretically impoverished ways. Advocates of industrial policy have often failed to present the full range of theoretical considerations that are necessary (and were implicitly incorporated in real-world industrial policy practices) while not paying enough attention to the theories of policy implementation.

Then we examined arguments for industrial policy (section 3.4), based on various aspects of: interdependence (demand complementarities, externalities, coordination of competing investments), productive capabilities (challenges posed by direct technology imports, challenges faced by SMEs), and risk/uncertainty (for high-risk project, for downside risk, for workers’ risk). We highlighted that there are more justifications of industrial policy than is acknowledged even by some supporters of it – such as the coordination of competing investments and the underwriting of workers’ risk.

This discussion was followed by a discussion on implementation issues. We first discussed how realism and adaptability are needed in industrial policy design. Then we discussed how political economy considerations (class politics, state-capital relationship, and ideology) need to be incorporated in the making and the implementation of industrial policy. Finally, we examined issues related to the management of the

implementation process, such as administrative capabilities and incentive design. While many critics of industrial policy refer to the above-mentioned implementation issues as reasons for most developing countries, especially the ones in Africa, not to attempt industrial policy, we argued that the critics often present those issues in partial and misleading ways and that there are many ways in which those issues can be dealt with.

What emerges from the discussion in this Chapter is that the debate on industrial policy has been conducted in theoretically impoverished ways. Advocates of industrial policy have often failed to present the full range of theoretical considerations that are necessary (and were implicitly incorporated in real-world industrial policy practices) while not paying enough attention to the theories of policy implementation. The critics of industrial policy have ignored many of the theoretical arguments for industrial policy and, based on their narrow theoretical perspectives, too readily dismissed even the arguments they acknowledge. They have also exaggerated the implementation issues and presented them in biased ways.

The full range of relevant theories, whether they are ostensibly for or against industrial policy, need to be taken on board and synthesised to offer us a richer and more nuanced perspective. Indeed, as we tried to show in our comparison of the theory of comparative advantage and the theory of infant industry, synthesising theories that are supposedly on the opposite sides can significantly improve our theoretical understanding and policy practice.



Chapter 4

Experiences of industrial policy in the past and the present

In Chapter 3, we discussed the theoretical arguments for and against industrial policy. We have seen that there are a lot more justifications for industrial policy than is recognised by the mainstream of economics. We also reviewed various theoretical criticisms of industrial policy and pointed out that many of them are on shaky grounds while even the valid criticisms are often exaggerated.

However, the reader may still ask: theoretical arguments are all very well, but how about the practice? Didn't all the rich countries, with only a couple of exceptions like Japan and Korea, develop their economies through free-market and free-trade policies? Moreover, didn't the developing countries mess up their economy when they tried to use industrial policy before the 1980s? Whatever their records of industrial policy are before the 1980s may have been, haven't the developing countries seen the error of their old ways and stopped using industrial policy since then? The answers to these questions, this chapter will show, are all basically in the negative.

In section 4.1 we will show how today's rich countries – starting from 18th century Britain down to late 20th century Korea, Taiwan, and Singapore – have used an extensive range of industrial policy measures, with exact mix of policies depending on the country and the time. The focus will be on policies for the manufacturing sector, but we will also look at 'industrial policy' for other sectors – agriculture, natural resource-based industries (e.g. mining, logging), and services (e.g. finance, shipping). We also look at policies for infrastructure, skills, R&D, and physical investments, which are not industrial policies as we have defined it in this report but are closely related to industrial policy and need to be closely coordinated with it.

Section 4.2 will discuss how it isn't just today's rich countries that have had successfully used industrial policy. We will review the industrial experiences of the more advanced developing countries and show how they have had industrial policy successes in at least some sectors. We look at China, Brazil, Chile, United Arab Emirates (UAE), and Malaysia. Except for China, whose industrial policy success has been very broad-based, we provide a discussion of industrial policy experiences in individual sectors, as well as an overview of industrial policy, for each country: Brazil (agro-industry), Chile (salmon and other agro-industries), the UAE (aluminium), and Malaysia (palm oil-related industries as well as electrical and electronics).

In section 4.3 we look at the industrial policy experiences of the poorer developing countries today and show how even some of the poorest countries have had some success in industrial policy, albeit usually in a limited number of sectors and to a modest degree. We look at the overall industrial policy experiences and some sectoral experiences (not all of them necessarily clear success stories) in Vietnam (apparel, shipbuilding), Uzbekistan (automobile), Ethiopia (leather, textile and garments, flowers, and cement), and Rwanda (ICT-based services, tourism).

Before moving on to the presentation of the cases, let us first make it clear that, in presenting these cases, we openly reject the view of some sceptics who believe that no country can

learn lessons from another, because they all face different conditions. It is true that no two cases are exactly the same, but that does not mean that you cannot learn any lesson from another country. You can always draw some lessons from all cases, although some cases may be more relevant than others for you. Indeed, learning lessons from the more economically advanced countries, which you are trying to catch up with, is at the heart of the history of economic development.²⁶

Even while we firmly believe that any country can learn something from all countries, we do not present the cases in this chapter as ‘models’ to emulate.

First, we present them partly as illustrations of general theoretical principles involved in industrial policy, which we discussed in Chapter 3 and elsewhere in the report: some deviation from comparative advantage is absolutely essential for the economic development of developing countries; R&D supports, skills development, infrastructural investments, and other supposedly ‘horizontal’ policies often need to be designed with sector-specific considerations in mind; regulation of FDI in some form is required, if the host country is to maximise the positive impacts of FDI on local productive capabilities; and so on.

Second, these cases are also presented as parts of a ‘treasury’ of case knowledge, which industrial policy-makers can utilise in drawing lessons that they think are helpful for their own countries. Even from the same case, different countries may be able to learn different things, depending on the differences between their conditions (e.g. country size, natural resource endowment, political conditions, and the global economic environment). Even when two countries are similar, they may want to learn different things from the same case, if they have different goals (e.g. one country may be more concerned about regional inequality than another, one may want to be more open to the outside world than another).

Last but not least, we deliberately present a wide range of cases – from Britain in the 18th century to today’s Rwanda, from the electronics industry to the salmon industry – in order to free the policy imagination of developing country (especially African) industrial policy-makers. Real-life policy experiences are based on policy options that simply cannot be imagined purely on theoretical bases, as our case material will clearly show. We believe that knowing a wide range of different cases, especially the ones with the least promising conditions (e.g. Korea in the 1960s or Ethiopia today) or the most audacious goals (e.g. Japan in the 1950s), liberates policy-makers from the tyranny of conventional wisdom, in which only a narrow range of policy possibilities – and at that in very simplified and sometimes even misleading forms – that fit with the dominant economic theory are considered.

²⁶ In this regard, it is interesting to note that those who are sceptical about learning lessons from other countries tend to employ a double standard in that they believe that every country can – and indeed should – learn the free-market, free-trade model of Britain and the US.

4.1. INDUSTRIAL POLICY EXPERIENCES OF TODAY'S RICH COUNTRIES

4.1.1. Industrial policy experiences of today's rich countries after World War II

Even though there was a lot of denial about the very existence of industrial policy in the East Asian 'miracle' economies in the earlier phase of the debate on industrial policy, these days few people dispute that industrial policy was the key to the East Asian economic 'miracle' (see Chang, 2011, for a comprehensive criticism of those studies that accept the existence of industrial policy in those countries but deny its positive contributions).

East Asian industrial policy was more than simple infant industry protection through trade protectionism (through tariffs, quotas, and other quantitative restrictions) and subsidies (often in the form of 'directed credits') for strategic industries. It included a wide range of policy measures, used in different proportions and with different intensities in different countries.

They included: (i) coordination of complementary investments (the so-called Big Push); (ii) coordination of competing investments through entry regulation, 'investment cartels', and (in declining industries) negotiated capacity cuts; (iii) policies to ensure scale economies (e.g. licensing conditional upon production scale, emphasis on the infant industries starting to export from early on, state-mediated mergers and acquisitions); (iv) measures to promote technology transfer and absorption (e.g. the screening of technology imports, caps on licensing royalties, and lax intellectual property rights laws); (v) regulation on FDI (e.g. entry and ownership restrictions, local contents requirements, technology transfer requirements, export requirements); (vi) the use of SOEs to promote strategic industries, especially in the case of Taiwan; (vii) the state acting as a venture capitalist and incubating high-tech firms; (viii) mandatory worker training for firms above a certain size, in order to resolve the problem of under-investment in the training of skilled workers due to the possibility of poaching; (ix) export promotion (e.g. export subsidies, export loan guarantees, marketing help from the state trading agency); (x) government allocation of foreign exchanges, with top priority going to capital goods imports (especially for export industries) and the bottom priority to luxury consumption good imports.

Many people believe that these policies were unique to the East Asian economies. They believe that the East Asian countries could deviate from the best-practice policies – of free trade and free market – but still economically succeed only because they had a lot of 'countervailing forces' that cancelled out the negative effects of industrial policy. Unfortunately, no convincing arguments as to the nature of these countervailing forces have been made. Culture (allegedly leading to high savings rate, strict work ethic,

high-quality bureaucracy), the legacy of Japanese colonialism (supposedly leading to exceptionally high literacy and broad industrial base), and Cold War politics (which is argued to have led to exceptionally high foreign aid and special access to the US market) are frequently cited candidates, but none of them even pass the minimum factual tests (Chang 2007, Ch. 9, on culture; Chang 2006, on Japanese colonialism and the Cold War).²⁷

However, many of the ‘East Asian’ industrial policy measures mentioned above were used by other rich countries between the 1950s and the 1980s, the period of ‘East Asian Miracle’.

As we briefly mentioned above and as it is rather well known, between the 1950s and the 1980s, France implemented industrial policy that is very similar to that of the East Asian countries, even including the use of indicative planning of the kind used actively in Japan and Korea (Cohen, 1977; Hall, 1986). France actively used SOEs to spearhead industrial upgrading. It had an SOE sector that was, accounting for around 15 per cent of GDP, one of the largest in the capitalist world at the time (except for the oil states, most of whose oil is owned by SOEs). It also extensively used directed credit programmes through the banks, most of which were owned by the state, as it was in the case of Korea and Taiwan (Japan’s commercial banks were privately owned, although they were strictly controlled by the state until the 1980s).

Finland, Norway, and Austria, also pursued (selective) industrial policy, often with even greater successes than France, during this period (Katzenstein 1985). All three countries extensively used SOEs and especially Austria had an SOE sector that was one of the largest in the capitalist world. Finland restricted FDI heavily until recently – between the 1930s and 1980s, it used to classify all firms with more than 20 per cent foreign ownership as ‘dangerous enterprises’ (Chang, 2004).

In some countries, there was relatively little national level industrial policy, but there was (and still is) a lot of industrial policy at the level of the regional government – Italy and Germany are such examples (Piore and Sabel 1984; Chang et al., 2013). Local governments in these countries promoted particular ‘industrial districts’, specialising in a few sophisticated products, through directed credits (from local banks, often owned by the local government), R&D support, and export marketing help.

...many of the ‘East Asian’ industrial policy measures were used by other rich countries between the 1950s and the 1980s, the period of ‘East Asian Miracle’.

²⁷ Let us provide some basic factual refutation of these ‘countervailing forces’ arguments, a full treatment of which is beyond the scope of this report. Before their economic development, the East Asians were typically described as lazy, un-enterprising, individualistic people; ‘living for today’ (see Chang, 2007 b, Ch. 9). Korea’s savings rate (savings as a proportion of GDP) on the eve of its economic miracle was barely 5 per cent and started rising after growth took off. At the end of the Japanese colonial rule, literacy ratio in Korea was only 22 per cent and its industrial base was smaller than that of Ghana (Chang, 2006b). It was only in the 1950s that Korea and Taiwan got an exceptionally high amount of foreign aid in per capita terms (Chang 2006). As far as I know, no one has provided any concrete evidence for the “special market access” story. Until the 1980s, Korea and Taiwan were buying up textile quotas from other developing countries that could not even fill their MFA (multi-fibre agreement) quotas for the US, showing that, even if it was there, the special market access could not provide big enough export markets to these two countries.

While being the standard-bearer of the free-market ideology since the 1950s (although not before that – see below), the US government also ran a huge (if somewhat wasteful) industrial policy programme under the guise of R&D supports and government procurement for defence and public health (Block 2008; Mazuccato, 2013). Between the 1950s and the 1980s, the US federal government financed anywhere between 47 per cent and 65 per cent of national R&D spending, as against around 20 per cent in Japan and Korea and less than 40 per cent in several European countries (e.g. Belgium, Finland, Germany, Sweden) (Mowery and Rosenberg 1993, p. 41, table 2.3 for the US; the OECD data set for the other countries).²⁸ It is extremely telling that most of the industries in which the US still has international technological leadership are industries that were set up and nurtured by the government through public funding of R&D and procurement (often at inflated prices) – aircraft, computer, semiconductor, internet, and genetic engineering, just to name the most important ones.

Our discussion in this section shows that, even though it was its use by the East Asian ‘miracle’ countries that has stimulated the post-WWII debate on industrial policy, it wasn’t just these countries that used industrial policy during this period. Industrial policy has been present in almost all of today’s rich countries during much of this period far more extensively and intensively than most people, including some proponents of industrial policy, think, with the exact mix of policies depending on the country and the time.

4.1.2. Industrial policy experiences of today’s rich countries at the earlier stages of their economic development

Even more relevant for today’s developing countries than the industrial policy experiences of today’s rich countries in the post-war period are the industrial policy experiences in the earlier stages of their economic development, when they were facing similar problems with those faced by today’s developing countries (see Bairoch 1993; Chang 2002, 2004, and, 2007, for further details).

Contrary to the popular myth, in the earlier days of their industrialisation between the late 18th century and the early 20th centuries, all of today’s rich countries, with notable exceptions of the Netherlands and (until WWI) Switzerland, provided significant degrees of tariff protection for ‘infant’ producers for substantial periods (see **figure 4.1**). During most of the period, most countries had average manufacturing tariff rates well above the level found in developing countries today, which is around 10 per cent.

Moreover, the average rate of tariffs do not give us the full picture of the extent to which tariff protection was a key part of the development strategy of today’s rich countries in the earlier period. Germany and Sweden provided targeted protection to their nascent

28 The share of federal government in total R&D spending was 5.36 per cent in 1953, 56.8 per cent in 1955, 64.6 per cent in 1960, 64.9 per cent in 1965, 57.1 per cent in 1970, 51.7 per cent in 1975, 47.2 per cent in 1980, 47.9 per cent in 1985, and 47.3 per cent in 1989 (estimated).

Figure 4.1 **Average tariff rates on manufactured products for selected developed countries in their early stages of development (weighted average; in per cent of value) ¹**

	1820	1875	1913	1925	1931	1950
Austria ³	R	15 - 20	18	16	24	18
Belgium ⁴	6 - 8	9 - 10	9	15	14	11
Canada	5	15	N/A	23	28	17
Denmark	25 - 35	15 - 20	14	10	N/A	3
France	R (20)	12 - 15	20	21	30	18
Germany ⁶	8 - 12	4 - 6	13	20	21	26
Italy	N/A	8 - 10	18	22	46	25
Japan ⁷	R	5	30	N/A	N/A	N/A
Netherlands ⁴	6 - 8	3 - 5	4	6	N/A	11
Russia	R	14 - 20	84	R	R	R
Spain	R	15 - 20	41	41	63	N/A
Sweden	R	3 - 5	20	16	21	9
Switzerland	8 - 12	4 - 6	9	14	19	N/A
United Kingdom	45 - 55	0	0	5	N/A	23
United States	35 - 45	40 - 50	44	37	48	14
Tariff rate range	> 30	>20 <30	>10<20	<10		

Source: Chang (2002), p. 17, table 2.1, largely based on Bairoch (1993), p. 40, table 3.3, except for Canada, which is from Taylor (1948), pp. 102-8 and p. 398.

Notes:

R= Numerous and important restrictions existed, making average tariff rates not meaningful.

1. World Bank (1991, p. 97, Box table 5.2) provides a similar table, partly drawing on Bairoch. However, the World Bank figures, although in most cases very similar to Bairoch's figures, are unweighted averages, which are obviously less preferable to weighted average figures that Bairoch provides.

2. These are very approximate rates, and give range of average rates, not extremes.

3. Austria-Hungary before 1925.

4. In 1820, Belgium was united with the Netherlands.

5. According to the estimate by Nye (1991), the average tariff rate, measured by customs revenue as a percentage of net import values, in France during 1821-5 was 20.3 per cent, as against 53.1 per cent for Britain, which is in line with the 45-55 per cent range estimated by Bairoch.

6. The 1820 figure is for Prussia only.

7. Before 1911, Japan was obliged to keep low tariff rates (up to 5 per cent) through a series of unequal treaties with the European countries and the USA. The World Bank table cited in note 1 above gives Japan's unweighted average tariff rate for all goods (and not just manufactured goods) for the years 1925, 1930, 1950 as 13 per cent, 19 per cent, 4 per cent.

heavy and chemical industries in the late 19th and the early 20th centuries. Belgium may have been one of the least protected economies in the 19th century, but it provided much targeted protection during the period. In the mid-19th century, when the country's average industrial tariff was around 10 per cent, tariffs reached 30-60 per cent for cotton, woollen, and linen yarn, and 85 per cent on iron (Milward and Saul, 1977 p. 174).

Interestingly, the most protectionist among today's rich countries in the past were not countries like France, Germany, and Japan, which people these days most frequently associate with protectionism. It was actually Britain and the US – the supposed homes of free trade. During most of their respective catch-up periods – from the mid-18th to the mid-19th century for Britain and from the mid-19th century to the mid-20th century for the US – they had the world's highest levels of tariff protection (45-55 per cent) (**figure 4.1**).

From the 14th century, Britain had used aggressive industrial policy vis-à-vis the woollen manufacturing industry, the hi-tech industry of Europe until the 18th century, which was then centred in the Low Countries (what are the Netherlands and Belgium today). British producers were given tariff protection and subsidies, while export taxes and occasionally export bans on raw wool were deployed to maximise the availability of raw materials to British producers. These measures were intended to transform Britain from a supplier of the raw material (raw wool), into a manufacturing centre of woollen textile. In large part thanks to these measures, by the 18th century, woollen textile accounted for at least half of Britain's export revenue, enabling it to import the vast quantity of raw materials (e.g. cotton) and food needed for the Industrial Revolution.²⁹

Britain's industrial policy moved into a higher gear when Robert Walpole, the so-called first British Prime Minister, came to power in 1721. Upon coming to power, Walpole introduced a wide range of industrial policy measures across industries, and not just for the woollen manufacturing industry. Introducing the new law, Walpole stated, through the King's address to the Parliament: "it is evident that nothing so much contributes to promote the public well-being as the exportation of manufactured goods and the importation of foreign raw material" (as cited in List, 1885, p. 40).³⁰ Walpole's policies were very similar to (and indeed the templates for) what subsequently came to be known as the East Asian industrial policy – infant industry protection, export subsidies, import tariff rebates on inputs used for exporting, export quality control by the state (Brisco 1907). And between Robert Walpole's industrial policy reform and the country's transition to full free trade in the 1860s (and not in 1846 by the repeal of the Corn Laws, as it is commonly believed), Britain implemented a most aggressive industrial policy regime, centred around high tariff protection.

If Britain was the first country to have successfully launched a large-scale infant industry promotion strategy, its most ardent user was the US – Paul Bairoch once called it "the mother country and bastion of modern protectionism" (Bairoch, 1993, p. 30). Indeed, the theory (although not the practice) of infant industry promotion was developed by Alexander Hamilton, the country's first Treasury Secretary, who advocated protectionism for the US

29 Cloth exports (mostly woollen) accounted for around 70 per cent of English exports in 1700 and was still over 50 per cent of total exports until the 1770s (Musson, 1978, p. 85).

30 In List's view, this "for centuries had been the ruling maxim of English commercial policy, as formerly it had been that of the commercial policy of the Venetian Republic" (List, 1885, p. 40).

against advice from Adam Smith and other European economists, like Jean Baptiste Say.³¹ Between 1816 and the end of WWII, the US had one of the highest average tariff rates on manufacturing imports in the world (see **figure 4.1**). Given that the country enjoyed an exceptionally high degree of ‘natural’ protection due to high transportation costs at least until the 1870s, we can say that the US industries were literally the most protected in the world until 1945.

It wasn’t just trade protectionism and subsidies for the strategic industries that today’s rich countries used during the earlier stages of their economic development. A wide range of industrial policy measure was deployed.

First, in relation to SOEs, some of today’s rich countries set up SOEs in new industries, in order to kick-start their industrialisation. In (pre-unified) Germany - King Frederick the Great (1740-86), started the industrialization process in Prussia by setting up ‘model factories’ in the steel and the linen industries. In the late 19th and the early 20 centuries, Japan did the same in a number of industries – notably in shipbuilding, mining, textiles (cotton, wool, and silk), and steel industries.

Second, in the 19th century, the US, the then main destination of European FDI, heavily regulated FDI. Between 1817 and 1914, coastal shipping was completely closed for FDI, while only American citizens could become directors in a national (as opposed to state) bank and foreign shareholders were not even allowed to vote in AGMs. In relation to natural resources, federal mining laws in 1866, 1870, and 1872 restricted mining rights to US citizens and companies incorporated in the US, while the 1878 timber law permitted only US residents to log on public land. Restrictions on foreign investment in manufacturing were relatively rare, as such investment was not very important until the late 19th century, but the 1885 contract labour law prohibited the import of foreign workers.

Third, today’s rich countries used the intellectual property rights (IPRs) regime as a tool of industrial policy. They deliberately provided very weak protection for foreigners’ intellectual property rights IPRs in an attempt to maximize technology (and other knowledge) transfer from the economically more advanced nations. So, many countries – Britain, the Netherlands, the US, France, and Austria – explicitly allowed patenting of foreigners’ inventions. The US didn’t protect foreigners copyright until 1891. Most interestingly, the Netherlands and Switzerland refused to protect patents until the early 20th century. Switzerland introduced the first patent law only in 1888 but it protected only mechanical inventions in a deliberate attempt to allow its chemical and pharmaceutical companies to ‘borrow’ technologies freely from their German counterparts – a full-blown patent law was introduced only in 1907 (even then it only granted process, as opposed to product, patents in chemicals and pharmaceuticals until the 1978). The Netherlands had abolished its early patent law (introduced in 1817) in 1869 and didn’t re-introduce it until 1912. It was thanks to the absence of the patent law that Philips could establish itself successfully – it started out in 1899 by manufacturing light bulbs, the technologies necessary for whose production was all patented either by Thomas Edison or by his company, General Electric.

31 In his *Wealth of Nations*, Adam Smith wrote: “Were the Americans, either by combination or by any other sort of violence, to stop the importation of European manufactures, and, by thus giving a monopoly to such of their own countrymen as could manufacture the like goods, divert any considerable part of their capital into this employment, they would retard instead of accelerating the further increase in the value of their annual produce, and would obstruct instead of promoting the progress of their country towards real wealth and greatness” (Smith, 1973 [1776], pp. 347-8).

Fourth, many of today's rich country governments invested in – or subsidised the investments by the private sector in – infrastructure, education, and R&D. The German government financed road building (especially in the Ruhr, the centre of German manufacturing), the Swedish government built the main train lines, and the US government provided free public land and subsidies to railway companies. Many governments invested in education – not just in primary education (the US, Sweden) but also in vocational education (Germany). The government of these countries also invested in industrial R&D. Germany, Sweden, the US, and Japan are the best examples. The governments of the US the Netherlands, and Japan heavily invested in R&D in agriculture (Chang, 2009).

Our discussion in this section shows that today's rich countries used industrial policy actively in the earlier stages of economic development. Compared to the post-WWII period, most of them, especially Britain and the US, had a much higher degree of protectionism. SOEs were not as widely used as in the post-WWII period, but Germany and Japan set up SOEs to spearhead the development of strategic industries, like steel, shipbuilding, and textile. FDI was also regulated, especially in natural resources and services, as these were the areas in which FDI was focused before WWII. Intellectual property right laws were lax maximise the opportunity and minimise the cost of importing foreign technologies; countries like Switzerland and the Netherlands didn't even have a patent law until the early 20th century. Governments invested in – or subsidised the investments by the private sector in – infrastructure, education (including technical education), and R&D (including R&D in agriculture), although these are not industrial policy as we define it in this report.

4.2. INDUSTRIAL POLICY EXPERIENCES OF TODAY'S MORE ADVANCED DEVELOPING COUNTRIES

4.2.1. China³²

Even though the term 'industrial policy' was rarely used before the 1990s, China's history of industrial policy goes back to the late 19th century. However, the earlier attempts at industrial policy – by the Qing dynasty, by the Nationalist government, and by the Communist Party under Mao Zedong – were all rather sporadic, poorly designed, and had chequered records, especially the disaster of the Great Leap Forward under Mao.³³ In contrast, China's industrial policy since the economic reform in the late 1970s has been much more effective, producing some impressive results.

In the early days of the transition towards a market economy in the 1980s and the 1990s, industrial policy continued to weigh heavily on the minds of Chinese state planners. Many industrial policy initiatives during the period were inspired by the experiences of Japan and Korea. In 1987, an Industrial Policy Department was established under the State Planning Commission. However, it was only in March 1989 that the concept of industrial policy was explicitly mentioned for the first time in an official document, that is, the State Council's paper Decision on Current Industrial Policy Priorities.

This was followed by the more comprehensive and integrated Outline of State Industrial Policies for the 1990s in March 1994. The document highlighted the need to accelerate the development of the so-called 'pillar' industries and high-technology industries, while changing the composition of foreign trade by strengthening international manufacturing competitiveness. The June 1995 Provisional Regulations of Guidance on Foreign Direct Investment and the subsequent December 1997 revision mapped out guidelines for high-technology sectors, where foreign investments were variously encouraged, restricted or prohibited (see Zhang and Long, 1997; Yu, 1999, pp. 75-6; Liu, 2005, pp. 34-43, for further details).

China's industrial policy has been embedded within its Five-Year Plans. The Sixth Plan (1981-1985) marked a departure from past plans in terms of industrial policy by being more comprehensive and outward-oriented. It explicitly encouraged foreign trade and foreign direct investment in an attempt to facilitate the importation of advanced technology into the country. Promotion of high-technology industries and, more broadly, of R&D was recurring themes in subsequent Five-Year Plans. Strategic industries, or 'pillar' industries,

³² This section draws heavily on Chang et al. (2013).

³³ Written archives of industrial planning in China generally date back to Sun Yat-sen's (1922) *Shiye Jihua* (Industrial Plan), which emphasised the state's key role in creating "socialism" and developing basic heavy industries (Kirby, 1990).

were identified. Some were chosen because they are important for the country's economic security – these included defence, coal, electric power and grid, telecommunications, petroleum and petrochemical, civil aviation, and shipping. Others were chosen for their growth potentials – they include alternative fuel cars, biotechnology, environmental and energy-saving technologies, alternative energy, advanced materials, new-generation information technology, and high-end equipment manufacturing.

As China undertook economic reform, it drew heavily on the experiences of the other East Asian countries – Japan, Korea, Taiwan, and Singapore – but didn't slavishly imitate any of them. China learnt from Japan and Korea that it needs to develop large domestic enterprises and, especially, diversified enterprise groups. In pursuing an export strategy based on active cooperation with TNCs, China was adapting the Singapore model, rather than the Japanese or the Korean ones, which were rather hostile to TNCs. In reducing the relative importance of SOEs through the encouragement of growth of the private sector rather than through the privatisation of SOEs, China was pursuing a strategy that is similar to what Taiwan did in the early days of its economic development.³⁴

China's industrial policy has gone well beyond tariff protection and subsidies, as it was the case with the earlier developers in East Asia – that is, Japan, Korea, Taiwan, and Singapore. The other key measures of China's industrial policy are as follows.

First, the strategic industries identified in the Five-Year Plans for development have been given targeted supports. They have been protected from foreign competition through tariffs and non-tariff barriers, such as local contents requirements. They have been supplied with subsidised loans from state-owned 'policy banks' – such as the Export-Import (EXIM) Bank of China, the Agricultural Development Bank of China (ADBC) and China Development Bank (CDB). Local governments also provided key industries with subsidised credits. These 'state credits' have played a critical role – for example, in the automobile industry, Chery expanded into overseas markets with financial support from the China EXIM Bank, while Geely borrowed funds from local governments to finance the acquisition of Volvo Cars in 2010 (Marukawa, 2011). As in the case of 'directed credit' programmes of Japan and Korea, commercial bank loans were also made in line with industrial policy goals.³⁵ According to Ferri and Liu (2010), SOEs received 65 per cent of the loans from commercial banks between 1998 and 2003, despite accounting for only 25 per cent of China's economy. Imputed interest rates on debts offered to private enterprises were also found to be 25 per cent to 33 per cent higher than those offered to SOEs.

34 Taiwan also started out with a huge SOE sector, accounting for 57 per cent of industrial production in 1952 (Amsden, 1985) and gradually shrinking its importance (although it still accounts for 16 per cent of GDP) by letting the private sector grow rather than through privatisation.

35 Chapter IV, Article 34 of the 1995 *Law of the People's Republic of China on Commercial Banks* highlights that "A commercial bank shall conduct its loan business in accordance with the need for the development of the national economy and social progress and under the guidance of the state industrial policy".

Second, through the licensing system, investments were directed into strategic ways. For example, even though on the whole it was much friendlier to FDI than its Japanese or Korean counterparts, the Chinese government classified FDI into four categories of (i) encouraged, (ii) permitted, (iii) restricted, and (iv) prohibited. It channelled different types of FDI into different targeted sectors. For another example, the government also controlled the geographical distribution of investments. This policy goes back to the 1960s, when the government located new industries in inland areas so as to distribute industrial development away from the concentrated coastal areas.³⁶ In the early days of the open-door policy, coastal areas were reprioritised for government investments in order to maximise their growth impacts and the access to foreign markets.³⁷ More recently, the growing concern with regional disparities has once again compelled the government to shift the focus of its investments (especially infrastructural investments) to the inland areas.

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Third, in order to develop what Nolan (2001) described as a 'national team' of enterprises in strategic sectors, the Chinese state has initiated many mergers and acquisition (M&A) by administrative decree, as its Japanese or Korean counterparts did during their 'miracle' years. For example, state-mediated consolidation of smaller, uncompetitive firms in the electronics industry led to the formation of larger companies, such as China Electronics Corporation (1989) and SVA Group (1995). China Electronics Corporation, in turn, recently (in 2013) acquired the Irico Group, SOE manufacturing photovoltaic equipment. According to the Ministry of Industry and Information Technology (MIIT)'s Guidance on Corporate Mergers and Acquisitions to Accelerate the Growth of Key Industries, issued in January 2013, the Chinese government at the moment aims to grow global champions in the automotive, iron and steel, cement, shipbuilding, aluminium, rare earth metals, electronics and pharmaceutical industries (MIIT, 2013). And state-mediated M&A remains a key policy lever in this regard.

Fourth, industrial clusters were promoted in order to harness the benefits of agglomeration effects, such as closer integration between suppliers, producers and customers, on the one hand, and more rapid innovation, on the other hand (OECD, 1999; Arvanitis and Qiu, 2008; Barbieri et al., 2012). Emphasis was placed on developing clusters in different towns and cities with unique pillar industries. Prominent examples of industrial clusters include

³⁶ In the early 1950s, the coastal area contributed 70 per cent of China's industrial output, despite making up less than 20 per cent of total land area (Zhang and Long, 1997).

³⁷ Between 1993 and 2003, the average annual FDI inflows as a percentage of the provincial GDP was significantly higher in eastern coastal provinces such as Guangdong (13 per cent) and Fujian (11 per cent) compared to the national average (4 per cent) (Poncet, 2010, p. 115).

Despite all these industrial policy measures, China's industries still have some way to go before they attain leaderships in the higher segments of their international markets. However, they are now major contenders in many key industries. China is already the largest producer of ships, steel, and solar cells, while making inroads into the lower ends of the international markets in ICT products, consumer electronics, mobile phones, and automobiles.

Shunde, Guangdong (electrical goods), Xiaolan (locks and electronic acoustics), and Guzhen (lighting fittings), the latter two both being in the city of Zhongshan, Guangdong.

Fifth, policies were deployed with the aim of facilitating the transfers of technologies from more economically advanced economies. There were regulations on technology imports. TNCs were made to form joint ventures with Chinese companies, most of them being SOEs or enterprises that are associated with the government.³⁸ Through joint ventures, the state retained effective control over foreign affiliates so as to advance Chinese interests (Roehrig, 1994). Majority-stake acquisitions of, and mergers with, foreign companies from advanced countries were engineered, often with a view to gaining access to more advanced technologies – prominent examples include Sweden (Volvo), the UK (MG Rover), the US (IBM's personal computer business, which is now called Lenovo), Austria (Fischer Advanced Composite Components), France (Adisseo) and Korea (Ssangyong Motors).³⁹ Incentives were provided to entice foreign companies to set up R&D centres in China.

Finally, export subsidies and currency under-valuations have been used in order to enhance China's export competitiveness in international markets. China's export restraints, such as the one on rare earth used by industries, have been significant enough to affect global prices and thus supplies. With export subsidies and restraints prohibited under the World Trade Organization (WTO), trade disputes against China's alleged practices remain commonplace (USTR, 2010, 2012a, 2012b).

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38 While explicit technology transfer conditions are curtailed under China's WTO obligations, implicit measures are not forbidden. In China's 2011 *Catalogue for the Guidance of Foreign Invested Industries*, ownership restrictions are listed in most manufacturing industries.

39 Ssangyong, acquired by SAIC in 2004, was sold on to Mahindra Motors of India in 2011.

4.2.2. Brazil

(a) Overview⁴⁰

The period of 1950-1980 in Brazil was a period of state-led industrialisation (Ocampo, 2006). Public sector indicative planning was the norm in Brazil as well as in the rest of the Latin American region during those days. Industrial policy was mainly aimed at creating new industrial sectors, changing the prevalent pattern of specialisation in primary commodities and promoting technology-intensive activities.

At the centre of Brazil's industrial policy during this period was a protectionist regime based on ad valorem tariffs. The Federal Government had the discretionary power to control the level and the types of imports. The Law of Similarities (Lei do Similar Nacional) stated that a product could only be imported if it could be proved that a similar product was not produced in Brazil. These measures were intensified during the 1960-80 period.

Thanks to these industrial policy measures, Brazil successfully entered many new industries, such as petrochemical and renewable fuels, especially ethanol, and established the bases for the development of new technologies. Brazil's industrial policy was sometimes very successful, as in the case of the aircraft industry and the agro-industry (more on the latter in section 4.2.2(b) below). Industrial policy was less successful in industries like the computer industry (Evans, 1995), textiles, and automobile.

The Third World Debt Crisis of 1982 induced the Brazilian government to introduce the more liberal 'New Industrial Policy' package (1985-1988). The total number of special trade regimes was reduced and the average manufacturing tariff rates went down from 90 per cent to 43 per cent. However, given the opposition from politically influential domestic manufacturing industry, reforms were not as radical as those in other developing countries at the time. Non-tariffs barriers and the Law of Similarities were maintained, and these, together with the remaining tariffs, allowed many marginal producers to survive (Kume, 1989; Hay, 2001; Figueiredo, 2008).

The 2000s signaled the return of selective (sector-specific) industrial policy in Brazil. In November 2003, the first Lula government announced the Guidelines for Industrial, Technology and Foreign Trade Policy (PITCE), whose goals were twofold: (i) increasing industrial competitiveness by boosting technological development in key sectors, thereby promoting the export of higher value-added products; (ii) developing the scientific and technological system, especially in sectors like oil and gas, agriculture and pharmaceuticals. The Brazilian Industrial Development Agency (ABDI) and the Council for Industrial Development (CNDI) were created for the purposes of coordinating and implementing the PITCE package and for facilitating the dialogue between the public and the private sectors.⁴¹ Four strategic sectors were targeted: semi-conductors, software, pharmaceuticals, and capital goods.

⁴⁰ This section draws heavily from Chang et al. (2013).

⁴¹ CNDI is made up of 23 Government Ministers, the president of the BNDES (the national development bank), and 14 industry representatives.

Over the last thirty years Brazil has been among the most active countries in terms of their use of policies designed to expand natural-resource-processing industries and food production.

These sectors were supported by sector-specific financing programmes, such as the Profarma (pharmaceutical) and the Prosoft (software), and by two super-sectoral programmes, called Strong Industry and Innovate Brazil. These programmes were aimed at developing the country's innovation capacity by promoting various forms of cooperation and partnerships among private companies, universities and research institutes, government agencies and labour unions.

For the 2008-10 period, the second Lula government launched an ambitious industrial policy package, called, Productive Development Policy: Innovate and Invest to Sustain Growth (PDP), aimed at addressing for main challenges: (i) to maintain the rate of growth in investment (GFCF: Gross Fixed Capital Formation) above that of the GDP; (ii) to upgrade and diversify the export basket; (iii) to boost the innovation capacity of Brazilian companies; and (iv) to broaden access to credit for micro- and small enterprises.

The PDP is a complex policy package structured along three main axes. First, there are programmes promoting new strategic sectors (healthcare, ICT, nuclear energy, defence, nanotech and biotech), managed by the Ministry of Science and Technology (Bothelo, 2011). Second, there are programmes to consolidate and expand existing international market positions with the help of BNDES. The targets of these programmes are: aeronautics, oil, natural gas and petro-chemicals, bio-ethanol, mining, steel, pulp and paper, and meat. Third, there are programmes to strengthen industrial competitiveness under the direct control of the Ministry for Development, Industry and Foreign Trade (MDIC). (Government of Brazil, 2008; Ferraz et al., 2009).

Since the 2008 global financial crisis, the Brazilian government has tried to soften the negative effects of exchange rate appreciation and of the worldwide economic slowdown through financial supports from the BNDES, exemption of payroll taxes, and preferences in government procurement. In the last few years, the Brazilian government has also finally changed its restrictive macroeconomic policies, implemented since 1996, which contributed hugely to the dramatic premature de-industrialisation of Brazil – the share of manufacturing in GDP fell from the peak of 27.2 per cent in the mid-1980s to 14.6 per cent in 2011. First, initially tentatively following the 2008 crisis and then aggressively since 2012, it has abandoned the high interest policy (for much of the time since 1996, Brazil had literally the highest real interest in the world). The lowering of interest rates has naturally led to the depreciation of (the very overvalued) Real, the local currency. These macroeconomic changes have significantly relieved pressure on the manufacturing industry as a whole and especially the export-oriented firms.

The latest phase of Brazil's industrial policy is Plano Brasil Maior (PBM), issued by the Rousseff government in August 2011. It embraces a broader scope and concentrates more on infrastructure than the PDP. PBM also focuses on strengthening production chains ('value chains') and diversifying/upgrading exports (especially for SMEs) through tax

reliefs, trade remedies (e.g. anti-dumping measures), and financing and loan guarantees for exporters. Since April 2012 the PBM has entered the second phase in which emphasis is given to public-private collaboration – for example, through sectoral competitiveness councils (Kupfer, 2012).

(b) The Agro-industry⁴²

Over the last thirty years Brazil has been among the most active countries in terms of their use of policies designed to expand natural-resource-processing industries and food production. Brazil is today among the top three producers and exporters of orange juice, sugar, coffee, soybean, beef, pork, and chickens. It has also caught up with the traditional big five grain exporters (US, Canada, Australia, Argentina and European Union).

This success has been enabled by the most well-developed and well-funded agricultural research system in the developing world (in terms of public investment in agricultural research, Brazil is below only China and India). And at the centre of that system is EMBRAPA (Empresa Brasileira de Pesquisa Agropecuária), a public corporation under the Ministry of Agriculture, Livestock, and Food Supply (MAPA), which has fostered technological change, diversification and upgrading in agriculture.

Brazil's agricultural research system involves federal and state governments as well as an enormous number of agricultural universities (around 80). There are also a very large number of agricultural research centres, some of which have been in existence since the early 19th century. This makes Brazil's agricultural research system extremely complex and characterised by overlapping networks (17 state research networks in 2011). And Embrapa is the main player in this complex system. With its 47 research centres throughout the country, employing 9,284 people and with an annual budget of over \$ 1 billion in 2011, it is the largest R&D agency of any kind, not just in agriculture, in Latin America by staff and budget. The research centres are organised along three main axes of specialisation: commodities, resources and themes. In 2011 Embrapa counted 15 national 'thematic' centres, 16 national 'commodity' centres and 16 regional 'resource' centres.

Embrapa was founded back in 1972 as a response to the main weaknesses of the then national agricultural research agency, DNPEA (National Agricultural Research and Experiment Department). These included "researchers' lack of awareness of the basic needs of agriculture and the lack of intradepartmental and external interaction among researchers, extension workers, and farmers (which had led to instances of unproductive duplication of research efforts)" (Beintema et al., 2001, p. 16). Other weaknesses involved "the lack of incentives for researchers (particularly indicated by low salaries), the low level of postgraduate training (12 percent [of] the scientific staff at the time), and finally the insufficient, and often irregular financial resources available" (Beintema et al., 2001, p. 16).

42 This section draws heavily on Chang et al. (2014).

During its first decades, Embrapa created its network of national commodity centres and regional centres, which focused on major crop and animal production systems and on eco-regional and national themes. It also increased its internal capabilities by signing partnerships with US universities, such as Purdue and Wisconsin, which allowed Embrapa's staff to receive postgraduate training.

Since the late 1980s, Embrapa's research has become increasingly more cross-pollinated with research in advanced manufacturing. A good example of this is the satellite monitoring services for the acquisition and processing of remote sensor images and field data. The Satellite Monitoring Centre was created in 1989 in an area in Campinas (Sao Paulo state), given to Embrapa by the Brazilian Army for the development of a special unit focused on territorial management systems and electronic networks for modern agriculture.

Throughout the 1990s, "Embrapa was involved in a wide range of activities related to agricultural research and technology including plant breeding, pest management, food safety, satellite monitoring, sustainable agricultural development, and hunger relief" (Matthey et al., 2004, p. 10). These efforts continued into the new millennium, and in 2005 and 2006, Embrapa made a serious effort to improve and renovate its infrastructure (labs, equipment, tractors, vehicles), to the tune of R\$90 million (Brazilian reais). Included among these investments, at the interface between agriculture, biotechnologies and advanced manufacturing were: (i) facilities for quality improvement in the meat production chain; (ii) an aquaculture lab, prioritising water quality control, fish feeding, and fish health; (iii) a new Oenology Lab to boost wine production in the semi-arid Northeastern region; (iv) the construction of one of the world's first National Agribusiness Nanotechnology Lab, focused on the developments of sensors and biosensors for food quality control, certification and traceability, on the one hand, and of new materials for smart packages (e.g. polymers and nanostructured materials), on the other hand; (v) six new walk-in freezers to increase the storage and preservation capacity of the Embrapa Germplasm Bank.

According to information provided by the Brazilian government, Embrapa has generated and recommended more than 9,000 technologies for Brazilian farmers since its inception in 1973. But probably the most remarkable achievement of Embrapa has been the claiming of the cerrado (the Brazilian savannah) for modern agriculture. It introduced "new varieties, cultural practices, zoning, tillage, biological fixation of nitrogen, development of livestock for both meat and milk, vegetables, fruit, irrigation and knowledge of the cerrado natural resource basis" (Alves, 2010, p. 70). Embrapa's strategy to make the cerrado land productive was fourfold.

First, during the 1990s and increasingly in the early and mid-2000s, the acidity of the cerrado soil was reduced by pouring in industrial quantities of pulverised limestone and chalk. At the same time, Embrapa developed a bacterium that encouraged nitrogen-fixing in legumes, which reduced the need for fertilisers in the cerrado's nutrient-poor soil (Hosono and Hongo, 2012).

Second, Embrapa imported a new variety of grass created through crossbreeding, called brachiaria, from Africa. The higher productivity of this new variety (20-25 tonnes of grass feed per hectare) increased the amount of forage produced and thus allowed farmers to increase beef production.

Third, soybean, a temperate-climate crop, was transformed into a tropical crop through crossbreeding and by introducing genetically modified soya seeds. The new varieties of soybeans require a shorter biological production cycle, allowing farmers to grow two crops a year.

Last but not least, Embrapa introduced new technologies for soil preparation and for the integration of agriculture and husbandry. The new 'no-till agriculture' technique harvests the crop at a higher level, leaving part of the crop in the ground to become a mat of organic material, into which the new crop is planted (Hosono and Hongo, 2012). Embrapa also promoted a rotation scheme in which fields are used alternately for crops, livestock and then tree-planting. Although possible only thanks to the use of fertilisers, this rotation scheme remains a cost-effective way of rescuing pasture lands.

The success of Brazil's industrial policy for the agricultural sector, orchestrated by Embrapa, is testified to by the fact that, despite accounting for less than one quarter of Brazil's land mass (about 2.05 million km² out of 8.52 million km²) and despite being naturally being very inhospitable to agriculture, cerrado accounted for 70 per cent of Brazil's farm output in 2010.

4.2.3. Chile

(a) Overview⁴³

Over the last century, Chile has witnessed two distinct industrialisation phases characterised by two apparently opposite approaches to industrial development and policy. Between 1938 and 1973, governments played a critical developmental role and deployed many industrial policy instruments. These go from import-substitution to direct control of key industrial sectors including steel, electricity, telecommunication, resource extraction and processing (Agosin et al., 2010). In the case of copper, the most important export commodity for Chile, the centre-right Frei government initiated a nationalisation programme of the sector in the 1960s, later completed by the centre-left Allende government in 1971.

During this phase, Chile also developed a number of institutions for industrial policy design and implementation, including a development bank, Banco Estado, and a development agency, Corporación de Fomento (CORFO). CORFO was assigned multiple responsibilities, such as coordination of public financial resources (including copper-rents), provision of technical assistance for infant industry development and long-term investments in technology innovation. Industrial indicative planning reached its highest point with the Allende government in 1971 and, in particular, the nationalisation of many manufacturing industries and commercial banks.

The economic programme introduced by the Pinochet regime in 1973 represented a transition from a state-led industrialisation model to a market-led neoliberal model. The military regime rapidly managed to reverse Allende's reforms and to privatise most of the industrial and financial sectors. It also opened the Chilean economy by removing any form of restrictions on FDIs, credit controls and tariffs. By the end of the 1970s, trade protection was mostly dismantled and Chile reached a uniform 10 per cent tariff regime.

Chile's copper industry has not just brought in government revenue but enabled its industrial policy-makers to promote innovation by providing – through the so-called mining royalty, which is a 3 per cent tax on mining profits – funding for institutions devoted to technology innovation and intermediation

This conventional historical account of the Chilean industrial policy experience is, however, simplistic or at least partial. In fact, while the military regime implemented a neoliberal transformation of the Chilean economy and social structure (Akram, 2015), the post-Allende governments continued to use various forms of selective industrial policies, not to speak of horizontal measures such as SMEs support. Interestingly, the effective implementation of these policies was made possible by both guaranteeing institutional continuity – CORFO remained the main development agency – and institutional innovation – Fundación Chile emerged as a new model of PPP (public-private partnership) (Andreoni and Chang, 2014; see section 4.2.3(b) below on Fundación Chile).

43

We thank Antonio Andreoni for drafting this section.

The success of these interventions is proven by the fact that today's most important export products (e.g. copper, salmon, wine, and wood/pulp/paper) are exactly those that various Chilean governments 'picked' and 'nurtured' over the last forty years. In many cases, the Chilean governments built on the industrial capabilities developed and cumulated during the pre-Pinochet period. In others, the selective industrial policies focused on upgrading of the primary sectors – food and forestry in particular – rather than low- and medium-tech manufacturing products.

The creation of a new forestry industry in Chile was made possible by a systematic approach, combining a package of measures (Rossi, 1995). This included a number of land ownership and guarantee reforms (DL 701), the introduction of massive cash subsidies (up to 75 per cent) for planting and forestry management, subsidised credit lines managed by Banco Estado. While the government failed to develop complementary sectors, such as furniture, the wood/pulp/paper sector has become one of the main export products, accounting for almost 10 per cent of the Chilean export basket.

Another striking example of successful state-led sector development is the copper industry. Despite the neoliberal policy regime starting with Pinochet and continuing during the Concertation period, the industrial policy towards the copper industry showed remarkable continuity over the last century. While in other mining countries in Latin America (such as Peru, Bolivia and Brazil), governments implemented a number of neoliberal reforms, including privatisation of SOEs and deregulation of FDI, the Chilean government decided to maintain a direct presence in the copper sector with the establishment of a unified SOE called Corporación Nacional del Cobre de Chile (CODELCO) in 1976.⁴⁴ Even while the Chilean governments introduced a number of measures in support of private sector development in the mining sectors (such as tax rebates for imported capital goods used in mining operations and delays in tax payments) in the 1980s and the 1990s, CODELCO remained in public ownership.

CODELCO has made continuous strategic investments in its production equipment, technologies and labour capabilities. It also played a critical role in nurturing small private engineering and technology companies. As a result of this industrial policy strategy, CODELCO is still today a leader in the world and, together with ENAMI (Empresa Nacional de Minería or the National Mining Corporation), contribute to roughly one third of the total copper production in Chile. Given the enormous size of the Chilean copper industry (almost

During the 1990s, Chile managed to become the largest exporter of farmed salmon in the world. It also became one of the main exporters of fresh and processed fruit and tomatoes. Most people interpret these successes as the proof that Chile's laissez-faire policy stance allowed it to exploit its 'natural' comparative advantage, given its high potential for agriculture. However, this is a very misleading interpretation. In fact, the success of these industries was actually a success story of industrial policy – especially through Fundación Chile.

⁴⁴ Initially, the military forces were put in charge of CODELCO. The military received 10 per cent of CODELCO's profits for arms and purchases until 2009 (Nem Singh, 2010).

one third of the world production), copper is the main source of government revenue, earning it the sobriquet of *el sueldo de Chile* ('Chile's wage').

Chile's copper industry has not just brought in government revenue but enabled its industrial policy-makers to promote innovation by providing – through the so-called mining royalty, which is a 3 per cent tax on mining profits – funding for institutions devoted to technology innovation and intermediation, such as CORFO (especially its *Innova Chile* programme), *Fundacion Chile* (Andreoni and Chang, 2014), and CONICYT (Consejo Nacional de Investigación en Ciencia y Tecnología or the National Council on Innovation, Science and Technology).

Chile is typically known as a neo-liberal success story based on confirmation to 'natural' comparative advantage. However, our discussion above show that it has used quite a wide range of industrial policy, even though its targeted areas of intervention (natural resource industries) and policy measures (e.g. emphasis on public-private partnership) have been rather different from what we find in the most typical cases of industrial policy success. We will show this in greater detail by examining Chile's industrial policy regarding the salmon and other agricultural industries.

(b) Salmon and Other Agro-industries⁴⁵

During the 1990s, Chile managed to become the largest exporter of farmed salmon in the world. It also became one of the main exporters of fresh and processed fruit and tomatoes. Most people interpret these successes as the proof that Chile's *laissez-faire* policy stance allowed it to exploit its 'natural' comparative advantage, given its high potential for agriculture. However, this is a very misleading interpretation. In fact, the success of these industries was actually a success story of industrial policy – especially through *Fundación Chile*.

Fundación Chile (FCh) is a non-profit semi-public institution created in 1976 with a \$50 million endowment donated in equal parts by the Government of Chile and ITT (International Telephone and Telegraph) of the US. It was established when ITT was compensated for the nationalization of its Chilean subsidiary by the Allende government on the condition that it invests part of the compensation in Chile for the "joint creation of a scientific and technological research foundation" (Meissner, 1988).⁴⁶ Initially, it was meant to focus on three areas – food technology, nutrition, and electronics.

FCh began to introduce new business and organisational practices from 1977. Three main departments were created: 'Commercialisation and Economic Studies', 'Food' and 'Electronics and Telecommunications'. It increasingly adopted strategies to promote dialogue with the business sector, raising awareness about the services it offered. In the early years, FCh provided free consultation to the private sector, only later adopting innovative marketing strategies (e.g. the organisation of 'work luncheon' at which potential clients and diplomats were invited).

⁴⁵ This section heavily draws on Chang et al. (2014).

⁴⁶ In the course of its existence FCh has undergone various phases of transformation with respect to its organisational model, partners, sectors, and areas of intervention. However, it has managed to maintain its main mission as "a public-private partnership for innovation" with "business orientation" (*Fundación Chile*, 2005, p. 3). Specifically, it focuses on "the identification, adaptation and development of technologies and the diffusion and transfer of these technologies through the creation of innovative companies" (p. 3).

In 1980, five central work areas were selected and Chilean professionals were nominated to head them, with foreign experts being asked to provide advisory services. The selected areas were agro-industry (especially fruits and vegetables), marine resources, product development, laboratory, and pilot plant. For each of them, FCh implemented a number of so-called demonstration projects, aimed at transferring foreign technologies and the adoption of industrial technologies and science-based innovations by agriculture (including aquaculture).⁴⁷ Reflecting the growing emphasis on agricultural technologies, even the research in electronics, another of FCh's initial focuses, was re-oriented toward the design of microprocessors for process control, which eventually resulted in the application of ICT technologies to quality control and process control in agro-industries.

In 1982, following a major economic crisis, FCh decided to introduce a new strategy for technology transfer, consisting of direct investment in 'pilot firms'. These firms had to demonstrate the feasibility and applicability of their use of internationally available technologies in the Chilean context. These innovative companies were supposed to attract other Chilean companies, spreading the innovative technologies across the country. They would also become a new source of finance for FCh after their sale in the market. Often, these companies were jointly created by FCh and existing private companies, which had mastered the relevant technologies and had experience in marketing the new products. The most successful of this new strategy was the salmon industry.

In 1982, FCh acquired a company, Domsea Farms (a subsidiary of Campbell Soup), which specialised in aquaculture techniques. It was later transformed into Salmenes Antártica S.A. and became the first fully-integrated company in the Chilean salmon farming industry. When the original company was acquired, Chile's total national salmon exports were around 300 tons per annum. In 1988, when Salmenes Antártica S.A. was sold for \$22 million, Chile exported more than 250,000 tons. By 2002, it had a world market share of 35 per cent (the export value was of \$1.2 billion in 2003).

The success of the salmon industry, like most other successful projects of FCh, was not a single company success. The success of Salmenes Antártica S.A. was the result of collaboration between the government, public sector agencies, private sector firms and their associations, and even a foreign aid agency (Andreoni, 2013 a). It was the joint venture between the Chile's National Fisheries Service (SERNAP) and Japan International Cooperation Agency (JICA) that initially introduced salmon (a non-native fish) to the country. Furthermore, the acquisition of the first facilities for salmon farming by FCh was financed by the regional governmental planning institution of the XI Region (SERPLAC). The first commercial farming venture in Chile capable of exporting to Europe was partly financed by a public agency (CORFO) and was founded by professionals who had worked in government institutions such as IFOP (Fisheries Development Institute). The development of the salmon industry helped the development of firms manufacturing cages, producing refrigerating containers, and providing transport services, giving rise to a salmon industry cluster.

⁴⁷ Among the projects selected in 1980 was a feasibility study on the production of vegetable seeds for export. They also did an experimental test on freezing blackberries, strawberries, and vegetables for future export, a study of potato processing and an assessment of green asparagus cultivation. They also studied sanitary improvements of milk handling in industrial dairies; technical post-harvest consulting in the fruit industry and quality control of fruit for export (and the utilisation of apple rejects). Research was also done on plant design for the production of dietetic rice-flour. Technical assistance was given to canning plants and an aquaculture centre was established in Coquimbo. Finally, technical assistance was given on the refining of fish oil for edible and industrial uses (Fundación Chile, 2005; Bell and Juma, 2007).

One of the main difficulties that firms in the salmon industry faced in the first stages of cluster development was the difficulty of achieving operational scale, international reputation, and quality certification. The establishment of a 'Chilean brand' occurred through the constitution of an institution specialised in quality control and certification (the Salmon Technology Institute or Intesal). This was established in 1994 thanks to the creation of a producer association (Association of Salmon and Trout Producers of Chile) supported by the government.

The successful emergence of agro-technological clusters engineered by FCh is not limited to the case of the salmon industry. FCh's involvements in the asparagus, grape/wine, and tomato-processing industries also produced impressive results.

The asparagus cultivation programme, launched in 1979, resulted in massive market successes. After having identified the market opportunity represented by green asparagus (for which there was a high demand in US and Europe), FCh provided technical assistance to farmers to introduce a new variety of asparagus. With this assistance, the area planted grew by 40 per cent. FCh also made huge contributions to the development of the grape/wine industries in Chile. It improved grape varieties through genetic engineering and thereby facilitated the emergence of a wine cluster. The project also enhanced Chile's ability to genetically engineer crops – GM varieties of maize, soybeans, and cotton from Chile have been adopted all over the world.

The tomato processing industry was developed through the collaboration between FCh and CORFO. CORFO adopted the world's best industrial tomato varieties and transferred the technologies of major established competitors (California, Italy and Portugal) to Chile. The main adaptation consisted in the creation of the 'Malloa model', which is a network enterprise system that allowed the diffusion of crop-rotation and cultivation-scheduling techniques among SMEs. Joint ventures were developed for exporting processed tomato. These ventures were financed by the government, starting in 1982 through another public agency (PROCHILE, the Export Promotion Bureau of Chile, created in 1975 under the Ministry of Foreign Affairs). Company associations and export committees were financed through a 50/50 scheme with the aim of improving quality to meet international standards and develop new products.

During the 1990s and the early 2000s, FCh continued to promote new industries, such as the cultivation of abalone and the production of extra virgin olive oil. It also carried on diversifying its investment portfolio, by investing in innovative new companies such as Oleotop (2004), the country's first canola oil producer, replacing fish oil in the feed for salmon.

4.2.4. United Arab Emirates⁴⁸

(a) Overview

Significant amounts of oil were first discovered in Abu Dhabi in 1958 and in Dubai in 1966, with exports beginning in 1962 and 1970 respectively, a few years before the constitution of the UAE federation in 1971. Before these discoveries, countries in the federation were mainly relying on fishing, pearling and trading (Ghanem, 2001). Oil production and exports expanded rapidly, growing by almost 300 per cent per year at some points. By 1992, crude oil exports were worth \$14.1 billion (Shihab, 2001, p. 252). With the increasing price of oil in the early 21st century, exports of petroleum products in 2012 were valued at \$118.1 billion (OPEC, 2013, p. 11).

Not long after the beginning of oil extraction, the UAE realised that, in order to make its economic development sustainable, it was necessary to start developing its industrial base and investing its oil wealth in industry-related infrastructures. The government's industrial vision was encapsulated in various policy documents. For example, a Ministry of Planning (1983) publication from around the start of industrialisation states: "Industrialization is a main aim of the state for the correction of the structure of production in which the crude oil sector accounts for about two thirds of the GDP. The industrial sector, according to economic criteria, is the sector "on which economic efforts should be concentrated" (p. 58). Industrialisation was also seen as a way to support (and capture/retain value from) the booming infrastructure and construction sectors, the latter being led by the rapid population growth.

In order to take advantage of Dubai's position in the Persian Gulf on the main trade routes between Europe and Asia, the UAE government constructed the first deep water port facility in the region in Dubai – Port Rashid (in only three years, between 1969 and 1972). It also built a new airport. A few years later, in 1979, the port was expanded to become the largest port in the Middle East and the world's largest man-made harbour.

The structural transformation policy adopted by the government of UAE was not confined to infrastructural development. In 1985, the first free zone in Dubai, Jebel-Ali Free Zone, was created in order to attract foreign companies. Companies moving into the free zone were offered, among other things, 100 per cent foreign ownership, zero corporate tax, no customs duties, unlimited repatriation of funds, and exemptions from certain labour laws. The UAE government also promoted a number of manufacturing industries through industrial policy – fertilizer, oil refining, and cement.

A large number of these projects were under the control of two bodies established in Abu Dhabi, the largest emirate: the Abu Dhabi National Oil Company (ADNOC), which was established in 1971 and focused on the implementation and developmental management of oil⁴⁹, and the General Industries Corporation (GIC), which was in charge of non-oil

⁴⁸ This section draws heavily on Chang et al. (2014).

⁴⁹ Instead of limiting itself to the extraction and export of crude oil, ADNOC has operated along all stages of the value chain in the oil and gas industry – from upstream operations such as exploration, production and refinement of petroleum and liquefied natural gas to downstream ones such as marketing and distribution. It has also operated in complementary operations, such as drilling, construction, marine services, shipping and distributions.

related projects (Ghanem, 2001). In 1982, the UAE also created a financial arm to promote industrial development, called Emirates Industrial Bank (EIB). Since its foundation EIB adopted a selective financing policy: only industrial projects owned by nationals (51 per cent at least) were considered; particular favour was given to technologically advanced and capital-intensive projects, those relying on local raw materials, and those producing import-substitution goods.

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Thanks to its industrial policy, by 2010, manufacturing in the UAE accounted for around 10 per cent of GDP, a significant jump from the 0.9 per cent share in 1975 (World Bank, 2013). Another way to see the success of the UAE's industrial diversification strategy is to note that the number of companies in the Jebel-Ali free zone rose from just 19 in 1985 to over 6,400 by 2010. The country has diversified into many different branches of manufacturing, including fertilizer and aluminium (which we are going to examine in detail below), and is continuing with its diversification effort, solar energy being the most recent prominent example.

(b) Aluminium

As a part of the attempt to diversify production away from oil and gas industries, the aluminium smelting industry was promoted. Given its low electricity prices (aluminium smelting requires a vast amount of electrical power) and its good port facility (given the bulky nature of the raw material, i.e., bauxite, which had to be imported via sea from places like Australia and Jamaica), Dubai was considered a good location for aluminium smelting.

Dubal, the aluminium-smelting company, was created in 1975 as an SOE and started production in 1979. It was located next to the Jebel-Ali port, which had special facilities for the importation of raw materials and also made it convenient to export the aluminium produced. The adjacent natural gas plant, Dugas, was dedicated to the provision of electricity for Dubal's smelting operations. Between 1979 and 2000, Dubal's production capacity was continuously expanded from 135,000 tonnes per year to over 1 million tonnes per year.

In line with the overall industrial strategy of the UAE, Dubal did not simply increase its production volumes but also invested significant resources in technological upgrading. Dubal developed a proprietary DX and DX+ technologies, which allowed operation at higher amperages and, thus, led to increased efficiency and purity (the company is capable of producing some of the world's purest aluminium ingots at 99.8 per cent purity). These technologies were so successful that aluminium from Dubal is today used by the London Metal Exchange as the benchmark for the high purity (99.7 per cent) aluminium (Dubal, 2009).

The most recent turning point in Dubal's history was in 2007, when the company entered into a joint venture with Mubadala Development Company (MUBADALA), the Abu Dhabi investment vehicle, to create EMAL (Emirates Aluminium). Like Dubal, EMAL also remains fundamentally a SOE. The \$5.7 billion Phase I of the project involved construction of a smelter with a capacity of 800,000 tonnes per year, adopting Dubal's DX technology and thus able to produce at the same high standard of aluminium purity. With the completion of the project's Phase II in 2014, valued at \$4.5 billion, EMAL's total capacity will reach 1.3 million tonnes per year, giving the site the title of the world's largest aluminium smelter.

The visionary idea of 'transforming oil into aluminium was not only successful in itself but it also allowed the UAE to trigger the developments of productive capabilities transformation in other related sectors, thereby making its natural resource-led industrialisation process increasingly more sustainable. The industrial cluster that developed around aluminium includes major enterprises, such as Gulf Extrusions, which processes raw aluminium into a variety of products for the construction and marine industries, and Dubai Cable (DUCAB), which manufactures cables for industry. Dubal is also trying to develop the solar energy industry by investing in the Mohammed bin Rashid Solar Park, which is set to produce 1,000 MW of electricity by 2030. This is partly to cut its own energy costs (possibly by up to 30per cent) but also to reduce its carbon emission (currently the plant produces the same amount of CO₂ as Mongolia does: Oxford Business Group, 2008) and to further diversify the economy of the UAE.

4.2.5. Malaysia

(a) Overview

Since independence in 1957, Malaysia has successfully transformed its economy from a poor, primary-commodity-based one into an upper middle-income industrialized one.⁵⁰ The Malaysian economy is highly dependent on trade, with the ratio of exports (of goods and services) to GDP standing at 87 per cent. Furthermore, Malaysia's trade is driven largely by the manufacturing sector, contributing 60 per cent of all merchandise exports in 2012 (down from almost 70 per cent in 2009) (WTO, 2014). Fourty five per cent of all its manufactured exports are high-technology products. A very large part of the country's manufacturing base is occupied by the electric and electronic (E&E) goods sector, which accounted for 33 per cent of all merchandise exports in 2012, having declined only recently from 42 per cent in 2009 (WTO, 2014).

Malaysia's immense success through international trade and foreign direct investment has led mainstream analyses to erroneously associate the Malaysian industrial success with market-friendly, laissez-faire type economic policies (World Bank, 1993, is a classic example). However, subsequent research showed that active industrial policy – in the form of careful industrial targeting with numerous incentives for exports, R&D, skills development, and FDI – was a primary feature of Malaysian success (Rasiah and Shari, 2001; Lall, 1995).

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The period between 1957 and early 1990s is generally considered as one where the Malaysian economy achieved substantive economic transformation with the share of manufacturing in GDP rising from 14 per cent in 1971 to 30 per cent in 1993 (Lall, 1995). Malaysia's export to GDP ratio increased from 46 per cent in 1970 to 95 per cent in 1995 (Athukorala and Menon, 1999) and the share of manufactures in total exports of Malaysia rose from 12 per cent to 71 per cent between 1970 and 1993 (Lall, 1995). This period had three distinct phases of industrial expansion.

Policies in the first phase (1957-1970), immediately following independence, were largely aimed at import substitution. The Malaysian Industrial Development Authority (MIDA), which was set up in the late 1960s, identified and targeted sectors for government support and played a key role in coordinating various policy interventions. The economy's driver during this phase

⁵⁰ According to the World Bank, Malaysia's per capita GDP (at current prices) in 2013, reached \$10,500. Its industrial sector in the same year accounted for 41 per cent of its GDP, and services almost 50 per cent.

was the traditional natural resource sector, such as rubber, palm oil, and tin. Industrial policy during this period was structurally limited and not very well coordinated, yielding only modest success (Hui and Canak, 1981).

The second phase (1970-85) began with the launching of the New Economic Policy (NEP) in 1970, mainly in response to the racial disturbances in 1969, triggered by high levels of poverty and inequality, concentrated in the Malay population. Thus, between 1971 and 1985, the NEP focused on generating wealth and employment in the economy to improving the economic situation of indigenous Malays (Bumiputera), including the establishment of SOEs, which were to be later transferred to Malay private ownership.⁵¹

At the same time, the Second Malaysia Plan (SMP), 1971-75, emphasised export promotion through regulated FDI in the manufacturing sector. This assumed the form of granting tax incentives and holidays, while establishing export processing zones and industrial areas. Growing export orientation, however, did not mean a retraction of state intervention. Public sector financing of investments, which had been around 3.4 per cent before 1970, was targeted in the SMP to be 9.5 per cent. The actual amount went up to 27.5 per cent in the implemented plan. Moreover, Malaysia continued to prioritise industries for import substitution alongside the export incentives for certain industries. Certain products such as chemical and photographic supplies, transport equipment, electrical machinery, mineral products, precious stones and some other manufactured items were subject to discretionary import licensing (WTO, 1997).

The third phase, after 1986, saw the NEP replaced with the New Development Policy (NDP), which moved the country's industrial policy closer to the type practised by the East Asian NIEs. In addition to the now-established E&E industries, attempts were made to develop heavy industries, such as chemicals and automobile. Industrial Master Plans (IMP-1 1986-95, IMP2 1995-2006 and IMP3 2006-2020) were drawn up during this time, with varying emphases both in terms of the sectors promoted and in terms of the policy measures used. Along with targeted import protection for strategic sectors, emphasis was put on promoting factors critical for technological advancement, such as skills training, technical support, and quality awareness. The infrastructure of science and technology institutions was strengthened through a technology action plan, which stimulated R&D in private enterprises.

Policies were introduced to help the restructuring of SMEs in various manufacturing industries. In 1993, for example, a soft loan policy for quality enhancement was introduced for Bumiputra-owned SMEs in the furniture and food-based industries. This was later extended to the automotive, electrical and electronics, plastics, machinery, engineering, and textiles sectors. Cluster-based industrial development programmes – such as the Industrial Linkage Programme (ILP) under the Small and Medium Industrial Development Corporation (SMIDEC) and the Vendor Development Programmes under the Ministry of Entrepreneur Development (MED) – were introduced in order to promote the use of locally made intermediate inputs through financial and technical assistance.

⁵¹ There were only 10 SOEs in 1957, but by 1974 the number of SOEs went up to 82, while there were 185 joint ventures with the private sector (Hui and Canak, 1981).

During this time, incentives were also introduced to increase local contents in the export-oriented manufactures. Foreign suppliers that had invested in Malaysian EPZs to supply their principals were to be denied the full privileges they used to receive as wholly export-oriented firms, and were to be treated as local firms. In its first Trade Policy Review at the WTO, it was revealed that “Malaysia has no local content laws or regulations. However, the Government encourages the use of local materials in the manufacturing sector and the use of local content is taken into account in the granting of investment incentives provided by the Government”.⁵²

Industrial Master Plan 3 (IMP3, 2006-2020), which is currently in operation, seeks to further broaden the scope of industrial policy by including services and by introducing more ‘horizontal’ policies, such as SME development, human resource development, technology, logistics, marketing, and so on. The stated objective is to guide the country towards a high level of global competitiveness and becoming a higher-value-added and knowledge-based economy. In 2010, Economic Transformation Programme was launched, targeting the National Key Economic Areas (NKEAs), identified on the bases of their potentials to contribute to output growth and their multiplier effects. They include the greater Kuala Lumpur/Klang Valley; oil, gas energy; palm oil and rubber; wholesale and retail trade; financial services; tourism; electronics and electrical industries; business services; communication content and infrastructure; education; agriculture; and healthcare.

(b) Palm-oil-related industries⁵³

As of 2012, Malaysia was the world’s second largest producer of palm oil (behind Indonesia) (UN, 2013). Between 2000 and 2012, Malaysia accounted for over 55 per cent of world exports of palm oil (UN, 2013). Given Malaysia’s climate, it is easy to believe that such an achievement is the result of the country’s adherence to ‘natural’ comparative advantage. However, oil palm is not native to Malaysia and the industry has been deliberately promoted through industrial policy.⁵⁴

Palm oil was one of the first industries picked by Malaysia’s government – and is still one of the priority industries⁵⁵ – as a sector with strong linkages to the manufacturing sector – productions of crude palm oil, refined palm oil, and palm kernel oil. The sector helped Malaysia diversify into non-resource-based industries, such as electronics by providing the foreign exchanges need for the imports of machines and parts. In the words of Rock and Sheridan (2007), “the government’s selective intervention in promoting smallholder palm oil production and the processing of crude palm oil may be the single most successful selective intervention in Malaysia” (p. 191).

Malaysia’s industrial policy for the palm oil industry started in the 1960s, when the government tried to diversify its traditional commodity export base (tin and rubber) (Pletcher, 1991). A number of measures were used for its promotion.

52 WTO document G/TRIMS/N/1/MYS/1, dated 12 April 1995

53 This section draws heavily on Chang et al. (2014)

54 Oil palm, native to West Africa, was first introduced to Malaysia as an ornamental plant in 1875. Although commercial planting (in Selangor) started in 1917, large-scale planting failed to attract the attention of private investors until the 1960s.

55 Even in the Tenth Malaysia Plan (2011-2015) and the Third Industrial Master Plan (2006-2020), the palm oil industry remains a key sector prioritised by the government in the medium term (EPU, 2010; MITI, 2006)

First of all, measures were introduced to encourage oil palm planting. Grants were offered from 1962 to finance the replanting of old rubber trees with oil palm. Moreover, foreign-owned plantation companies were required to form subsidiaries domiciled in Malaysia and then majority ownership of these subsidiaries was then taken over by the economic development corporation – Permodalan Nasional (PERNAS) and subsequently Permodalan Nasional Berhad (PNB). By the mid-1980s, the government had gained control of all the major plantations in Malaysia (Pletcher, 1991, p. 630). Oil palm acreage grew from 40,064 hectares in 1960 to 5.08 million hectares in 2012 (MPOB, 2013).

The government also set up the Palm Oil Registration and Licensing Authority (PORLA), the Palm Oil Research Institute of Malaysia (PORIM), and the Malaysian Palm Oil Promotion Council (MPOPC). PORLA, PORIM and MPOPC were respectively responsible for regulation and licensing, specialised training and public sector R&D, and export promotion. In 2000, to harness synergies between related functions, PORLA and PORIM were merged to form the Malaysian Palm Oil Board (MPOB).

Not merely content with the direct economic contributions of palm oil, the government actively sought to develop targeted downstream industries, such as the palm oil processing, oleo-chemicals⁵⁶, biotechnology, biodiesel and biomass industries (see Malaysia's industrial master plans – MITI, 1986, 1996 and 2006). Defying earlier arguments that Malaysia lacked a comparative advantage in palm oil processing (see Little and Tipping, 1972, for example), the government undertook a slew of targeted measures in order to develop the palm oil processing industry.

First, fiscal incentives were used to attract investments in strategic areas related to palm oil. Under the 1968 Investment Incentives Act, qualifying oil palm firms enjoyed two years of (renewable) corporate tax exemptions, and eight years of excess profit and development tax exemptions (see Rasiah, 2006). Pioneer status awards, offered before 1974, and granted palm oil refineries tax exemptions for seven years. Tax exemptions were also offered on the basis of export performance and capital investments.

Second, higher duties on crude palm oil exports and tax exemptions on processed palm oil exports (the extent of exemption depending on the degree of processing) greatly skewed producers' incentives towards the latter. By 1994, Malaysia refined 99 per cent of crude palm oil, a significant jump from 10 per cent in 1975 (Gopal, 1999, p. 363). According to Jomo and Rock (1998), the export tax spurred the industry to upgrade its industrial and technological capabilities, and to eventually define the global technological frontier in palm oil refining.

Third, bleaching earth, a key ingredient in the palm-oil processing industry, was initially subjected to tariffs and import quotas until internal production capabilities were built. However, to cap the costs during the import substitution phase, subsidies were provided such that the price of bleaching earth purchased by domestic industries, were similar to world prices.

⁵⁶ The oleo-chemicals industry includes basic oleo-chemicals (e.g. fatty acids and glycerin), oleo-chemical derivatives (e.g. fatty esters and metallic stearates), oleo-chemical preparations (e.g. soap and cosmetics) and other palm oil-based products (e.g. printing ink and polyols).

Fourth, various policies were used to promote the development of downstream industries. For instance, the 2006 Malaysian Biofuel policy aimed to facilitate the gradual substitution of diesel fuel with palm oil.

Fifth, the Palm Oil Credit and Payment Arrangement (POCPA) scheme was introduced in 1992 to provide a two-year credit facility for countries purchasing palm oil from Malaysia. Even though the IMF ruled in 1994 that trade credits should not be given for more than three months, Malaysia continued to use this scheme – for example, in 2002 \$500 million were still allocated to the POCPA scheme, with \$227 million of credit extended to nine countries including Cuba and Pakistan (see Gustafsson, 2007, pp. 47-48).

Sixth, R&D was encouraged to enhance the competitiveness of Malaysia's palm oil industry, especially through PORIM, which was established in 1979. By 2005, the Malaysian government had developed 302 products (e.g. pourable margarine, non-dairy ice-cream, palm oil-based printing ink) and technologies (e.g. trans-fat-free margarine, nutraceuticals such as extracting minor components of health food supplements), of which 100 had achieved industrial commercialisation (MITI, 2006, p. 475).

(c) Electrical and electronics Industry

The Electrical and Electronics (E&E) industry is one of the leading industries of Malaysia, accounting for 24.5 per cent of MVA (manufacturing value-added). In 2014, Malaysia's exports of E&E products were valued at \$63 billion, accounting for 49.2 per cent of manufactured goods exports and 32.9 per cent of total exports. Major export destinations are China, the US, Singapore, Hong Kong and Japan. Reflecting Malaysia's role in the global value chains (GVCs) in the industry, E&E products were also the largest imports, amounting to \$47 billion, representing 37.8 per cent of manufactured goods imports and 28.8 per cent of total imports. Malaysia's top import sources for E&E products are China, Singapore, the US, Japan and Taiwan (MATRADE, 2015).

The E&E industry in Malaysia can be classified into four sub-sectors, namely, electronic components, consumer electronics, industrial electronics, and electrical products. **Table 4.1** gives a breakdown of all categories in detail.

The E&E industry commenced in Malaysia in 1965, with Matsushita Electric seeking to supply the domestic market with final consumer goods, under the government programme that encouraged import substitution for products like household appliances, electrical fittings, wires and cables, and automotive batteries. However, by 1972, the government had embarked on an export-orientated programme of industrialisation to generate more jobs. Initiatives such as the Investment Incentives Act of 1968 and the launching of the New Economic Policy in 1971 led to the setting up of Export Processing Zones in 1971. MIDA, established only a few years earlier, immediately spotted an opportunity in the semiconductor assembly business, where Singapore was trying to move into more complex activities and potentially vacating its place as an assembly hub. MIDA targeted TNCs in the US, directly approaching them to invest in Malaysia offering tariff- and tax-free zone locations and profit repatriation guarantees.

Clarion and National Semiconductor started the first operations in the electronics sector in Malaysia in 1972, when the Bayan Lepas Export Processing Zone was opened in Penang. The government continued to establish EPZs and attracted foreign firms with low wages and safe tax exemptions. This led to a wave of export-oriented E&E firms from developed countries relocating their plants in Malaysia (Rasiah, 2010). By 1992, almost 90 per cent of manufacturing of electronic products was being conducted by TNC affiliates (Athurkoral and Menon, 1999). According to Lall (1995), a largely literate and English-speaking labour force along with the fiscal incentives helped Malaysia successfully lure TNCs from the US.

Export-oriented firms were particularly favoured by the government. They enjoyed various government subsidies for training, exporting, and R&D activities. They were also the main beneficiaries of duty drawbacks along with export incentives offering double deduction benefits on corporate tax. The government also targeted the E&E sector by concluding Technology Transfer Agreements (TTAs) to enable firms to obtain the necessary technologies for state-of-the-art manufacturing. During the period 1989-96 a total of 1,124 TTAs were approved by the MITI. Royalty payments were made in 467 of these agreements, most of which concerned the E&E sector (WTO, 1997). This suggests that advanced technology was transferred mainly to this sector by active intervention and support by the state.

The E &E sector (see **figure 4.2**) showed a dramatic leap in its contribution to manufactured exports. By 2000, the sector was contributing 72 per cent of Malaysia's manufactured exports.

Table 4.1 **The structure of Malaysia's E&E industry**

Sectors	Sub-Sectors	Products
Electronics	Components	Semiconductors, passive components, printed circuit boards, metal stamped parts and precision plastic parts
	Consumer	Audio visual products such as television receivers, portable multimedia players (PMP), speakers, cameras and electronic games
	Industrial	Multimedia and information technology products such as computers and computer peripherals, telecommunications equipment and office equipment.
Electrical	Electrical	Boards, panels and consoles, switching apparatus, lamps, air conditioners, vacuum cleaners, ovens, transformers, cables and wires, primary cells and batteries, solar cells and modules

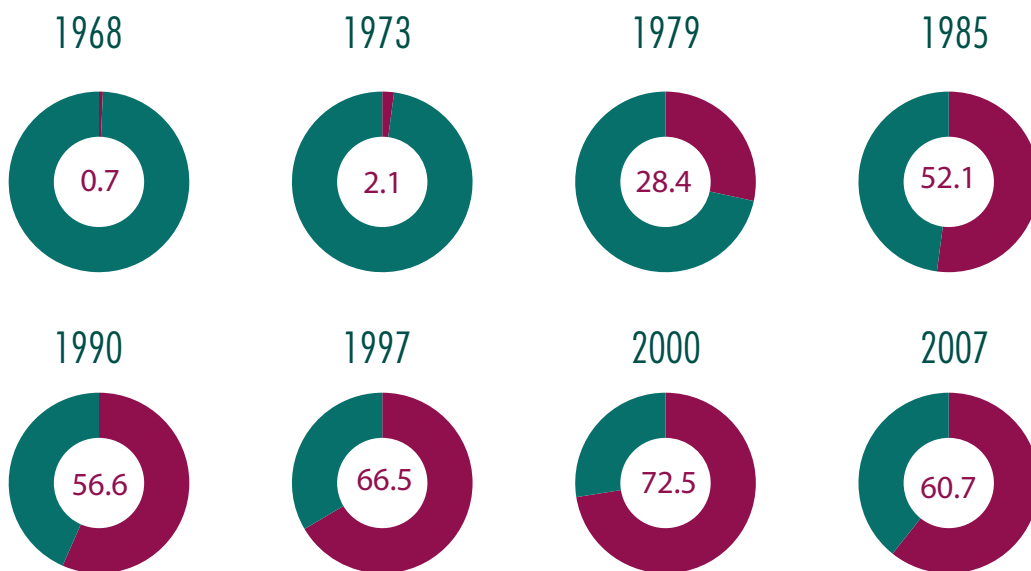
Source: Malaysian Investment Development Authority (MIDA)

The Malaysian experience with manufacturing for exports is quite interesting in comparison with those of the East Asian NIEs. While those countries started with relatively low-technology exports like garments, footwear and toys, Malaysia directly entered into relatively high-skill and technologically complex products, like electronics. Beginning in the 1970s as a primary product exporter, by 1990 Malaysia had emerged as the world’s largest exporter of semiconductors, and among the largest exporters of disk drives, telecommunications apparatus, audio equipment, room air-conditioners, calculators, colour televisions, and various household electrical appliances. According to Lall (1995), 73 per cent of its manufactured exports in 1980, and 84 per cent in 1990, were in the high-skill category.

However, it must be remembered that Malaysia’s initial entry into electronics was highly labour intensive, based on the manual assembly of semiconductors, followed by assembly of parts in audio and other electronic and electrical products. Over the years, however, Malaysian companies have been able to develop significant capabilities and skills in manufacturing a wide range of electronic products across all significant sub-sectors of the industry. The firms also began to produce higher-technology and higher value-added products through continuous intensification of research and development (R&D) activities.

Even though it has not achieved the level of sophistication of its counterparts in Korea or Taiwan and even though its progress has recently slowed down, it is undeniable that Malaysia’s E&E sector has been catching up and developing local capabilities. Ariffin and Figueredo (2004) have argued that in terms of capability level, 81 per cent of the leading

Figure 4.2 E&E Share in manufacturing exports, 1968–2007 (per cent)



Source: Rasiah (2010)

electronics firms in Penang and the Klang Valley have attained intermediate or advanced level of innovative technological capability. All firms in the region have mastered basic process and production organization, product engineering, and capital equipment, tooling and moulding. And in achieving all of this, the role of industrial policy was crucial, as we discussed above.

To sum up, contrary to the neo-liberal orthodoxy, Malaysia's growth and restructuring policies have been marked with state intervention. Even in the so-called export-oriented industrialisation led by the E&E sector, the state distorted relative prices by exempting the EPZ firms from taxes and tariffs and offered subsidised infrastructural support services. It even modified policies over time to include local content requirements and concluded technology transfer agreements to ensure that local technological capabilities were enhanced. Moreover, R&D, training, and skills development remained targeted and subsidised activities of the government.

...contrary to the neo-liberal orthodoxy, Malaysia's growth and restructuring policies have been marked with state intervention.

4.3. INDUSTRIAL POLICY EXPERIENCES OF TODAY'S POORER DEVELOPING COUNTRIES

4.3.1. Vietnam

(a) Overview

For many people, Vietnam is best known for its devastating 20-year proxy war from 1955 to 1975, in which communist backed forces of North Vietnam fought the government of South Vietnam, who were supported by the United States and other anti-communist forces.⁵⁷ The North came out victorious, and eventually the North and South were merged into the Socialist Republic of Vietnam. Socialist reforms ensued, most importantly mass collectivization of farms and factories. In the following years, people died in the hundreds of thousands in prison camps and labour camps or through extrajudicial executions. This led to economic chaos and an international humanitarian crisis – millions of people fled the country by sea (the ‘boat people’), many of them drowning because of crudely built boats.

In 1986, reformist politicians replaced the old guard and introduced a series of reforms (known as the Doi Moi reforms), with the aim of transitioning from a centrally planned economy to a socialist market-oriented economy. These reforms marked the start of unprecedented economic growth and structural transformation in Vietnam. Vietnam’s trajectory of structural change has not been as impressive as, for example, that of China, which has grown substantially faster and expanded into medium and high-technology products far more successfully than Vietnam has (Dinh, 2013). However, Vietnam stands as an impressive example of overall economic growth and manufacturing success in the low-technology segments. Its GDP per capita has increased from a low of \$97 in 1989 to \$1,903 in 2013 (IMF, 2015). MVA as a share of GDP has increased from a low of 12.3 per cent in 1990 to 17.5 per cent in 2013 (WDI, 2015). Manufacturing exports grew from \$4,037 m in 1997⁵⁸ to \$92,980m in 2013. During the same period, the share of manufacturing in total merchandise exports increased from 46 per cent to 70 per cent (WTO, 2015).

Industrial policy has taken the centre stage in the reformist government’s development plans. Initially, it was emphasised as a means to deal with the ballooning current account deficit. As a result, industrial policy focused heavily on promoting exports, at first petroleum and agricultural products (particularly coffee). But Vietnam early on recognised that it would need to expand and diversify its manufacturing production to increase its pace of catch-up. In the late 1980s, domestic enterprises were nowhere near having the capabilities needed to be internationally competitive, so after the embargo on Vietnam was lifted by all countries other than the United States, Vietnam heavily attracted FDI towards labour-

57 The death toll of the war stands between 800,000 and 3.1 million.

58 Earliest data available.

intensive manufacturing industries (Perkins and Anh, 2009). Net FDI inflows increased from \$180 m in 1990 to \$2,400 m in 2006. After that, it made a massive leap to \$6,981m in 2007, and has been between \$7,600m and \$9,600m per year until 2013 (UNCTAD STAT, 2015). The fastest growing export sectors have been garments, agro-processing and electronics (WTO, 2015).

Vietnam has steadily been removing barriers to trade and investment from abroad and withdrawing privileges to SOE's since 2000. The signing of a bilateral trade agreement with the United States (2001) the passing of the Enterprise Laws of 2000 and 2005 gave critical impetuses to these efforts. However, the primary reason for Vietnam's surge in FDI in 2007 was the country's WTO accession in the same year. Vietnam's industrialisation after 2007 has been driven mainly by TNCs and private-sector firms.

(b) Apparel

The largest manufacturing industry in Vietnam is apparel production. It is a massive industry on a global scale, valued at over \$1 trillion, and is by far the most important traded light manufacturing sector among low-income and lower-middle income countries. Vietnam's apparel exports have been the fastest growing in the world between 1999⁵⁹ and 2013, increasing from \$1622 m to a staggering \$17230 m (WTO, 2015). This currently makes Vietnam the world's fifth largest apparel exporter, after China, Italy, Bangladesh and Hong Kong.

The development of Vietnam's apparel industry has been part of a wider strategy of promoting labour-intensive manufacturing industries. But a change in the state bureaucracy towards a tighter consolidation in the mid-1990s – when apparel exports slowly started to rise – is believed to have had a particularly significant impact on the apparel industry (see Angie, 2004).

First, in late 1995, state responsibilities and procedures in the apparel industry were more efficiently streamlined. For example, the Ministry of Industry received the responsibility of approving general development strategies, the Ministry of Finance received the responsibility for allocating subsidised loans to SOEs and negotiating with foreign sources for funds, and the Ministry of Trade received the responsibility for allocating export quotas.

Second, in that same year, the prime minister created the Vietnam National Textile and Garment Group (VINATEX), which exists to date, as an 'umbrella' SOE. VINATEX has, in following years, worked to integrate and coordinate all state-owned textile and apparel firms, while providing with skills and technological knowhow by setting up research institutes and vocational schools.

59 Earliest data available.

Third, the streamlining of bureaucracy allowed the Ministry of Trade to more easily implement measures to attract FDI to the sector. Starting in 1995 and becoming more pronounced in 1998, export licences were eliminated, customs procedures were made less cumbersome, export tax exemptions on final goods were applied, and local trade and customs departments were allowed to directly manage and oversee trading activities of domestic firms.

Over the years, export revenues have been growing fast, but Vietnam has largely failed to incentivise foreign firms to use domestic inputs in production. The industry performs mainly cut, make and trim (CMT) functions on imported inputs that are specified by foreign buyers. There is little free on board (FOB) garment production, whereby the apparel manufacturer is responsible for all production activities, including the procurement of raw materials. In 2013, 80-90 per cent of apparel production in Vietnam relied on imported inputs, primarily from China, Korea and Taiwan (Dinh, 2013). More investments in cotton production, spinning and weaving would be needed if the country is to reduce its import dependence. Reducing import dependence will also ease the constraint on growth in real wages – without input linkages to the domestic economy, buyers can more easily move their factories abroad, and should wages increase.

In the upstream segment, because buyers provide all the product engineering specifications, production equipment and in-house design engineering capabilities, Vietnamese apparel manufacturers have been unable to develop product or brand developing capabilities or knowledge of supply chain networks. Better links need to be established between domestic producers and foreign markets to especially adapt production designs. This can be done for example by increasing social networking through the diaspora community and/or by establishing trading companies.

(c) Shipbuilding

Although Vietnam's industrial development trajectory has most prominently featured growth of light manufacturing industries, the country has also managed to become internationally competitive in some heavy industries, most notably shipbuilding. Shipbuilding has been an important industry for many successful industrialisers – starting in Japan in the 1950s and 1960s, Korea in the 1970s, and China today, which has become the world's largest shipbuilding nation (measured by gross tonnage – or gt – produced), recently surpassing Korea. Vietnam is aspiring to follow in the footsteps of these countries.

Vietnam coordinates policies to develop its shipbuilding industry largely through the SOE Vinashin – established in 1996 – which owns around 70 per cent of the shipbuilding capacity (Senturk, 2011), although foreign investors – such as MAN Diesel and Turbo, Hyundai Mipo Dockyard, Aalborg Industries, and Mitsubishi Heavy Industries – have also played an important role.

In 2001, Vinashin outlined a detailed plan to develop the shipbuilding industry in the “Shipbuilding Industry Development Programme 2001-2010”. It was recognised that, with a coastline of 3,200 km, improved facilities for domestic water transportation and a

cheap (but literate) labour force, Vietnam has a great potential to compete with the largest shipbuilding nations. The growth of the industry in Vietnam since the early 2000s signifies that this potential is close to being realised. From producing practically no ships in 2002, Vietnam completed ships with a combined gt of 375,000 in 2014. This makes Vietnam the world's 7th largest shipbuilding nation, after China (23 m gt), Korea (22 m gt), Japan (13 m gt), the Philippines (1.9 m gt), Taiwan (600,000 gt) and Germany (520,000 gt).

The Vietnamese government has been supporting the shipbuilding industry in various ways, including: (i) provision of subsidised loans to Vinashin; (ii) allowing firms in the industry to retain corporate income tax for reinvestment; (iii) exemption of export taxes and land rent; and (iv) 2 years' grace period on loans for infrastructure costs of new shipyard projects (Senturk, 2011). Additionally, industrial and economic zones that feature shipbuilding facilities have been developed.⁶⁰

The Vietnamese shipbuilding industry is not only important as a source of employment generation and of foreign currency, but also due to the linkages it creates, especially downstream. Currently, these linkages are limited, as a majority of the materials and machinery that are needed to build the ships are imported. However, industrial policy efforts have been made to increase the local contents in the shipbuilding industry. For example, Vietnam has for a long time been putting efforts into expanding steel production in order to help the shipbuilding industry, as steel represents roughly 20 per cent of the total costs of building a typical tanker.⁶¹ As a result, steel production has been growing quite rapidly in the recent years – from 2.0 m tons of crude steel in 2007 (Thang, 2013) to 5.6m tons in 2013 (World Steel, 2014).⁶²

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⁶⁰ Economic zones target foreign investors, providing them with a range of fiscal incentives, subject to 100 per cent exporting of the output. Industrial zones, in contrast, target both foreign and domestic investors that produce for both domestic and export markets, and are designed to provide better infrastructure and easier routes for procedural approvals. But given that the fiscal incentives initially reserved for economic zones have been extended to companies in industrial zones that export at least 80 per cent of production, industrial zones are by far the most common 'special zone' in Vietnam.

⁶¹ Needless to say, the shipbuilding industry is not the only source of growing demand for steel in Vietnam, as demands from other emerging industries and infrastructure projects have been rising fast too.

⁶² Similarly to the shipbuilding industry (and partly the apparel industry), the development of the steel industry has followed a model of initially establishing an 'umbrella' SOE for the industry that sets up production facilities and coordinates domestic firms – the Vietnam Steel Corporation (VSC) in the case of the steel industry – and later opening up to FDI and setting up joint ventures through the umbrella SOE. Some of the largest steel mill investments have come from China (CSVC Sumikin) and South Korea (POSCO).

4.3.2. Uzbekistan

(a) Overview

Since independence from the Soviet Union in 1989, Uzbekistan has become well known for its heterodox economic policies, unlike other former Soviet countries. In the early 1990s, the IMF had stepped in to offer the country its standard policy recommendations; quick liberalisation of markets and prices, opening up to external trade and finance, rapid privatisation, freeing of the economy from state control, and the tightening of fiscal and monetary policies. However, rejecting these recommendations, Uzbekistan opted for a more gradual transformation of its economy. The country's President, Islam Karimov openly criticised neoliberal policies, claiming that "the model of reforming and modernization adopted in Uzbekistan [...] has meant from the onset the denial of the methods of shock therapy, which were persistently imposed on us, as well as naïve and deceptive conceptions about the self-regulating nature of market economy" (Karimov, 2009).

This has led to a barrage of criticisms from international financial institutions and mainstream economists, with predictions of impending failure. In 2001, the IMF withdrew its permanent representative in the country after Tashkent failed to meet its obligations as a member of the Fund. In April 2004, the European Bank for Reconstruction and Development (EBRD) also suspended most of its assistance as a result of the country's failure to implement meaningful market economy reforms.

Despite going against the advice of the international policy establishment and despite the fact that it is double-landlocked (that is, it is surrounded by landlocked countries), the country has performed very well. Post-independence Uzbekistan's GDP faced only a moderate decline between 1991 and 1995, compared to those of other transition economies in the region. By 2001, it had recovered to 103 per cent of its 1989 level, making it the first former Soviet Republic to regain its pre-transition level. The GDP growth rate continued to average at about 4 per cent during the early 2000s, accelerating to over 7 per cent by 2004 and exceeding 9 per cent in 2007 and 2008. This has confounded leading mainstream analysts, who have labelled it a puzzling case (Pomfret, 2000; McKinley, 2010).

Most of the rapid growth in Uzbekistan since 2001 has been on the back of the industrial sector leading to considerable structural transformation of its economy. The industrial sector had declined from 33 per cent of GDP in 1990 to 23 per cent in 2001, but has recovered to 33 per cent again, with the share of agriculture falling from 34 per cent in 2001 to 19 per cent in 2011 (Bendini, 2013).

The economic development strategy implemented so far by Uzbekistan is largely based on a combination of import substitution and targeted export promotion. Both of these practices are generally inconsistent with the WTO rules, but Uzbekistan is not yet a member of the organisation and has only observer status. Despite making an early application for accession in 1994, talks on Uzbek accession have been suspended since 2005 mainly because of its commitment to unorthodox policies. Uzbekistan's average applied tariff around 12 per cent is closer to that of other developing countries, but is twice as high as the regional average in Europe and Central Asia (6.7 per cent). So-called peaks can also be seen in its tariff profile in certain sectors.

Figure 4.3 **Average tariff rates and share of tariff peaks in tariff schedule in Uzbekistan, 2001-2009** (per cent)

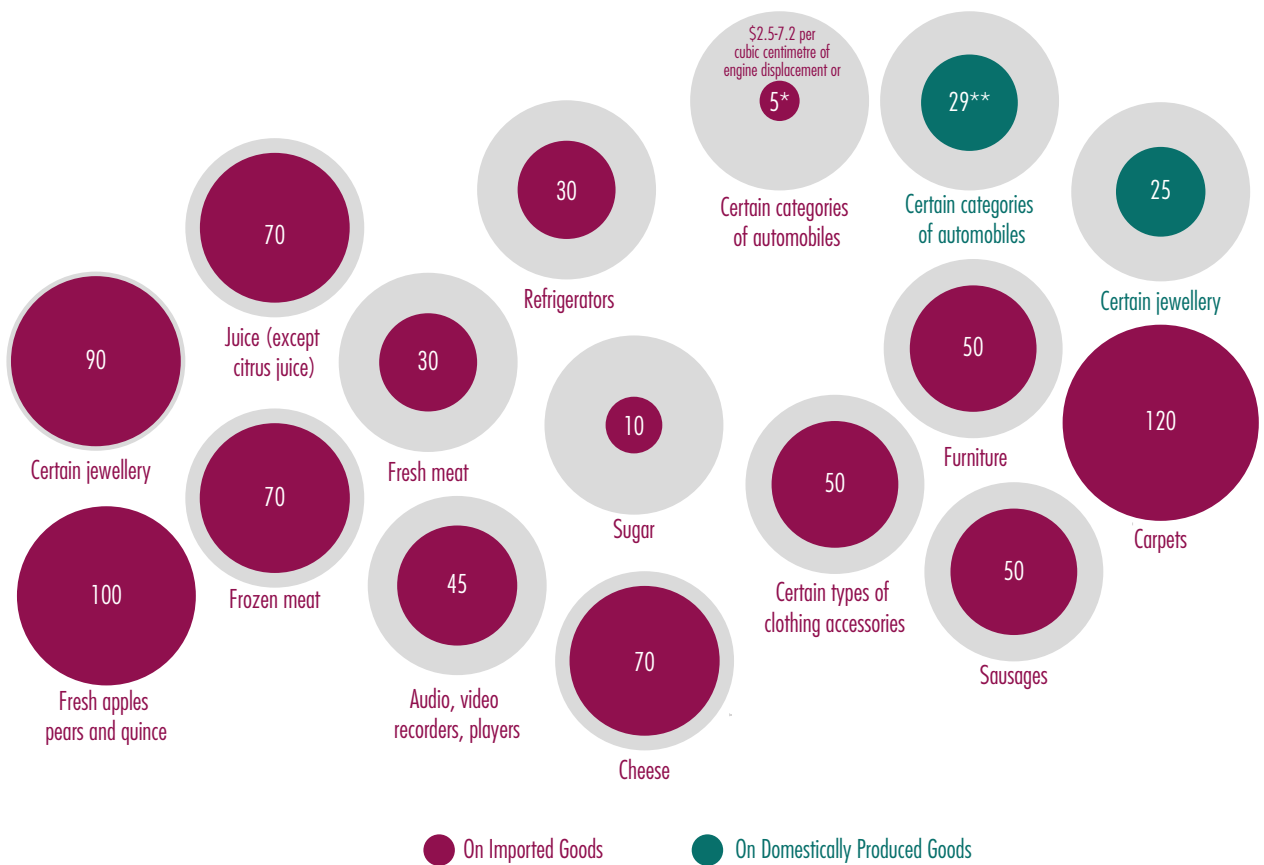


Source: Anderson and Klimov (2012)

As **figure 4.3** indicates, both average tariffs and peaks have shown an increasing trend since 2011. The country does not formally apply any import quotas but does have a number of behind-the-border non-tariff barriers that favour local products over imported ones. **Figure 4.4** shows a list of products that face excise taxes (on top of tariffs) only when imported. In the case of automobiles, there is also a road fund tax (6 per cent for automobiles and 20 per cent for trucks) for imported vehicles, except for those produced in Russia and Ukraine. Tariffs, excise taxes, and road fund tax often add up to over 100 per cent of the world market price of an imported vehicle.

Uzbekistan is pursuing an active industrial policy designed to provide sustainable, high rates of economic growth and a shift of focus from the production of raw materials to finished products with higher added value. It follows an import substitution regime with tight controls on imports of strategic products and export promotion of others. It uses domestic taxation to compensate for low external tariffs and uses other forms of controls, such as border entry fees. The government further aims to create spill-over effects through industrial expansion and gives priority to the sectors that are capable of creating and extending the multiplier effects to the whole economy. The automobile industry, which we now turn to, is a particularly successful example in this regard.

Figure 4.4. Rates of select excise taxes in Uzbekistan, 2012
 (per cent unless otherwise indicated)



Source: Anderson and Klimov (2012)

* The rate of the excise tax on automobiles that are similar to those produced by GM Uzbekistan but are manufactured and/or imported from countries other than Russia and Ukraine varies from \$2.5 to \$7.2 per cubic centimeter of engine displacement depending on the total volume of engine displacement and on when the automobile was produced. The rate of the excise tax on new vehicles manufactured in, and imported from, Russia or Ukraine (except specialized vehicles used for medical purposes) is 5 per cent.

** This is the rate of the excise tax on automobiles produced by GM Uzbekistan.

(b) The Automobile Industry

Uzbekistan is the only central Asian country that produces motor vehicles on a large scale. In 2012, its car production rose by 13 per cent on the back of growing consumer demand in neighbouring countries, primarily in Russia. In that year, Uzbekistan concluded a series of cooperation agreements with China, making experts optimistic about its prospects for sustaining production growth in the coming years (Ernst and Young, 2013 a). Between 85 per cent and 95 per cent of all light vehicles sold are assembled domestically.

The seeds of the modern automobile industry were sown soon after independence. Following a visit of President Karimov to Korea, a joint venture between Uzbekistan and Daewoo, the then second largest Korean carmaker, was realised in the form of the UzDaewoo plant set up in Asaka in 1993. Soon after, the Association of Enterprises of Automobile Manufacturing was transformed into a presently state-controlled joint stock company, Uzavtosanoat. Since 2004, Uzavtosanoat has 51 per cent government participation.

The Uzbek automobile industry is generally made up of joint ventures of Uzavtosanoat with a foreign partner, in line with the government's policy of localization of manufactured vehicles and active attraction of investors. At present, Uzavtosanoat includes around 51 automobile-related enterprises with the total staff numbering 21,000 people (Autobusiness, 2013). It produces passenger cars, commercial vehicles (trucks, buses) as well as many vehicle components for them. Manufacturing of vehicles is carried out by GM Uzbekistan (cars), SamAuto (trucks and buses), and MANAuto (trucks).

In its first year of production (1996), the UzDaewooAuto's output was 25,000 cars. By the end of 2011, this figure had reached 230,000. Throughout this time, new models were added to the production line, along with modernised versions of existing ones. Apart from high volume production of vehicles the UzDaewooAuto plant also started component manufacturing for Daewoo vehicles.

In 2008, following the change of ownership of Daewoo to GM Daewoo, UzDaewoo was replaced by GMUzbekistan – a new joint venture between Uzavtosanoat and General Motors Corporation. It began production on 27 November 2008, with its first assembled car marking the millionth assembled vehicle from UzAvtosanoat (UZA, 2008).

One of the main objectives of the Uzbek government's industrial policy in relation to the automobile industry is to activate its potential and transform the industry into a driver of growth for other priority sectors in manufacturing. It has already taken the initial steps towards achieving these objectives. The automobile industry has managed to become a driver of growth for enterprises inside the auto-making cluster. The industry complex today has more than 200 enterprises supplying locally manufactured parts and components, and has the ability to produce more than 260 types of

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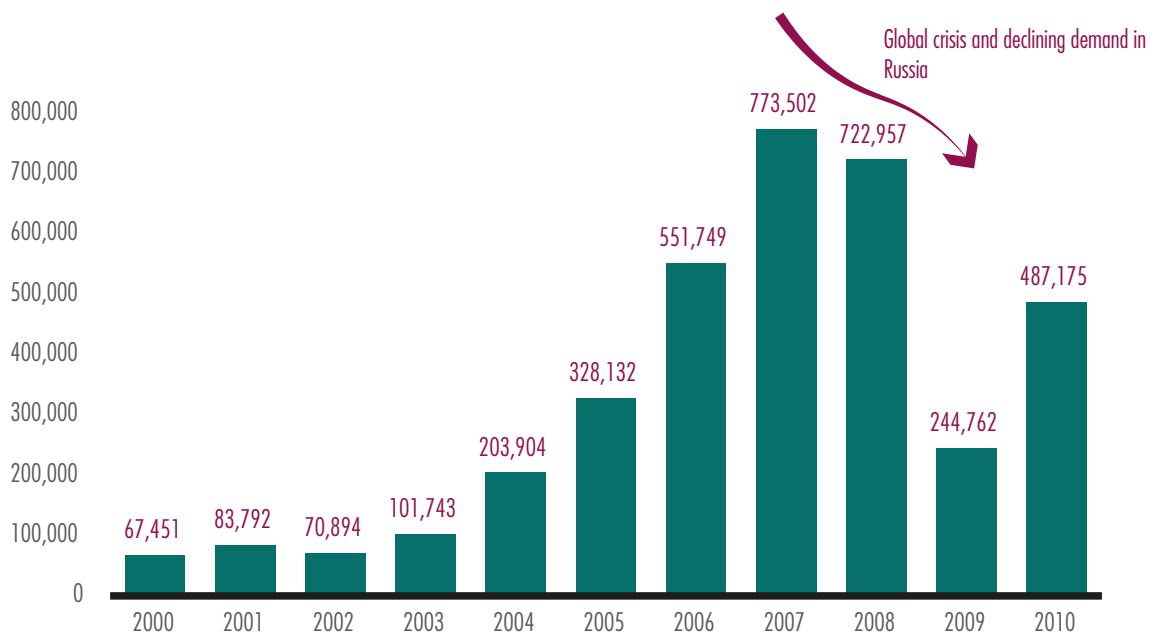
components. The level of localization exceeds 50 per cent for some of the new models and 80 per cent for the older ones (UNDP, 2013).

The Uzbek government's industrial policy towards the automobile industry have been aimed at: increase in vehicle production; modernization and technological re-equipment of enterprises; establishment of manufacturing capabilities of component parts; rendering of information services to the enterprises; arrangement of advanced training to prepare skilled employees and specialists for the industry; and professional development and re-training of senior executives. This has been possible firstly due to the government's direct involvement and business stakes in the industry, which makes it possible to channel resources to particular activities. It has also been helped by incentivised foreign investments.

In a similar recent development, the joint venture, GM Powertrain Uzbekistan, opened an engine plant in Tashkent, which started work in 2011. GM owns 52 per cent and UzAvtosanoat has a 48 per cent stake in the Powertrain joint venture. It is GM's first engine plant in Uzbekistan. It will produce more than 225,000 1.2 L and 1.5 L engines a year for use in GM small passenger cars around the world (GM Media, 2011).

While cars manufactured in Uzbekistan are largely intended to satisfy internal demands, they are increasingly exported to Russia and other Central Asia countries. Some of the models produced are intended only for export. **Figure 4.5** shows the export of vehicles from Uzbekistan, which declined slightly after 2008 due to the global crisis and declining demand in Russia, but has reportedly picked up again since 2012.

Figure 4.5 Exports of vehicles from Uzbekistan



Source: Anderson and Klimov (2012)

Following the government's aim of developing local capabilities in parts manufacturing, the country has started exporting components as well. The Uzbek-South Korean joint venture UzChasis was the first among Uzavtosanoat enterprises to export spare parts to Brazil. In May 2014, it signed a contract for \$4.5 million. Specializing in the manufacture of automobile headlights and lamps made of polymeric materials, the joint venture is capable of producing up to 250,000 sets per year. The company is unique in this regard and has no counterparts in Central Asia. Similarly, another Uzbek-South Korean joint venture of UzSungWoo is engaged in production of stamped parts for new cars made by GM Uzbekistan and has entered into an agreement for the supply of its products to Brazil since August 2014.

4.3.3. Ethiopia

(a) Overview

Except for Rwanda, Ethiopia is the only country in Africa whose GDP growth has been consistently high for over a decade without relying on a natural resource boom. The other high-growing African economies, such as Angola, Mozambique and Nigeria, have relied heavily on natural resources.

Between 2004 and 2013⁶³, per capita GDP growth in Ethiopia was 8.1 per cent per annum (WDI, 2015), the highest on the continent during this period and very high by any standard. Also during this period MVA has grown at a rate of 11 per cent per annum, by far outperforming Rwanda (WDI, 2015). Manufacturing exports have grown more than 11-fold, from \$21 m to \$237 m, largely thanks to the increasing export earnings of the leather, the textile, and the apparel industries. This represents more than a doubling of manufactured exports' share in total merchandise exports, which itself more than quintupled during the period, from \$922 to \$4786m (WTO, 2015).

...it is probably not unreasonable to believe that Ethiopia will be able to catch up with China and Vietnam in the light manufacturing industries in the near future. These are industries for which labour costs are very important, and Ethiopia has a labour cost advantage over both China and Vietnam.

Nevertheless, MVA as a share of GDP in Ethiopia remains 5 per cent (WDI, 2015), well below the African average of 10 per cent (ECA, 2015). The country scores below the ACET 15 average⁶⁴ on most structural transformation indicators, including diversification, export competitiveness, productivity, and technological upgrading (ACET, 2014).

Despite the meagreness of its structural transformation and catch-up so far, it is probably not unreasonable to believe that Ethiopia will be able to catch up with China and Vietnam in the light manufacturing industries in the near future. These are industries for which labour costs are very important, and Ethiopia has a labour cost advantage over both China and Vietnam. However, there are reasons to believe that Ethiopia's catch-up may continue beyond these 'obvious' industries.

One is the country's developmental orientation. While being based on specific conditions of the country, in many ways it resembles that of successful catch-up experiences in East Asia, such as Korea and Taiwan, with a relatively 'authoritarian corporatist' structure (Wade, 1990)

63 2004 marks a turnaround for the Ethiopian economy. In this year, results from policies of the first development plan that covered 2002-2005, the *Sustainable Development and Poverty Reduction Program* (SDPRP), started to materialise. This plan was followed by the first 5-year development plan, the Plan for Accelerated and Sustained Development to End Poverty (PASDEP), covering 2005-2010. Since then, 5-year development plans have become a hallmark of Ethiopian development policy, with the Growth and Transformation Plan (GTP) covering 2010-2015, and the Growth and Transformation Plan 2 (GTP2) covering 2015-2020.

64 A group of 15 countries in Africa (excluding North Africa) that make up a majority of the region's GDP, manufacturing and agricultural production. They are: Burkina Faso, Ghana, Nigeria and Senegal in West Africa; Ethiopia, Kenya, Rwanda, Tanzania and Uganda in East Africa; and Botswana, Mauritius, Mozambique, South Africa and Zambia in Southern Africa.

and centralised economic planning. Meles Zenawi, Ethiopia's recently deceased prime minister, who ruled the country from 1995 to 2012, repeatedly expressed admiration for the East Asian experience. He stressed that the East Asian success was based on a prudent combination of market forces and state intervention, in which the state not only provided basic infrastructure and services but also a conducive environment for the private sector to develop productive capabilities (Zenawi, 2011). Oqubay (2015) characterises the Ethiopian state as one clearly aspiring to become developmental – a state characterised by its exclusive focus on development, public mobilization around a grand vision, the commitment to improving state capability, and embedded autonomy.

The second reason to be optimistic about Ethiopia's future prospect for catch-up is the impressive industrial policy-making capability that it has accumulated since the Ethiopian People's Revolutionary Democratic Front (EPRDF) government came to power in 1991.

The quality of its industrial policy-making is represented by The Growth and Transformation Plan covering 2010-2015, which is, according to Ohno (2011), unusual in its brevity, coherence and strategic direction. Priority manufacturing industries were designated in the plans, based on considerations of resource availability, labour intensity, linkages to agriculture, export potential, and (relatively) low technological entry barriers. They include garments and textiles, agro-processing, meat processing, leather and leather products, and construction. For each of these industries, the state has set up supporting institutes to coordinate the value chains effectively (for example, ensuring efficient supply of inputs to manufacturers) and assist firms with technological upgrading in any capacity needed.

Two state-owned banks, the Commercial Bank of Ethiopia (CBE) and the Development Bank of Ethiopia (DBE), provide most credit to firms in these industries. CBE provides working capital and international banking services, while DBE provides long-term loans at subsidised rates. Foreign banks are simply not allowed to operate in Ethiopia. And the understanding is that they will be allowed in only when domestic banks have developed the financial, managerial and technological capacity to compete against international banks. Another reason for closing its capital markets to foreign banks is to avoid intrinsic financial instability, vulnerability, and shocks that have in many instances plagued LDCs with high dependence on foreign capital (see UNCTAD, 2011).

While the Ethiopian government is looking to intensify efforts to develop priority industries through selective (or vertical) industrial policy in the coming years, most of the federal budget has for the past 20 years focused on horizontal industrial policies, such as education and infrastructure. Results so far are impressive.

Enrolment in primary schools has increased from below 20 per cent in the early 1990s to about 94 per cent (22 million students) in 2012, and gross school enrolment rose from 23 per cent in 1993 to 106 per cent in 2011 (MOFED, 2012). The number of universities has increased from 1 in 1990 to more than 30 today.

Additionally, the government has invested massively in infrastructure development, focusing particularly on power generation and transport⁶⁵. According to the Ethiopian Road Authority, the road network expanded from 26,550 km to 53,997 km between 1997 and 2011. The country is also set to quadruple its power generation capacity when the Grand Renaissance Dam on the Nile is finished in 2017. By itself the Dam will be able to generate 10,000 MW (EIU, 2012), standing as one of the largest hydroelectric power stations in the world and generating twice as much power as Nigeria's current capacity, a country with over 170 m people.⁶⁶

(b) Sectoral stories: leather, textile and garment, cement, and floriculture

80 per cent of Ethiopia's population is dependent on agriculture for their livelihoods, so naturally, industrial policy in Ethiopia has focused heavily on promoting manufacturing industries that provide linkages to the agricultural sector. The leather industry and the textile and garments industry are the best examples.

Both the leather products sector and the textile and garments sector have been designated as top priority manufacturing industries in the recently released 5-year development plan that covers 2015 to 2020 (The Growth and Transformation Plan 2). This is not only because they have strong linkages with the agricultural sector (they use inputs from the livestock and the cotton sectors) but also as they both are labour-intensive in nature (thus absorbing labour from the agricultural sector), have major export potential, and have low entry barriers.

To become internationally competitive in these two sectors, the Ethiopian government has invited foreign investors to provide much needed investment capital and technological capabilities. A slew of incentives has been created to induce these firms to export

To become internationally competitive in these two sectors, the Ethiopian government has invited foreign investors to provide much needed investment capital and technological capabilities. A slew of incentives has been created to induce these firms (as well as domestic ones that can meet international standards) to export, including: (i) subsidised land rent in industrial zones; (ii) generous credit schemes; (iii) 100 per cent exemption from the payment of duties on import of all capital goods and raw materials that can't be provided domestically but are necessary for the production of export goods; and (iv) five-year tax holidays on profits (Gebreyesus, 2011).

65 Lack of proper infrastructure (especially electricity and roads) has been identified as a key bottleneck for structural transformation in Africa (excluding North Africa) (Page, 2013). Africa (excluding North Africa) generated 90GW in 2012 (IEA, 2014), which is roughly the same amount of power as Spain. Furthermore, only one-third of Africans living in rural areas are within two kilometers of an all-season road, compared with two-thirds of the population in other developing regions (Ernst and Young, 2013b).

66 The Grand Renaissance Dam is financed almost purely domestically, as the World Bank and even the Chinese government pulled out because of 'hydro-political' sensitivities with Egypt. Seeing the lack of foreign investment in the project, many public workers and union members in Ethiopia have pledged a month's salary towards the project, which stands as the prime example of the Ethiopian government's devotion to maintaining high rates of public investment.

Although export figures from the last two years indicate positive trends for both industries, the results are not yet near where they need to be in order to make a significant contribution to structural change.⁶⁷

In contrast, the less obvious industries of cement and floriculture have shown tremendous growth (see Oqubay (2015) for detailed analyses).

Feeding on the boom in construction, cement production has grown from 800,000 tons in 1999 to 10 million tons in 2012, making Ethiopia the third largest cement producer in Africa. The average annual growth of cement production was more than twice that of the world during this period. Its direct contribution to employment has been limited, as it is largely a capital-intensive industry; employment in cement factories increased only from 1,648 in 1992 to 7,233 in 2012 (Oqubay, 2015). But it has created significant employment through forward linkages to downstream cement product manufacturers (concrete products and ready-mix cement).

The state has provided support to the cement industry through both direct and indirect measures. Direct measures most importantly include entry incentives for domestic firms, such as long-term loans made available for capital investments; easy access to mining resources for firms; and the allocation of foreign currency on preferential basis. Additionally, government provision of transport and energy has been crucial, including import of over 1,000 trucks and supplies of heavy-oil fuel, coal, pet coke and electricity. More indirectly, the government's large-scale housing and infrastructure programmes, when combined with the expansion of private sector construction, have provided an important demand stimulus for cement.

Like the cement industry, the Ethiopian floriculture sector has made important contributions to the country's overall economic development through linkage effects, but additionally through its ability to earn foreign exchanges and directly generate employment.

Cut flower exports increased from three tons in 2003-04 to more than 50,000 tons in 2011-12, with export earnings rising from \$0.32 million to about \$200 million. From 2007 to 2012, the sector's employment grew from 25,000 to 50,484 (Oqubay, 2015). The industry grew from a single firm in 2000 to about 100 firms in 2014 (World Bank, 2014). The industry has also created indirect jobs through the associated expansion of horticulture. Linkage effects have included backward linkages to packaging products and forward linkages to cold chain logistics and air transport (Ethiopian Airlines). Ethiopian Airlines has now become the

FDI has played a key role in contributing to technological development and market access in this industry. According to most foreign investors, Ethiopia was an attractive investment location because of its appropriate natural endowments (such as land and altitude), cheap labour, and government investment incentives.

⁶⁷ From 2009 to 2012, export revenues increased from \$57m to \$123m in the leather and leather products sector, while for the textiles and garments sector, earnings increased from \$23m to \$99m (MOI, 2015).

biggest foreign exchange earner of the country – bringing in approximately \$2 bn in 2013 (World Bank, 2014) – and was recently rated the 6th most dependable airline in the world by CBS News (2013)

While Ethiopian firms initially kicked off the industry, foreign firms have increased their investment in the sector, accounting for 63 per cent of all firms operating in the sector in 2012 (Oqubay, 2015).⁶⁸ FDI has played a key role in contributing to technological development and market access in this industry. According to most foreign investors, Ethiopia was an attractive investment location because of its appropriate natural endowments (such as land and altitude), cheap labour, and government investment incentives. These investment incentives include tax holidays on profits for up to five years, duty free privileges on all capital goods, and the provision of construction material. Moreover, subsidised loans by the DBE have been the prime source of long-term investment financing for firms in the floriculture industry – almost two-third of firms in the industry have relied on loans from the DBE. And seeing the success of DBE loans to the floricultural industry, private banks have now also started lending to the industry.

68 It is also said that the sharp currency devaluation of 2010 was a major boost for floriculture firms, as all of them export 100 per cent of their outputs.

4.3.4. Rwanda

(a) Overview

Just like Ethiopia, Rwanda has yet to experience a significant change of its productive structure and growth of incomes. GDP per capita was \$696 in 2013 and between 80 per cent and 90 per cent of the population is still engaged in subsistence agriculture (IMF, 2015).

However, also like Ethiopia, Rwanda is one of the few African countries that have a clearly defined set of national development goals and targets. Its Vision 2020 sets out to particularly strengthen education, infrastructure, privatisation, international integration and agribusiness (MOFEP, 2000). Medium-term plans are stated in the country's Economic Development and Poverty Reduction Strategy (EDPRS) 2008-2012 and EDPRS 2013-2018. It is also serious about industrial policy. The core of industrial policy planning is carried out by the Ministry of Trade and Industry. Other important industrial policy bodies mostly include initiatives to support private sector development, such as the Rwanda Development Board (RDB), established in 2008 to provide current and potential exporting firms and the government with advice to stimulate exports, and the Private Sector Federation of Rwanda (PSF), mandated to strengthen private companies and to build human capacity for the private sector.

But despite all these initiatives to boost economic development, structural change is happening at a slow pace. Between 2004 and 2013⁶⁹, MVA growth was only 6.6 per cent per annum and the manufacturing sector's share in GDP declined from 7 per cent to 5 per cent (WDI, 2015). The manufacturing sector's share of merchandise exports increased by two percentage points from 5 per cent to 7 per cent. The share of agriculture, fuel and mining products in merchandise exports remained more or less unchanged, only a shade down from 56 per cent to 55 per cent (WTO, 2015).

Plans to develop specific manufacturing sectors don't seem to feature prominently in the country's overall development plan. The word manufacturing is mentioned twice in Rwanda's Vision 2020 plan, neither of which is indicative of any significant manufacturing development policy⁷⁰ (MOFEP, 2000, p. 9, p. 20). While the Ministry of Trade and Industry's Industrial Master Plan for 2009-2020 and National Industrial Policy in 2011 list prioritised manufacturing sectors – including agro-processing, textiles, mineral processing and construction materials – they do not outline specific supports to develop the targeted sectors, apart from horizontal industrial policy measures such as making the business environment more conducive, developing infrastructure, facilitating trade, and promoting human

Structural change might be happening at a slow pace, but Rwanda has been one of Africa's fastest growing economies in the last 10 years, with an annual per capita GDP growth rate of 5.0 per cent from 2004 to 2013 (WDI, 2015)

⁶⁹ 2004 has been chosen as a starting point as GDP growth has been consistently high from this year.

⁷⁰ Once in capacity insignificant to manufacturing development, and once as brief bullet point in relation to agro-processing.

Rwanda's industrial policy towards the tourism industry has been quite a success, contributing in a major way to the generation of employment and foreign exchanges. However, it is unlikely that Rwanda can sustain its economic development with significant improvements in its manufacturing sector, which has higher productivity, greater scope for innovation, greater ability to offer high-quality jobs, and greater tradability than the service sector does.

resources (notwithstanding, these are important measures⁷¹) (MOTAI, 2009; 2001).

Rwanda aims for industry to make up 26 per cent of GDP in 2020, an increase from 16 per cent in 2012 (EPDRS, 2013). But given that manufacturing currently makes up only 43 per cent of industry in Rwanda (MOTAI, 2011), this puts the 2020 target of manufacturing as a share of GDP at a meagre 11 per cent. By contrast, Ethiopia's target for manufacturing as share of GDP in 2020 is 20 per cent (GTP2, 2015).

Structural change might be happening at a slow pace, but Rwanda has been one of Africa's fastest growing economies in the last 10 years, with an annual per capita GDP growth rate of 5.0 per cent from 2004 to 2013 (WDI, 2015). Key features of Rwanda's development policy have been mentioned above, but many see the government's pro-business reforms – including privatisation, investment facilitation and trade liberalisation – as the ultimate driver of growth. The number of formally registered firms has skyrocketed since the government simplified business registration procedures in 2006. In 2008, more than

3000 firms registered, up from an average of 700 in previous years. In 2009, this number rose to 6,905 firms, and in 2010, the government managed to register an impressive 18,447 new businesses (World Bank, 2013). Out of 144 economies, Rwanda ranks 62 in the World Economic Forum's Global Competitiveness Index and third in Africa after Mauritius and South Africa. FDI inflows have also soared, from \$8 m in 2004 to a peak of \$160 m in 2012 (UNCTAD STAT, 2015).

(b) Sectoral stories: ICT-based services and tourism

Growth of the Rwandan economy so far can mainly be attributed to growth of the services sector.

The ICT-based services sector has been an important driver of that growth. The government initiated its national ICT plan in 2000 with the hope of making Rwanda into the 'Singapore of Africa' (Singapore is the second most network-ready country in the world). In 2011, the Rwanda Technology Authority announced the completion of a 2,300 km nationwide fibre optic cable, providing faster internet access to a wider range of broadband services. Additionally, financing from the government, private sector and international organisations have spurred progress in the use of telecommunications services and the adaptation of a range of innovative applications such as e-banking, e-agriculture and e-trade (UNCTAD, 2014a). Mobile phone subscriptions rose from 333,762 in 2006 to 5,690,751 in 2012 (UNCTAD, 2014 a).

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Rwanda's per capita power generation capacity, for example, stands low even compared to other LDC's.

The tourism sector has, however, been the strongest driver of growth, ranking first in investment attraction out of all sectors in the country (UNCTAD, 2014a). According to the RDB, its export revenues amounted to \$293 m in 2013, making up a whopping 30 per cent of the country's total export earnings. It has also been important for employment generation, contributing to over 135,000 jobs in 2012, or 6.4 per cent of total employment. Compared to other countries in the region, Rwanda has had by far the largest surge in tourist arrivals, from 12.8 per 100,000 people in 2000 to 85.4 per 100,000 people in 2011 (UNCTAD, 2014a).

Gorilla viewing has been the most significant contributor to the surge of tourism in Rwanda. The country is home of the Virunga mountain gorilla, a highly endangered ape subspecies, with a total estimated population of only 380 in Rwanda, Democratic Republic of Congo and Uganda. Only in Rwanda and Uganda can these gorillas be visited safely. But Rwanda has an advantage over Uganda in that the gorillas can be reached in only two hours from Kigali, compared to six hours from Kampala. In addition, road infrastructure is better in Rwanda. In 2008, about 17,000 people visited the Volcanoes National Park (where most of Rwanda's gorillas reside), an impressive increase from only 417 tourists in 1999 after the reopening of the park (Nielsen and Spenceley, 2010). Aside from bringing in significant export earnings, gorilla tourism has generated plenty of jobs for guides, trackers and anti-poachers. Some private sector tour operators also offer community-based tourism activities, such as stays with a local family, banana beer production, and village walks (Nielsen and Spenceley, 2010).

Several industrial policy initiatives underpin the tourism sector's success in Rwanda.

First, the government has aggressively been promoting its attractions internationally ever since the 2003 World Travel Market in London. Rwanda, whose delegation is normally led by the CEO of the RDB, has won the award of Best Exhibitor from Africa in the International Tourism Bourse in Berlin five times since 200 (ETN, 2014).⁷² To achieve increased media visibility, Rwanda has contracted international public relations and marketing agencies from the UK and the US. The websites of various government institutes are now impressively well developed and maintained, and the country has increasingly been featured in documentaries on international television channels such as Al-Jazeera, CNN, Animal Planet, and Discovery Channel (Nielsen and Spenceley, 2010).

Second, the government has worked meticulously to develop skills of employees in the tourism sector. The Rwanda Tourism University College was established in 2006, offering bachelor's degrees in hotel and restaurant management and in travel and tourism management. The college also offers many tourism-related certificates, including tour guiding, cabin crew training, housekeeping, and exhibition and event management. In 2009, the Work Force Development Authority of Rwanda expanded on tourism courses offered in TVET institutions to provide more training in culinary art, housekeeping, front desk operations, and table waiting.

72 2007, 2008, 2009, 2010 and 2014.

Third, in addition to a range of fiscal and non-fiscal incentives made available to investors across all sectors, investors in the tourism and the hotel industries are exempt from import duties on certain equipment. The list is long but mostly includes machines for house maintenance (e.g. generators, air conditioning shafts, fire detectors), outdoor leisure equipment (e.g. playground equipment, tennis court equipment), and bedroom fittings (e.g. carpets, beds, televisions) (UNCTAD, 2014 a).

Rwanda's industrial policy towards the tourism industry has been quite a success, contributing in a major way to the generation of employment and foreign exchanges. However, it is unlikely that Rwanda can sustain its economic development without significant improvements in its manufacturing sector, which has higher productivity, greater scope for innovation, greater ability to offer high-quality jobs, and greater tradability than the service sector does. In short, without diversifying its economy towards more manufacturing, there are limits to how much the country can develop.

4.4. CONCLUSION

In this Chapter, we have discussed a wide range of industrial policy experiences, spanning the globe over the last three centuries, starting from 18th century Britain to today's Ethiopia. Despite the scope, there are some general lessons that can be drawn.

First of all, all the cases that we have discussed show that long-run economic success critically depends on the development of productive capabilities. In this regard, it is important to note that successful countries did not just create, through protectionism and subsidies, the space in which infant industries can grow but also ensured that investments intended to enhance the productive capabilities of the infant producers are made – some by the government and others by the infant producers themselves.

Second, for countries at earlier stages of economic development, the development of these capabilities requires that the country defies comparative advantage and promotes infant industries. The greater the deviance from comparative advantage is, the greater will be the risk, but so will the returns. However, it is important to note that, while they were busy deviating from comparative advantage in certain sectors, the successful countries made it sure that they exploit to the full their comparative-advantage-conforming industries for exports and employment creation. Cases like Japan, Korea, and Taiwan are the best examples.

Third, the experiences of the successful economies show that there are many different paths towards developing productive capabilities. A country may pursue high protectionism (as in Britain or the US) or low but targeted protectionism (Belgium). It may focus on import substitution (the US) or export promotion (Korea, Taiwan). It may engage in near-total

prohibition on FDI (Japan, Finland), heavy regulations mixed with active engagements in limited areas (Korea, Taiwan), or active but strategic courting of them (Singapore, China, Malaysia). It may focus on upgrading from its natural resource bases (Chile), start completely new industries (Japan and Korea), or do both (Malaysian palm oil and electronics). It may give the leading role to SOEs (France, Singapore, Taiwan), large private-sector firms (Japan, Korea, the US), or SMEs (Italy, Switzerland, or Germany). The permutation is mind-bogglingly large.

Fourth, history shows that there are many different industrial policy tools that can be, and have been, used. These are too numerous to list, but the main ones include: (i) tariff and other trade restrictions to promote infant industries, such as (explicit and implicit) quantitative restrictions or excise taxes targeted at particular imports; (ii) subsidies (including subsidized loans from state-owned banks or from regulated private sector banks) or tax breaks targeted at particular industries or at activities that promote the development of productive capabilities, such as exports, investments, R&D, and training (of managers as well as workers); (iii) coordination of complementary or competing investments, through measures such as indicative planning, government-mediated inter-sectoral dialogues, sanctioning of special purpose cartels, and state-mediated mergers and acquisitions; (iv) licensing policies aimed at increasing productive capabilities (e.g. realisation of scale economies, importation of the right technologies at the right prices); (v) formal and informal regulation of FDI aimed at maximizing knowledge transfer and spill-over, such as requirements for joint venture, technology transfer, local R&D, and worker training; (vi) use of SOEs, state-run venture capital, or state equity participation in private sector firms for various purposes (e.g. entry into high-risk industry, provision of cheap inputs to the private sector); (vii) use of government procurement policies to help strategic industries, especially in the early stages of development; (viii) establishment of public agency or public-private partnership to provide infrastructure, R&D, technical assistance, information services, export marketing, and other productive inputs that cannot be provided by the relevant producers, especially but not exclusively SMEs; (ix) promotion of industrial clusters, private sector joint ventures, industry associations, and cooperatives, in order to help sharing of risk, exchange of information, and mutual learning among firms; (x) strategic use of patent laws and other IPR laws to maximize technological absorption and innovation.

In this report, we do not offer one ‘best practice’ development strategy or a particular set of policy tools that every country should adopt. Exactly what lessons each country draws from our case studies will depend on the environment it faces, the capabilities that it possesses, and the ambitions it has.

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Chapter 5

Industrial policy for Africa in the new global environment

In Chapter 4, we examined a wide range of successful industrial policy experiences. Experiences of today's rich countries in the earlier phases of their economic development as well as in the post-WWII period were discussed. We also analysed the industrial policy experiences of the poorer developing countries (including two African countries – Ethiopia and Rwanda). Most of the successful industrial policy experiences we discussed concerned manufacturing but we have also explored cases that targeted agriculture (Brazil, Chile, and Ethiopia) or services (Rwanda). We believe that this 'treasury' of experiences can offer many useful lessons for industrial policy-makers in Africa.

However, there is a growing concern that the world economy has so fundamentally changed in the last two or three decades that industrial policy experiences of the past, however successful they may have been, are not relevant any more. Two most frequently discussed sources of this supposedly fundamental change are the shrinking 'policy space' and the rise of global value chains (GVCs).

First, many people point out that the establishment of the WTO and the proliferation of bilateral and regional trade and investment agreements have resulted in bans – or at least significant constraints – on many of the industrial policy measures that were used by today's rich countries (including the more recently developed countries of East Asia) in the past. Given this, it is said that developing countries of today cannot use those policies, even if they wanted to.

...there is a growing concern that the world economy has so fundamentally changed in the last two or three decades that industrial policy experiences of the past, however successful they may have been, are not relevant any more. Two most frequently discussed sources of this supposedly fundamental change are the shrinking 'policy space' and the rise of global value chains.

Second, it is frequently argued that the rise of global value chains (GVCs), in which production is segmented into specialised components and located all over the world, has fundamentally transformed the paths towards economic development for today's developing countries. The rise of the GVCs means, it is argued, that developing countries cannot – and should not try to – 'do another Korea' by entering difficult industries on their own terms. Given this, developing countries should give up on old-style industrial policy and try to join GVCs by liberalising trade and investment, which will motivate transnational corporations (TNCs) that control GVCs to come and invest.

In this chapter, we discuss how these changes have changed the policy-making environment for developing countries and how developing country industrial policy-makers should reflect on them in their policy-making.

5.1. SHRINKING POLICY SPACE – THE WTO, BILATERAL AND REGIONAL TRADE AND INVESTMENT AGREEMENTS

5.1.1. An overview

Developing countries today face a lot more constraints on their policy options than they did a few decades ago. With the establishment of the WTO in 1994 several multilateral rules have taken shape, which either prohibit or restrict the use of industrial policy tools. The WTO is committed to trade liberalisation and in general dislikes any sort of government intervention that would impede the flows of trade. To this end, the organisation is one of the main drivers of the prevalent policy orthodoxy that argues against the use of industrial policy by developing countries.

A parallel proliferation of bilateral and regional agreements on trade and investment has further expanded the scope of these restrictions. Sanctioned by the WTO, these agreements usually tend to apply trade liberalisation beyond the levels agreed under WTO commitments. Under some schemes, developed countries have even pushed non-trade issues as a condition for enhanced access to their markets by developing countries. These issues can put a further cap on industrial policy efforts.

At first glance, these agreements appear to be a serious threat to developing countries' chances of industrial progress. However, the situation is not entirely fatal at least with regard to multilateral rules. There are many industrial policy measures which can still be used legally.

For some measures, international rules do not apply or do so rather leniently to developing and least developed countries – export subsidies, which are illegal for all countries except the LDCs, are the best example of this. Similarly, export taxes are permitted under Article 11 of GATT. Or it may be because the policy measures are inherently domestic in nature and thus not subject to international agreements. Sometimes there are policy measures that could well be restricted by international rules but are not because no international consensus has evolved to place a bar on them. Also, ambiguities in certain rules or their application can create further scope for pushing

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certain policies till they are detected or challenged. As a rule of thumb, with regard to multilateral obligations, if a policy measure does not affect exports or imports, it does not fall directly under WTO laws and should be allowed.

An illustrative list of certain measures that are not directly prohibited under the WTO is given at **table 5.1** below. As it can be seen from the table, the range of policies that can be used is rather extensive.

Table 5.1 List of policy measures not directly covered by WTO agreements

a) targeted infrastructural investments
b) targeted and/or subsidised investments in skills development
c) strategic government-mediated mergers of local firms in fragmented industries (e.g., through special loans from government-owned banks, equity injection by development banks or sovereign wealth funds), to achieve scale economy and reduce 'wasteful competition' (i.e. duplicative investments that will result in the scrapping of some capacities)
d) tax benefits to encourage investments, such as exemption of corporate income tax for a fixed period, accelerated depreciation allowances
e) the establishment of government-funded R&D centres, to transfer technologies to private sector firms, especially SMEs, at lower but technically non-subsidised prices (this could be done by deliberately not taking patents out on their technologies or by charging only 'competitive market' rates).
f) the encouragement of industry-university links through non-subsidy measures (e.g., creating a forum for dialogue, reducing legal barriers to university-industry collaboration, re-prioritising and re-channelling of government research funding to targeted areas, so that they become 'focal points' for industry-university collaboration).
g) exemption of SMEs from certain anti-trust laws, so that they can cooperate more in areas like R&D and export marketing.
h) government procurement (e.g., US defence, Finland telecommunications, Japan mainframe computer industry). At present there is only a plurilateral agreement on this in the WTO and developing countries are not signatories to it.
i) use of SOEs to start and/or develop 'infant industries' that the private sector is not willing to engage in.
j) worker training requirements for large firms.
k) export taxes to restrict the export of certain products (e.g. to prevent the export of raw materials and encourage that of more value-added products in the chain)

Source: Authors' compilation based on WTO data

Unfortunately, some of these measures may not be allowed under certain bilateral agreements, which, as explained below, place greater constraints on policy choices. Moreover, pressures from developed countries and international financial institutions may make it difficult to use measures that are allowed even under bilateral agreements. Thus, in carrying out such policy measures, the real test becomes that of the policymakers' commitment to maintaining emphasis on industrial policy efforts. The situation is challenging, but if policymakers are swayed by the prevailing orthodoxy from the outset, the lack of policy space will only be accentuated.

In the sections below, we present some of the main constraints on industrial policy space for developing countries under both multilateral and bilateral trade agreements and uncover areas where there is still room for manoeuvre, if countries want to use strategic industrial policy.

5.1.2. Multilateral Agreements

The formation of the WTO in 1995 resulted in a set of agreements that impinge directly on domestic policies of member countries. In addition to the General Agreement in Tariffs and Trade (GATT), which deals with tariffs, agreements such as the GATS (General Agreement on Trade and Services), SCM (Agreement on Subsidies and Countervailing Measures), TRIPS (Trade Related Intellectual property Rights) and TRIMS (Trade Related Investment Measures) were adopted. These agreements contain binding and enforceable obligations that systematically restrict the choices developing countries have for conducting industrial policy (Mayer, 2009; Gallagher, 2005; Brown and Stern, 2006; Di Caprio and Gallagher, 2006). Some of these constraints are discussed below.

(a) Tariffs

All WTO member countries are required to bind at least some of their tariffs at a certain level in a Schedule of Commitments maintained by the WTO. Binding is an upper limit on the tariff beyond which it cannot be increased. No changes to the bound levels are generally allowed. Most developing countries have already bound their tariffs on a large number of sectors and are constantly under pressure to bind the remaining ones. Applied tariffs can be anywhere between zero and the bound limit. The difference between applied and bound tariffs for a country is called 'water' in WTO parlance. It is usually argued that the more water in a country's tariff profile, the more room it has for manoeuvre in its tariff policies. This argument is presented to show that there is a lot of policy space in the WTO system. However, this shows a bigger problem developing countries have faced under the free trade orthodoxy, that of autonomous liberalisation, i.e. liberalisation undertaken by countries voluntarily and not as part of a negotiated trade agreement (some authors such as Baldwin [2010] use this interchangeably with 'unilateral liberalisation').

As part of various reform programmes introduced by international institutions such as the IMF, developing countries were forced to reduce their applied tariffs under a 'tariff rationalisation' process. Alongside, with the WTO and World Bank's support, these countries were taught how unilateral liberalisation would carry developmental benefits for them (Safadi and Laird, 1996; Krueger, 2005). As a result, applied tariffs in developing countries

today are generally much lower than their bound rates, giving a sense of large amount of water. **Table 5.2** shows the latest figures on binding coverage, and the average bound and applied rates for countries in Africa (excluding North Africa). It can be seen that the same is generally true for countries in Africa (excluding North Africa).

These existing levels of applied tariffs are exceptionally low compared to the historical experience of industrialised countries at equivalent levels of development. For instance, towards the end of the 19th century when the United States was trying to catch up with Britain by way of infant industry protection, its average applied tariffs on manufactured imports were close to 50 per cent. Applied tariffs in developing countries today average less than 20 per cent. These include countries, which have applied tariffs in some sectors close to 5 per cent or below. As seen in **table 5.2**, certain LDCs in Africa (excluding North Africa) have average applied tariffs around 7 per cent (Akyüz 2005).

Countries in Africa (excluding North Africa) may still find ample room to use tariffs for industrial policies. For instance, as long as the Doha Round remains dormant, NAMA obligations will fortunately remain only proposals.

Table 5.2 **Bound and applied tariffs of African countries (excluding North Africa)***
(non-agricultural / industrial products)

Country / Territory	Binding coverage in per cent	Simple average		Duties > 15 per cent (Share of HS 6 digit subheadings in per cent)		Maximum duty	
		Bound	MFN applied	Bound	MFN applied	Bound	MFN applied
Angola	100	60.1	6.9	100.0	10.0	80	30
Benin	29.9	11.3	11.5	5.3	37.2	60	20
Botswana	95.5	15.7	7.4	34.7	20.5	50	307
Burkina Faso	30.0	13.8	11.5	5.4	37.2	100	20
Burundi	10.2	26.5	11.6	7.2	37.4	100	61
Cabo Verde	100.0	15.2	9.8	41.4	29.0	55	50
Cameroon	0.2	67.1	17.4	0.2	44.8	80	30
Central African Republic	56.2	37.7	17.4	56.2	44.8	70	30
Chad	0.4	76.3	17.4	0.3	44.8	80	30
Comoros**	..	..	15.8	..	75.3	..	20
Congo	3.5	15.1	17.4	1.1	44.8	30	30
Côte d'Ivoire	23.3	8.5	11.5	2.8	37.2	25	20
Democratic Republic of the Congo***	100	95.8	..	98.8	..	100	..
Djibouti	100	39.9	22.0	99.6	76.7	230	33
Ethiopia**	..	..	16.5	..	47.8	..	35
Gabon	100	15.4	17.5	1.0	43.9	60	30
Ghana	1.3	39.7	12.2	1.3	37.3	99	20
Guinea	29.5	10.1	11.5	5.0	37.2	40	55
Guinea-Bissau	97.4	50.0	11.5	97.4	37.2	50	20
Kenya	2.0	57.0	11.6	2.0	36.9	100	61
Lesotho	100	60.1	7.4	100.0	20.5	200	60
Liberia, Republic of**	..	..	10.1	..	17.1	..	50
Madagascar	19.5	25.2	11.2	16.6	35.2	30	20
Malawi	21.6	42.3	11.5	21.6	34.3	125	25
Mali	30.9	13.4	11.5	6.4	37.2	60	20
Mauritania***	30.1	10.6	..	5.5	..	50	..
Mauritius	4.7	27.6	1.0	1.9	1.2	122	125
Mozambique	0.5	22.8	9.5	0.1	29.4	100	20
Namibia	95.5	15.7	7.4	34.6	20.5	50	307
Niger	96.2	38.2	11.5	72.1	37.2	50	20
Nigeria	7.0	49.2	11.1	6.9	35.9	150	35
Rwanda	100	91.7	11.6	97.3	37.4	100	61
Sao Tome and Principe**	..	..	10.1	..	10.4	..	20
Senegal	100	30.0	11.5	99.9	37.2	30	20
Sierra Leone	100	48.5	11.3	100.0	37.7	80	30
South Africa	95.5	15.7	7.5	34.6	20.5	50	> 1000
Sudan**	..	..	19.7	..	47.2	..	40
Swaziland	95.5	15.7	7.4	34.6	20.5	50	307
Tanzania	0.3	120.0	11.6	0.2	37.4	120	61
The Gambia	0.7	60.5	13.7	0.6	54.1	110	20
Togo	0.9	80.0	11.5	0.8	37.2	80	20
Uganda	3.0	51.0	11.6	3.0	37.3	80	61
Zambia	4.2	44.0	12.2	4.2	29.7	125	25
Zimbabwe	10.4	10.9	15.8	2.5	26.6	150	206

Source: World Trade Organisation statistical database

* Does not include Equatorial Guinea, Eritrea, Seychelles, Somalia, and South Sudan as they are either observers or non-members.

** Observer countries have no bound tariffs

*** Applied rates are not available

Highlighted countries are not LDCs

As one of its general objectives, the WTO seeks to reduce the water in countries' tariff profiles so as to bring the bound rates as close as possible to the applied ones. To this end, the proposed NAMA (Non-Agriculture Market Access) negotiations in the Doha Round have been designed to reduce tariffs across the board for all WTO countries. Under NAMA, countries would be required to first bind all unbound tariffs and then slash them using a so-called "Swiss Formula"⁷³ – proposed first by Switzerland during the Tokyo Round (1973-79) and so named thereafter. The formula is to be applied on a (tariff) line-by-line basis at a high level (at least 6 digits) of HS classification. As these cuts would apply to bound tariffs, this would essentially eliminate any water in the tariff profile, making potential reversal in tariff liberalisation, virtually impossible.⁷⁴ Even though NAMA discussions have remained in a stalemate similarly to the general negotiations in the Doha Round developed countries are continually trying to find new ways to broker a deal.

Nevertheless, if they so desire, countries in Africa (excluding North Africa) may still find ample room to use tariffs for industrial policies. For instance, as long as the Doha Round remains dormant, NAMA obligations will fortunately remain only proposals. Therefore, as a first step, tariffs can be legally raised up to the bound rates and this would be an internal decision for relative governments not requiring any approval from the WTO. Moreover, many developing countries in Africa (excluding North Africa) have not bound their tariffs completely, so they have a lot of room for increasing tariffs. For some, such as Eritrea, the WTO bindings do not even apply yet as they are not members of the WTO, so they can use tariffs even more freely.

Secondly, it is still legally possible, albeit quite difficult, for a country to apply for re-negotiation of bound tariffs on one or several products. Under GATT Article XXVIII, a lengthy procedure has been laid down which entails notification of intention to the WTO and negotiation of new tariffs individually with all countries that have a "principal supplying interest"⁷⁵ in that product. Negotiations must also be carried out with other countries that claim to have a "substantial interest"⁷⁶. As part of the renegotiation, these countries need to be offered compensation in the form of tariff concessions in other products of their interest. It is likely that compensating several countries for a renegotiation can lead to reduction of tariffs on several products. Finally, the modification to the bound schedule needs to be certified and approved by the WTO by consensus. This procedure is cumbersome and costly both in terms of time spent and losses from tariff reduction offered as compensation on several products. Since the inception of the WTO, only a small number of renegotiations have taken place and those were on very few (usually agricultural) products.

73 The Swiss Formula is represented as $T_{new} = (C \times T_{old}) / (C + T_{old})$ where T_{old} is the current bound rate, ' T_{new} ' is the resulting tariff after reduction and ' C ' is the coefficient of reduction. Using this formula, the coefficient would become the cap for any tariffs in that schedule. For instance using a coefficient of 20, a current bound tariff of 80 will be reduced to 16. While there has been no formal decision on the issue as yet, the latest situation in the Doha Round points towards an agreement on a coefficient of close to 20 for developing countries and around 10 for developed countries (WTO, 2012).

74 It may be mentioned here that the Swiss Formula cuts are still under consideration alongside other proposals. Certain new proposals have come up in the recent past suggesting different formulae or a change to the coefficients. The US is even working on average tariff cuts based on a "request and offer" approach as opposed to tariff cuts across the board. However, the Swiss Formula remains the most likely option at the moment.

75 Principal supplying interest is determined on the basis of set guidelines under WTO rules. Generally, it relates to countries that are the biggest suppliers of the product in question to the country concerned over the period preceding application for renegotiation.

76 Substantial interest can be claimed by other countries exporting that product or whose trade is likely to be affected by the change in tariffs.

Another way of increasing bound tariffs is to resort to the so-called ‘Government Assistance to Economic Development’ provisions under GATT Article XVIII. These allow developing countries to raise their tariffs “to promote the establishment of a particular industry” if they are faced with “low standards of living” and “are in the early stages of development”. This also requires a lengthy procedure involving notification to the WTO, negotiations with countries having a substantial interest, compensating them by way of other tariff reductions and approval of WTO members. Despite all these, it may be sometimes worth trying to re-negotiate tariffs in case the likely benefits outweigh the costs. For instance, there may be certain industrial sectors that are strategically more important for a country and it does not mind compensating other governments in (relatively) less important areas at the time. Ukraine is a recent example of such renegotiations.⁷⁷

Developing countries may also impose quantitative restrictions in addition to tariff increases to address Balance of Payments difficulties Under Section B of Article XVIII, applied together with certain rules in Article XII and a separate “Understanding on the Balance-of-Payments Provision of the GATT 1994”. These rules require a notification to the WTO on the BoP difficulties faced by a country which are then discussed by all members along with a verification of the situation by the IMF. The proposed import restrictions can then be implemented if agreed by the members. A complete text of Article XVIII can be found at Annex-II.

As with renegotiations under Article XXVIII, the use of BoP provisions to restrict imports has declined since the inception of the WTO⁷⁸. This is due to more stringent and elaborate procedures that have come about as part of the WTO system. Moreover, WTO members do not generally welcome the introduction of protective measures. Any attempts, even though legal, are met with reluctance and resistance and developing countries are persuaded as much as possible to withdraw their protectionist requests. A detailed description of the use of BoP provisions since 1995 is given in **table 5.3** It can be noted that since 2000, there have been only two such instances – Ukraine, 2007 and Ecuador, 2010. However, even if difficult, it still remains an option for countries that are faced with such difficulties.

(b) Subsidies

Before and during the GATT years, developing countries had a considerably freer hand in the use of industrial subsidies until the Uruguay Round. The WTO’s SCM agreement has altered this situation completely invoking much tighter constraints on subsidy use. In WTO’s understanding, subsidies are generally considered trade-distorting measures that give the subsidising country unfair price advantages in a free trade environment. The agreement, therefore, prohibits any sector-specific subsidies along with those for export promotion and for enforcing the use of local content in manufacturing. It not only disallows assistance

⁷⁷ Ukraine became a WTO member in 2008 and negotiated commitments during accession that it could not sustain afterwards. In 2012, Ukraine made a request for renegotiation of tariffs on several products (more than 350 tariff lines) and the application was met with strong resistance. Several developed countries blocked the proposal to allow Ukraine the chance of renegotiation, and several others, including large developing countries persuaded Ukraine to withdraw its request in the interest of global free trade. In February 2015, the country invoked the Balance of Payments provisions to apply a surcharge of 5 per cent on imports of industrial goods and 10 per cent on imports of agricultural goods to deal with “exceptional conditions”, in addition to its requests for renegotiation under Article XXVIII (WTO, 2013). More details on Ukraine’s experience may be found here https://www.wto.org/english/news_e/news15_e/impl_28apr15_e.htm

⁷⁸ A detailed description of the use of BoP provisions since 1995 is given at Annex-III.

accorded through the government budget but also restrains indirect subsidies in the form of intra-private sector transfers brought about by government regulation.

Subsidies other than those for export promotion or requiring local content are allowed, but they can be challenged in a WTO dispute and, should the challenge be successful, be

Table 5.3 Invocations and disinvocations of Articles XII and XVIII:B*
since entry into force of the WTO Agreement

Member	Consultations	Measures
Bangladesh	1995(S), 1997 (S), 1999(S), 2000, 2001, 2002, 2004, 2007	QRs remained on a few items as of 2007; remaining items liberalized 2007–10
Brazil	1995	Import quota on motor vehicles introduced June 1995, eliminated effective 27 October 1995
Bulgaria (Art. XII)	1997, 1998	5 per cent import surcharge introduced Jun. 1996, reduced 1998, eliminated Jan. 1999
Czech Republic (Art. XII)	1997	Import deposit scheme introduced Apr. 1997, eliminated Aug. 1997, Art. XII disinvoked
Ecuador	2007, 2010	QRs applied in 2009, gradually replaced by price-based measures 2009; all BOP measures removed Jul. 2010
Egypt	1995(S)	Disinvoked Article XVIII:B as from 30 June 1995
Hungary (Art. XII)	1995, 1996	Import surcharge introduced March 1995, reduced in 1996, eliminated July 1997
India	1995, 1997	Discretionary import licensing
Israel		Disinvoked BOP provisions Sept. 1995
Nigeria	1996, 1997, 1998	Import prohibitions
Pakistan	1997, 2000	QRs invoked 1997; phased out 2002
Philippines	1995(S)	QRs since GATT accession in 1980; eliminated on most agricultural products 1996
Poland (Art. XII)	1995	Import surcharge introduced Dec. 1992, eliminated 1 Jan. 1997
Romania (Art. XII)	1999, 2000	Import surcharge introduced Oct. 1998, eliminated Jan. 2001
Slovak Republic (Art. XII)	1995, 1997, 1999, 2000	Import surcharge introduced 1994, reduced July 1996, eliminated 1 Jan. 1997, reintroduced Aug. 1997, abolished Oct. 1998; import surcharge introduced June 1999 abolished Jan. 2001
South Africa	1995	Import surcharge removed Oct. 1995; disinvoked BOP provisions Oct. 1995 Import licensing; partially liberalized 1996. Art.
Sri Lanka	1995	XVIII:B disinvoked May 1998
Tunisia	1996	QRs on motor vehicles; liberalization completed 2001
Turkey	1995(S)	Import charges pre-dating WTO; eliminated 1 Jan. 1997
Ukraine	2007	15 per cent import surcharge on some products for up to 6 months, introduced Mar. 2009, discontinued Sept. 2009

Source: WTO Analytical Index (3rd edition updated to 30 September 2011), accessed 3-2-2015.

* Under provisions of Article XII, XVIII:B and the "Understanding of the Balance-of-Payments Provisions of the GATT 1994", a Member may apply import restrictions for balance-of-payments reasons.

removed. They can also be punished with the imposition of countervailing duties. These are called ‘actionable’ subsidies and can be used as long as they do not cause ‘injury’ to the importing country’s domestic industry, ‘nullify or impair’ tariff concessions on the products, or ‘seriously prejudice’ other members’ exports of the same product. In all these cases, the aggrieved member can dispute these subsidies at the WTO, and have them revoked.

Moreover, subsidies for R&D, upgrading of disadvantaged regions in the country and for developing environmentally friendly technology can be used more actively. These subsidies were exempted from these rules and considered non-actionable until the end of 1999. Even though they are now ‘actionable’ these subsidies have hardly been disputed, partly because these are subsidies most frequently used by developed countries, who are usually the main challengers to subsidies. Given that there appears to be a general tolerance to such subsidies among WTO members, developing countries should more actively use these subsidies. In fact, other subsidies could also be disguised as R&D or regional development expenditure, allowing countries to buy some more time before the subsidies are detected and / or disputed.

In case a subsidy causes injury, the importing country, apart from disputing it, also has the right to impose countervailing tariffs to offset its effect. These duties can be applied after proving that the subsidy in question is actually responsible for causing injury to the industry. A wrongful imposition of countervailing duties can also be challenged in a dispute. To date, countervailing duties have been largely used by developed countries to target the subsidies of developing countries and protect their own industries.

In spite of the above, there is still room for developing countries to use some subsidies. For example, LDCs and developing countries that are not classified as LDCs⁷⁹ but have a per capita income of less than \$1,000 (listed in Annex VII to the SCM agreement) are permitted to use export subsidies. However, these countries are not exempt from the use of CV duties against them, in case their subsidies cause injury. Moreover, this exemption is available only until the countries graduate from this category, i.e. cease to be LDC or reach per capita income levels of more than \$1,000. There is a further caveat that, in case an LDC or Annex VII developing country achieves export competitiveness⁸⁰ in a product whose export is being subsidised, the export subsidy needs to be phased out within eight

79 The WTO recognizes as least-developed countries (LDCs) those countries which have been designated as such by the United Nations. There are currently 48 least-developed countries on the UN list, 34 of which to date have become WTO members (WTO). The UN list can be found here: http://www.un.org/en/development/desa/policy/cdp/ldc/ldc_list.pdf

80 According to Art.27.6 of the SCM agreement export competitiveness in a product is achieved if a country’s exports of that product reach a share of at least 3.25 per cent of world trade in that product for two consecutive calendar years. LDCs and Annex-VII developing countries should phase out export subsidies on such products within 8 years. Other developing countries are allowed 2 years for the phasing out. The SCM agreement further lays down that export competitiveness for a developing country’s exports can only be determined in two ways: (a) on the basis of a notification by the developing country having reached export competitiveness; or (b) on the basis of a computation undertaken by the Secretariat at the request of any country. This implies that if the member does not tell others that it has reached export competitiveness, the matter can only be brought to light if some other country raises the issue with the WTO secretariat. Even then, it will only be a perception (speculation?) till it is confirmed (or rejected) by the secretariat. This process will also need time. Therefore, in terms of seeking additional policy space, if countries don’t confess, they may be able to get away with their export subsidies even after reaching export competitiveness till they are found out.

Table 5.4 **Countries in Africa according to the SCM agreement**
(excluding North Africa)

Least Developed Countries (LDC)	Annex-VII developing countries	Other developing countries	Countries not bound by SCM	
			WTO Observers	WTO Non-Members
Angola, Benin, Burkina Faso, Burundi, Central African Republic, Chad, Democratic Republic of the Congo, Djibouti, Guinea, Guinea Bissau, Lesotho, Malawi, Madagascar, Mali, Mauritania, Mozambique, Niger, Rwanda, Sierra Leone, Tanzania, The Gambia, Togo, Uganda, Zambia	Cameroon, Congo, Côte d'Ivoire, Ghana, Kenya, Nigeria, Senegal, Zimbabwe	Botswana, Cabo Verde, Mauritius, Namibia, South Africa, Swaziland, Gabon, Seychelles	Comoros, Equatorial Guinea, Ethiopia, Liberia, Sao Tome and Principe, Sudan	Eritrea, Somalia, South Sudan

Source: WTO

years. **Table 5.4** identifies countries Africa (excluding North Africa) that fall in respective categories according to the SCM Agreement.⁸¹

All developing or least developed countries can use actionable subsidies until they cause adverse effects such as injury or serious prejudice. While the threat of a dispute or countervailing duty against such subsidies remains real, the implementation design of these punishments can allow countries to get away with subsidy programmes for at least a few years. To challenge a subsidy in a dispute involves a lengthy process of notifications, consultations, appointment of panels and rulings by the Dispute Settlement Body. Even if the panel rules against the subsidy, the verdict can be appealed against in the Appellate Body. The findings of the Appellate Body are supposed to be binding. But this entire process can take at least 2 years from the time a country decides to challenge the subsidies. Even when the Appellate Body orders the removal of a subsidy, a certain time period is allowed for complete withdrawal. Given that the subsidy will take some time before it actually causes the adverse effect prompting a challenge, the subsidy can remain in force for three or more years at least before being removed.

In the past, some powerful countries such as the US have persisted with their subsidies even after they were declared illegal by the Appellate Body. This can lead to the challenging country seeking authorisation for retaliation against the subsidising country. This retaliation is in the form of market access restrictions in other products or revoking their obligations in

81 Other developing countries were allowed until the end of 2002 to phase out their export subsidies but they can apply for yearly extensions. This programme of extensions has been modified and is now available only to certain developing countries, with a share in world merchandise export trade of less than or equal to 0.1 per cent, and a Gross National Income (GNI) of \$ 20 billion or below (in the year 2000). Furthermore, only export subsidies in the form of full or partial exemptions from import duties and internal taxes, and which were in existence before 1 September 2001 could be provided an extension. This facility will also cease at the end of 2015

other WTO agreements such as GATS or TRIPS. However, this route requires considerable economic and political strength, as it requires warding off pressure from all WTO members. In reality only rich and powerful countries have attempted this route such as the US against EU in the case of aircraft subsidies and against Brazil in the case of certain cotton subsidies.

Exploiting the procedural timeline is also possible in the case of countervailing duties. First, for initiating countervailing action, a country must notify and seek consultations, which may take a few months. Given that injury must exist for a country to raise an issue, a subsidy could be in place for several months before countervailing investigations even begin. But compared to dispute settlement, countervailing duties may be placed sooner as there is allowance for imposing provisional countervailing measures during the course of investigation.

Nevertheless, the key point is that subsidies can be used till they are challenged or countervailed. This challenge may never come, and if it does, it will take at least 2 to 3 years to be effective. During this time, the subsidy can remain in place. It should, therefore, not be a deterrent for countries who wish to use subsidies.

In any case, bringing a trade dispute against another country or imposing countervailing duties is usually more politically driven actions. Stronger industrial lobbies are more able to convince their governments to take action against subsidised imports and even then it is up to the government to eventually fulfil that request. Therefore, not all subsidies are countervailed or challenged. Moreover, effective diplomacy can also ward off threats of a dispute or countervailing duty as countries discuss these matters well before taking any step.

Countries that wish to use countervailing action can exploit the system in an even stronger way. (This applies to the use of antidumping duties as well). Once such duties are imposed, the only way for a country to have them removed is to challenge them in a dispute. The same timeline would then apply as in the case for subsidies. Even if eventually declared illegal, countervailing duties can remain in place for two to three years. If not challenged, they can be used for five years in one stint. Indeed, developed countries have often resorted to this mechanism while protecting their own industries. However, using countervailing duties involves more legal costs and technical difficulties as compared to subsidies or simple tariffs. Developing countries can still use them but they would have to weigh their options accordingly.

(c) Performance requirements

In addition to subsidies and tariffs, development history of today's advanced economies shows the use of specific interventions in the area of foreign investment. Elaborate policies to enforce minimum performance parameters regarding, for example, exports, mandatory use of locally manufactured inputs and local workers, requirements for joint venture and technology transfer were all used in order to maximise the impact of FDI on local productive capabilities (Kumar 2005; Rasiah, 2005).

All developing or least developed countries can use actionable subsidies until they cause adverse effects such as injury or serious prejudice.

The WTO's agreement on Trade Related Investment Measures and specific commitments made in the General Agreement on Trade in Services for commercial presence of foreign enterprises place a bar on countries from interfering with the affairs of foreign investors.

The need for such requirements in recent years has grown rapidly since transnational companies (TNCs) from the advanced countries have begun to take control of international production networks. To engage in these assembly networks by raising domestic content is extremely important for developing countries, as it allows them a chance to manufacture technology-intensive parts and components, which is fundamental for industrial upgrading. In many cases at present, developing countries are involved in 'assembly networks' as assemblers, rather than the producers of 'technology-intensive parts and components. The latter are typically imported. Of course, even learning how to assemble technology-intensive products adds something to the local productive capacity. But that must be distinguished from learning to produce parts and components which is a step higher in building technological capabilities. Prime examples of such networks can be seen in the manufacture of electronics and automobiles (UNCTAD, 2014a; Rasiah, 2003; Kumar, 2005).

The WTO's agreement on TRIMs (Trade Related Investment Measures) and specific commitments made in the GATS (General Agreement on Trade in Services) for commercial presence of foreign enterprises place a bar on countries from interfering with the affairs of foreign investors.

(d) TRIMS

The TRIMs agreement applies to all investment in goods production, and includes prohibition of many regulatory measures concerning FDI, particularly of domestic content requirements, and foreign exchange (or trade) balancing measures. The transition period for all developing countries and LDCs to phase out any such investment policies ended in 2000 and 2002 respectively.

The TRIMs agreement, however, does not limit the use of other regulatory investment measures, such as conditions for maintaining joint ventures with local firms, transfer of technology and limitations on foreign equity ownership. These are important investment measures and can be used by developing countries to create a useful investment strategy.

As in the case of renegotiating tariffs, countries can make use of GATT Article XVIII (the so-called 'Development' provision) and the BoP difficulty provisions to use investment policies in violation of TRIMs. These provisions allow developing countries that are in early stages of development and maintaining low standards of living to promote particular industries by temporarily contravening their WTO commitments. But this course can only be taken after approval from the WTO and involves compensating trading partners that are likely to be affected by the change. Just to be sure, such deviations are supposed to be only temporary and under constant scrutiny of the relevant WTO council.

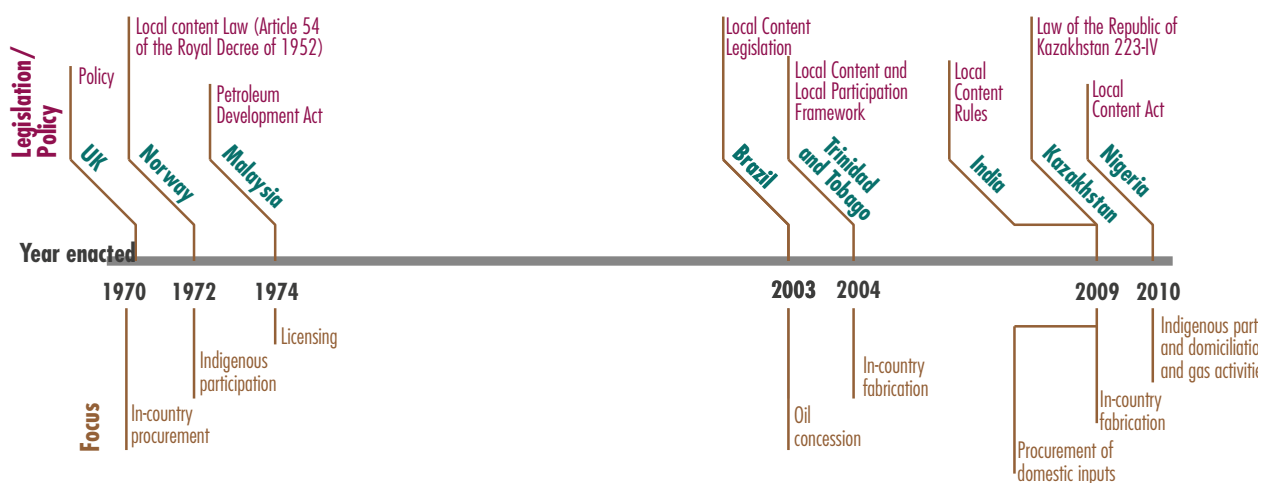
Similarly to most other WTO commitments, making policy interventions in foreign direct investment can only be reprimanded if the affected parties report the offence to the WTO. Reportedly, there are still countries that are using local content requirements in their investment policies but have not been challenged. Non-WTO member countries are in any case exempt from WTO commitments and have been seen to abundantly use various forms of performance requirements including those requiring local content (Gu and Yabuuchi, 2003). According to Ado (2013), advanced countries also use various forms of local content enforcing policies in disguised forms. A list of some local content policies of certain countries in the Oil and Gas sector is given in **figure 5.1**.

Indeed, the Rules of Origin requirements in various Preferential Trading Arrangements (PTA) or bilateral FTAs maintained by developed countries are not even prohibited under the WTO. For example, the Generalised System of Preferences (GSP) of various developed countries and other PTAs such as the African Growth and Opportunities Act (AGOA) of the United States contain lengthy and intricately designed Rules of Origin which are the basis for deciding what products can qualify for preferential treatment and are used as a means of ensuring a certain proportion of local contents of those products.

The AGOA provides duty-free access to textiles and apparel manufactured in Africa (excluding North Africa) and exported to the US. However, the garments must contain raw materials sourced only from the home country, or the US. They are allowed to use yarn and fabric from a ‘third’ country, but such exports are permitted only up to a cap applied to all imports from AGOA countries. Only very few countries can make use of this small window as the cap works on a first-come-first-served basis. Similarly, in the US-Singapore FTA, the US applies a “yarn forward rule” on textile and apparel products. To qualify for immediate duty-free entry into the US, textiles and apparel from Singapore must be made from yarn sourced from Singapore or the US. This means that US yarn has to be used, instead of cheaper yarn and fabric sourced from the Asian region. Such provisions have neither been questioned, nor challenged. Similar requirements have been employed by the US in NAFTA (Takechi and Kiyono, 2003). The EU antidumping legislation also incorporates local content requirements (Bronckers, 1995).

While such provisions are designed by developed countries to ensure their own domestic content, developing countries can do several things to help their own industries. For one, countries could look towards investments in enhancing local production rather than relying on imported inputs for manufacturing the finished garments. Also, if the available tariff advantage is utilised to its fullest, there may be room to create pressure on the benefit-granting countries to enhance the existing caps or remove them altogether. Moreover, the above instances of developed country use of local contents requirements can serve as an example for developing countries to be ingenious in finding ways of putting performance requirements in place.

Figure 5.1 Countries that applied or are still applying the local content policy in their oil and gas sectors



Source: Ado, 2013

(e) GATS

The GATS, so far, applies only to commitments that the countries have undertaken themselves in their respective schedules of commitments. Mode 3 of service delivery under GATS⁸², through the establishment of a commercial presence in a foreign country, mainly pertains to foreign direct investment by a service firm. If countries commit to keeping Mode-3 in a certain sector ‘without limitations’, it implies that there are no restrictions on entry or performance for a foreign investor in that area. Much like the binding of tariffs in industrial products, countries can choose which sectors in services trade to bind by making specific commitments. For instance, in Telecommunication services, countries can bind themselves to allowing at least three foreign suppliers. It may allow more in its applied regime but will be bound to give access to at least three firms. Similarly to tariffs, these bindings cannot be changed except through renegotiation with all other countries holding a substantial interest. Most developing countries have undertaken at least some commitments since the end of the Uruguay Round, but these are far fewer than those on tariffs.

82 GATS recognises 4 modes of service delivery. *Mode-1* pertains to both service provider and consumer being based in their home countries, e.g. provision of services online and through call centres etc. *Mode-2* relates to consumption abroad where the consumer moves to the provider’s country to avail the service, as in the case of Tourism. In *Mode-3* the service provider moves to the consumer’s country by establishing a commercial presence there and relates to any form of FDI. *Mode-4* is a case of temporary movement of natural person’s abroad, where individual professionals (lawyers, auditors, constructions workers, doctors etc.) move to the service consumer’s country to provide the service.

There is, however, a lot of room for pursuing proactive investment policies, particularly in sectors that have been left unbound by countries. Far lesser commitments have been made by developing countries in the area of GATS compared to trade in goods. It is possible to craft entry conditions for foreign enterprises in a way that circumvents restrictions over domestic content requirements. Such conditions can be entered into the GATS schedule under Mode-3. As with goods investment, joint ventures can also be made mandatory and limits on foreign equity ownership assigned wherever necessary. Moreover, there are no compulsions to restrict the local procurement of services as a condition for entry. Such measures are termed as 'limitations' in the GATS schedule. In fact, if countries have not made any specific commitments, leaving the sector completely unbound may also be useful for that allows them to use whichever policy they like in that sector.

While such options remain open as long as developing countries make no commitment of unrestricted market access to foreign investors, the current Doha Round seeks to make developing countries commit to further bindings in GATS. Developing countries are being urged by developed countries, experts, and international institutions to consider services as the new avenue for locating growth potential. It is argued that being relatively richer in labour endowment developing countries could concentrate on liberalising their services regimes, particularly in Mode-3 to bring in the much needed foreign investment, and try to gain more access in Mode-4 to export natural persons for service delivery abroad. As with the case of unilateral liberalisation in tariffs, the influence of international institutions can be felt, as developing countries are increasingly being encouraged to focus their attention on liberalising their services regimes. Such developments are certainly a step towards closing the available policy space.⁸³ African countries would be well advised to not make any binding multilateral commitments with countries outside the continent in the sectors where they seek to impose restrictions as part of their development strategies. At the same time, these countries should seek to strengthen their services sectors as part of their industrial policies.

In the case of both the TRIMS and the GATS, there is considerable space to institute investment policies for industrial expansion. GATS obligations seem to be more pliable than TRIMS ones at the moment. However, if intelligently crafted and employed, policies may not even get challenged under TRIMS. In any event, even if challenged, the usual dispute settlement procedures would apply making the policy applicable at least for a couple of years.

In the case of both the TRIMS and the GATS, there is considerable space to institute investment policies for industrial expansion.

⁸³ While Doha still remains in a deadlock, a separate TISA (Trade in Services Agreement) has been proposed which would operate in the form of a large FTA in Services for participating countries. Participation is not mandatory, and developing countries are shying from any large, formal commitments, but they are being urged to consider this as a boon for their economic prospects. So far, a few developing countries such as Costa Rica, Paraguay, Panama, and Pakistan have been reported to join the TISA negotiations.

(f) Technology Transfer and Intellectual Property Rights

One of the most integral components of industrial development is technological upgrading. Access to innovations in the industrial field is a direct means to climbing up the technological ladder and building the required capabilities. Usually, the more advanced countries are at the forefront in conducting new research and innovation. For developing countries, it is very important to be able to access this new technology and learn to imitate it (with suitable adaptation) for their industrialization.

The TRIPS agreement impinges directly on such transfer of knowledge and technology to developing countries. The agreement provides global protection to innovators of knowledge and lays down minimum standards that developing countries must meet in establishing regimes for protecting intellectual property rights (IPRs). Patents and copyrights are the foremost IPRs in terms of their implications for technology policies. Members of the WTO are bound under TRIPS to protect patents generated in other countries and not to discriminate among IPR holders under the national treatment principle. Patents are protected for 20 years during which the technology cannot be used by anyone else without paying expensive royalties. By the time the patent expires, the gap between the so-called haves and have-nots of technology has widened so much that it becomes even more difficult to catch up. Similar rules apply to copyrights. In some cases, copyrights are required to last for several decades, for instance in the 1993 US copyright law, known as the ‘Mickey Mouse Law’, which gave – retrospectively – 95 years of copyright protection to works of corporate creation. Such protection for IPRs was almost non-existent in most of today’s industrially advanced countries during their developmental years, and their nationals had much easier access to advanced technology (Chang 2001; Bercovitz 1990; Gerster 2001; Kumar 2003).

Nevertheless, certain flexibilities are provided in the agreement which, if developing countries could exploit, would serve them some leverage in technological capability building. This would require appropriate and creative national legislation and negotiation (Rasiah 2005; Shadlen 2005). For instance, after much debate in the WTO, developing countries are allowed to issue compulsory licences for registered patents under justifiable circumstances like public health emergencies. Also, there are ambiguities in the definitions surrounding the concept of ‘invention’, which may make patenting slightly more difficult. This can allow countries to smartly avoid patenting certain technologies and create room for technological invention.

5.1.3. Bilateral and Regional Agreements

Almost all African countries receive preferences from developed countries under various PTAs, and maintain bilateral agreements with some other countries.

A further set of restrictions on policy space falls within the ambit of bilateral and regional trading arrangements. Most of these agreements tend to be more pervasive and restricting in terms of policy space than the multilateral agreements. The WTO recognises two kinds of agreements that are not multilateral – PTAs (Preferential Trade Agreements) and RTAs (Regional Trade Agreements). Almost all African countries receive preferences from developed countries under various PTAs, and maintain bilateral agreements with some other countries.

(a) Preferential Trading Arrangements

PTAs are unilateral and non-reciprocal tariff preferences granted by developed countries to developing countries, i.e. they do not demand similar tariff concessions or market access from the recipient countries⁸⁴. However, as explained below, the non-reciprocity is limited to market access commitments only. The preferences are usually MFN plus, i.e. tariffs applied on eligible products are lesser than the donor country's applied MFN rates. Each developed country maintains its own preferential trading regime and applies its own laws and conditions on it. Examples include the Generalised Scheme of Preferences (GSP) of most developed countries usually applicable to all developing countries, or specific regional initiatives such as the African Growth and Opportunities Act (AGOA), the Andean Trade Preferences Act (ATPA) and the Caribbean Basin Incentive (CBI) of the United States. So far, about 26 PTAs of various types are known to exist (WTO, 2013).⁸⁵

In such agreements, the preference-giving country has complete discretion in setting out eligibility criteria to include or exclude benefit receiving countries and / or products from the tariff preferences. Thus, developed countries, in return for preferential market access, demand both formal and informal commitments on several trade and non-trade issues from developing countries as a condition for qualifying for such preferences. Most of these issues are those that developed countries have been unable to push through for negotiation at the multilateral level because of lack of global consensus, for example, issues such as labour standards and environmental regulations or stricter rules on FDI regulation and government procurement or even a general commitment to free market economy, privatisation, and deregulation.

The United States requires minimum technical standards to be met for qualification as a recipient of its preferences. Apart from a condition that the country in question is not Communist, several activities are forbidden. For example, countries cannot take ownership, in any way, of a company that is owned by a US citizen or firm (or holds at least 50 per cent partnership of US citizens). Countries are further forbidden from nullifying an existing agreement with American firms, violating a patent, trademark or other intellectual property, or even imposing any taxes or operational conditions which may have the effect of expropriation or taking control. Moreover, countries must not “fail[s] to work towards the provision of adequate and effective protection of intellectual property rights”; must sign a treaty regarding the extradition of United States citizens; and must take steps to afford internationally recognized worker rights to its workers (USTR, 2013).

There are additional discretionary criteria, which, if violated, could make the President of the US deny tariff preferences to the country. These include a compulsion to follow the accepted rules of international trade provided for under the WTO, i.e. to refrain from using export subsidies, export performance requirements or local content requirements. Furthermore, countries must take steps to support the US efforts against terrorism and corruption. The AGOA also requires efforts for democratisation as a pre-condition for qualification. Indeed, according to the USTR, Cote d'Ivoire was expelled from the programme after military

84 Although PTAs are deviation from the MFN principle of the WTO, they have been granted legitimacy through the 'Enabling Clause – a waiver granted and made part of the WTO law to allow the existence of such preferential regimes.

85 India, China, Morocco and Kyrgyz Republic are the only non-developed countries that maintain a PTA meant as duty-free treatment for LDCs.

interventions in its government. Therefore, the non-reciprocal preferences are in reality very much reciprocal – only that the reciprocity is not in the form of market access.

Similarly, the EU's 'GSP plus'⁸⁶ requires countries to not only ratify but also to enact enabling legislation for, and implement at least 27 international conventions pertaining to labour, environment and good governance (EU, 2012). These conventions include 16 UN and ILO conventions on human and labour rights, respectively; and 11 conventions pertaining to environment and governance principles. It is not so much the demand for ratification of such conventions that may be difficult for developing countries but requiring the enactment of enabling laws and ensuring effective implementation extends deep into their policy making domains.

WTO disciplines on intellectual property, subsidies and performance requirements although limiting, contain certain exceptions that developing countries could potentially make use of. However, eligibility requirements of the above nature in PTAs are more binding and restricting.

From our earlier discussion, WTO disciplines on intellectual property, subsidies and performance requirements although limiting, contain certain exceptions that developing countries could potentially make use of. However, eligibility requirements of the above nature in PTAs are more binding and restricting. First, there are no exceptions or

flexibilities under PTA obligations. If a clause is violated, the country is at the behest of the US to be thrown out of the preferential programme. Bolivia's trade preferences under the ATPA were suspended in 2008, as it had failed to meet eligibility requirements pertaining to counter-narcotics cooperation (USTR, 2013). Second, as opposed to the WTO where there is recourse to the Dispute Settlement Body in case of a violation, there is no such mechanism here. Donor countries are at liberty to make and use their criteria as they wish. Third, on issues such as labour standards and worker rights, developing countries had been resisting their linkage to international trade to avoid having to make binding commitments in the WTO. These agreements, however, have found an effective way to make developing countries adhere to it.

PTAs, therefore, present a catch 22 situation for developing countries. On the one hand, they are given incentives of enhanced market access to the larger developed countries, with no reciprocal demands for similar treatment. On the other, the concept of non-reciprocity is twisted to extract commitments that not only violate their policy autonomy, but may even hinder development. One option for developing countries could be to opt out of such preferential regimes, but that would depend on how they weigh their short term benefits of market access on products of current interest against the long term shackles they place on their own policy options. So far, no country has made a voluntary request to opt out of a preferential tariff regime. That is not surprising given that, most of the advice they receive for economic policy-making is focussed on gaining market access; and most pressures they face are for liberalising their own regimes and protecting others' intellectual property.

⁸⁶ The EU GSP has two parts. The first where general preferences are granted to eligible countries and the GSP plus where additional preferences, amounting to duty-free access on eligible products is provided.

Other options involve political negotiation and diplomacy, whereby countries continue to make policy interventions for industrialisation but ward off the threat of expulsion from such PTAs. After all, the eligibility criteria are completely discretionary and violations can be overlooked by preference-granting countries, if they so desire. In 2004, Pakistan was granted enhanced GSP benefits for combating drug trafficking (now incorporated into the GSP-plus programme) primarily because it was seen as a frontline state in the war against terror by western powers and the country used this new-found leverage to its negotiating advantage. Of course, the stated reason for the grant of these preferences was Pakistan's efforts against drug trafficking, even if it came only close to fulfilling all the criteria.

(b) Bilateral and Regional Trade Agreements

RTAs are reciprocal agreements where countries accord tariff preferences to each other on a reciprocal basis. RTAs can take the form of Free Trade Agreements (FTA) or Customs Unions (CU). Three categories of FTAs can be differentiated depending on the type of country involved – North-North, North-South and South-South. According to Thrasher and Gallagher (2008) FTAs can be understood in a hierarchical way with reference to policy space. In terms of constraints placed on typical development strategies and tools, North-South agreements involving the United States are the most restricting. Those involving the EU are slightly less restrictive and South-South FTAs are most lenient. Shadlen (2005) makes a similar assessment, arguing that the bargain of enhanced market access in exchange for more constraints on industrial policy becomes more entrenched in the case of bilateral integration. Moreover, the US and EU are most influential in asking countries to form bilateral and regional trade agreements which are most restraining for developing countries compared to WTO agreements.

Countries negotiating bilateral FTAs with the US, Japan or EU is generally found to have less bargaining power than they do in multilateral negotiations. They have weaker negotiating positions due to the lack of negotiation capacity and resources and due to less developed political institutions. Moreover, despite their limitations, WTO agreements have embedded flexibilities for developing countries, which are absent in FTAs. Furthermore, as with the PTAs discussed above, many North-South FTAs include rules on investment, government procurement, competition law, labour standards and environment standards, so have much broader scopes than the WTO does.

At a more specific level, each area of negotiation like goods, services, investment, or intellectual property rights, adds further constraints on developing countries' policy options. In the case of goods, negotiations on tariffs are largely based on applied rates. This reduces tariffs on negotiated products even further than the applied MFN rates.⁸⁷ Even if developing countries raised their MFN tariffs to utilise the water available, the commitments made under the FTA with partner countries remain binding. Renegotiating those commitments with a partner such as the US, for example, would be very difficult particularly without making even further concessions in other areas.

⁸⁷ The term 'MFN tariff' is used in international trade negotiation to refer to normal applied tariffs, as WTO members are supposed to offer MFN tariff to all members. FTA is the only place where countries can offer another country better rate than the MFN tariff under GATT Article XXIV. Countries that are not part of the FTA face the MFN tariffs while FTA partner countries get the reduced tariffs.

Furthermore, US FTAs go beyond GATT and WTO disciplines to restrict countries. For example, while the GATT does not consider duty drawbacks (against imported inputs used for export) as export subsidies, FTAs with the US invariably prohibit duty drawbacks. Moreover, US agreements also permit safeguard measures only for injurious import levels and balance of payments difficulties but safeguard measures may include only suspending concessions or raising duties but not imposing quantitative restrictions – options that are technically exercisable under the WTO with some restraint. Furthermore, for an imposition of safeguards under a US bilateral agreement, developing countries must meet higher legal standards than those required by the WTO such as establishing that a surge in imports is actually a substantial cause of injury to the industry (Thrasher and Gallagher, 2008).

When it comes to IPRs, one of the primary goals of the US in negotiating this section in an FTA is to induce countries to introduce new legislation that would give protection in line with what is available in the US (USTR, 2004). Developing countries that enter into such an FTA with the US would typically accept obligations that go far beyond those required as signatories of TRIPS under WTO. For example, increased patent protection via ‘pipeline’ protection and extended periods of data exclusivity are standard characteristics of such agreements (Shadlen, 2005; Maskus, 1997, 2000; Correa, 2000). Pipeline protection pertains to the granting of patents to products that are not new. For instance, drugs that were not earlier patented in developing countries because of a lack of patent laws would be required, under pipeline protection, to be patented for the duration of the patent in the first country. Extended exclusivity relates to blocking access to the test data of a pharmaceutical company. This denies producers of generic medicines the chance to get regulatory approval without replicating the clinical trials which are extremely expensive and time consuming.

In services and investment, the story is similar for the US FTAs and most EU FTAs as well. US bilateral agreements prohibit the imposition of any performance requirements in connection with the establishment, acquisition, expansion, management, conduct, operation, or sale or other disposition of an investment.

Where a full FTA is not possible, the US has resorted to Trade and Investment Framework Agreements (TIFA). Under these, the US does not offer full tariff liberalisation but puts in place requirements to move towards an FTA. Obligations such as those for IPR protection and phasing out any interventionist policies that might exist in the potential partner country are part of such framework agreements. In the case of the EU, it has negotiated Economic Partnership Agreements (EPA) with groups of African countries. EPAs are also promises for enhanced market access for that particular group of countries in return for similar tariff concessions and other obligations on FDI regulation and labour, human and intellectual property rights.

South-South FTAs are bilateral agreements formed between two or more developing countries. It is argued that these agreements are still very lenient as far as policy space is concerned. For one, they contain only very few commitments outside the lowering of tariffs on goods. Some may include commitments on liberalising services. Therefore, being a member of an FTA with a developing country should not, for instance, forbid it from maintaining export subsidies if it is otherwise allowed under the WTO. Several countries in Africa (excluding North Africa) have formed such partnerships in the form of FTAs or CUs with regional developing countries. African countries' regional agreements, including TISA or other agreements with developed countries are listed in **figure 5.2**.

(c) Economic Partnership Agreements (EPAs)

Economic Partnership Agreements (EPAs) are reciprocal trade agreements between the EU and 79 African, Caribbean and Pacific (ACP) countries. The WTO's insistence on reciprocity and non-discrimination in granting tariff preferences resulted in a set of controversial negotiations between the EU and various groups of countries across the African region over 12 years. Eventually, countries belonging to three African negotiating groups, namely West Africa (ECOWAS), East African Community (EAC), and South African Development Community (SADC), concluded their respective EPAs in 2014⁸⁸. According to Mevel, Valensisi and Karingi (2015), the acceptance of EPAs was accelerated under threat from the EU for the withdrawal of all or part the preferential access to the EU for African countries unless EPA negotiations were concluded. Negotiations with two remaining blocs of Central Africa, and Eastern and Southern Africa (ESA) are still ongoing, although a number of countries in these two groups have signed interim EPAs individually (e.g. Kenya).

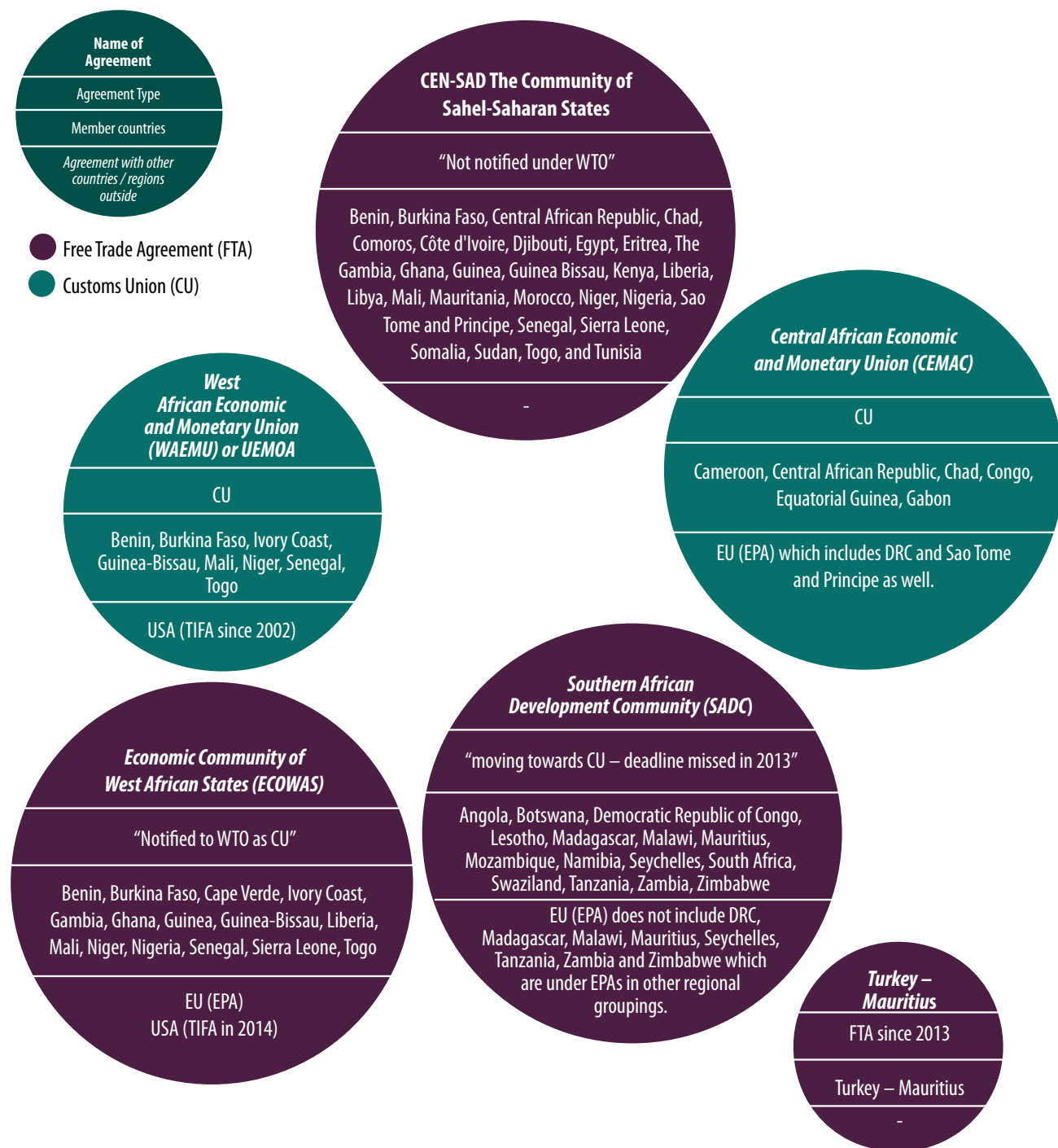
Under the EPAs, the EU is expected to grant market access on a completely duty- and quota-free basis in response to a commitment from its EPA partners to progressively make their markets duty-free for up to 80 % of their imports from the EU.

Most African countries already enjoy preferences on their exports to the EU market under the GSP for non-LDCs and Everything but Arms initiative for LDCs. Therefore, the impact of the EPAs on market access for African countries is expected to be minimal. The greater advantage in the region would most likely go to African non-LDCs, whose existing tariff preferences under GSP could be further enhanced. African LDCs

If EPAs lead to an increase in exports for Africa at all, most of them will be in a few agricultural sectors (rice, sugar, milk, vegetables, fruit, etc.). Even for these, the gains could be overestimated, given the EU's stringent sanitary and phytosanitary requirements. The rise in imports from the EU are also likely to hinder intra-African trade up to \$3 billion, following full implementation of the EPAs

88 Negotiations formally started in 2002 and were initially expected to be concluded in 2008 but only four African countries from ESA (Madagascar, Mauritius, Seychelles and Zimbabwe) complied. In July 2014, ECOWAS heads of state and Mauritania endorsed their EPAs for signature. In Central Africa, only Cameroon ratified the interim EPA in July 2014. Burundi, Kenya, Rwanda, Tanzania and Uganda are negotiating a comprehensive regional EPA for EAC. In July 2014, EPA negotiations concluded in the SADC region with an agreement to replace the interim EPA signed—but never ratified—by Botswana, Lesotho, Mozambique and Swaziland.

Figure 5.2 **Regional Trade and Integration Agreements in Africa**
 (WTO notified in Italics)



Sources: Meyer et. al, 2010 (OECD); World Bank (2009); UNECA, Europa.eu, WTO and other



regional websites

would actually lose out as their existing preferential advantage under the EBA would be eroded and their exports could face a decline in competition with their non-LDC counterparts.

In terms of products, according to ECA's Economic Report on Africa (2015), if EPAs lead to an increase in exports for Africa at all, most of them will be in a few agricultural sectors (rice, sugar, milk, vegetables, fruit, etc.). Even for these, the gains could be overestimated, given the EU's stringent sanitary and phytosanitary requirements. The rise in imports from the EU are also likely to hinder intra-African trade up to \$3 billion, following full implementation of the EPAs (ERA, 2015). The gains for Africa in industrialisation and economic progress as a result of the EPAs are, therefore, expected to be quite insignificant.

The EU, on the other hand, has been facing relatively higher tariffs on its exports to Africa. Thus, its access to Africa's market is likely to be significantly increased as a result of the EPAs. This will also result in considerable loss of tariff revenue for African countries. Fontagné et al. (2011) estimate that even though ACP exports to the EU may be 10% higher with EPA, these countries are forecast to lose 71% of tariff revenues on EU imports⁸⁹.

On top of this, there are likely to be serious implications for Africa's policy space. Firstly, African countries use export taxes (permitted under the GATT) frequently to generate revenue as well as reduce the price of inputs for domestic manufacturing units (Bouët and Laborde, 2010). These taxes are to be restricted and constantly monitored under the EPAs. As a first step, they are required to be frozen at current levels and will be subject to frequent reviews and to be phased out eventually. They may be allowed under specific circumstances, such as protecting infant industries, protecting environment or maintaining currency stability but only for a limited amount of time and on a restricted number of products. These conditions appear no different from the SDT provision for developing countries under the WTO, which are allowed only for a limited amount of time.

Secondly, much like the application of the MFN principle under Bilateral Investment Treaties (explained in section (c) below), an MFN clause has been added to the EPAs.⁹⁰ This means that any tariff concession granted by African countries to a developed or major developing country⁹¹ after signing the EPA must automatically be extended to the EU. This is a far more restrictive understanding of the MFN clause of the WTO, and an imposition on African countries' policy autonomy. For instance, African countries offering preferential treatment to, say, Brazil would be acceptable under WTO law whether as an FTA or a PTA. However, this new MFN clause in the EPA would force African countries to extend the same preferences accorded to Brazil etc. to the EU as well. This will not only obscure any advantage African countries might have sought to gain from their PTA with Brazil (or other developing countries) but also discourage any potential agreements between African and other developing countries.

This MFN clause appears particularly imposing for African policy space in the wake of Africa's engagement in aid projects from China and India. There is generally no conditionality

89 According to ERA (2015), the EU Foreign Affairs Council has committed to provide financial compensation to African countries between 2015 and 2020 to mitigate these losses, but the assistance will not be enough to compensate for EPAs' adverse impacts on intra-African trade.

90 The MFN clause in EPAs, however, is not automatic. A joint EPA committee must assess the preferences in question before making any decision. This is understandable as the EU would want to apply this clause only in case the products or terms of engagement are of their interest.

91 Defined as a country with its trade representing at least 1 per cent of the world trade in the year before signing of the EPA.

attached to aid disbursement between two developing countries, as opposed to aid provided by developed countries, even though they may require access to natural resources in return for investments in heavy infrastructural projects. Though debatable in its own right, these projects provide less restrictive policy options than those with the EU.

(d) Bilateral Investment Treaties

Apart from FTAs that pertain to international trade in general, countries have recently taken a fancy toward concluding BITs (Bilateral Investment Treaties). It is assumed, as in the case of the trading agreements that such treaties will usher in productive investment from developed to developing countries if they are assured that their investments will be adequately protected. However, the objective of concluding BITs for a developed country, particularly the US, is: to protect its investment abroad in countries where investor rights are not already protected; to encourage the adoption of market-oriented domestic policies in partner countries; to increase its own exports to partner countries; and to support the development of international legal standards consistent with these objectives (USTR, 2013). Already a few countries in Africa (excluding North Africa) have BITs with the US and other developed countries. The list is covered in **table 5.5**.

Among others, BITs generally tend to directly affect the ability of developing countries to maintain capital controls. Gallagher (2010) and Anderson (2009) have separately argued that BITs with the US are extremely restrictive in this regard. The language used in such BITs has also entered the chapters on investment in some US bilateral FTAs. Other than the usual rules about national treatment and most-favoured nation status for its investors, the US, in its BITs, strictly forbids the direct or indirect expropriation of the United States investments, without prompt and full compensation. Also, it requires that US nationals and firms be permitted to freely transfer payments in and out of a host country without delay. A typical US BIT also forbids nations from imposing performance requirements such as local content rules, joint venture requirements, R&D requirements, export requirements, rules related to personnel decisions, and so forth. Apart from the local content rules, these requirements are usually permissible under the WTO's TRIMS agreement.

Restrictions on capital controls under the GATS (and IMF regulations), and other investment prohibitions under TRIMS, are much less damaging than those under BITs. Under WTO agreements, violations of rules can only be challenged in a dispute if a member country feels so compelled. Even in FTAs, where investment restrictions in general are stronger than those in the WTO, disputes or alleged violations are a state-state arbitration concern.

Under BITs, however, the investing 'firms' have the right to binding arbitration of disputes related to violations of the agreements. Investors do not have to file claims through governments but can take a claim to an arbitral panel, often the International Centre for the Settlement of Investment Disputes (ICSID) at the World Bank. In the case of US BITs, investors can demand compensation, which must be paid promptly. Argentina, after its crisis in 2001–02, was subject to numerous such investor-state arbitration claims in the hundreds of millions of dollars (Gallagher, 2010).

Table 5.5 **Bilateral Investment Treaties of African Countries with selected other countries**

Partner Country	African Countries Involved	BIT signed but not yet in force OR other type of Investment Agreement signed
USA	Cameroon, Congo, DRC, Mozambique, Rwanda, Senegal,	Ghana – Investment Development Agreement
Canada	Cote d'Ivoire, Mali, Senegal, Nigeria, Cameroon, Tanzania, Benin, South Africa	
EU	Individual European countries have signed bilateral agreements with several African countries. There are 271 BITs in force presently that involve European and African countries (UNCTAD).	
India	Mauritius, Mozambique and Senegal	Djibouti, Ethiopia, Ghana, DRC and Seychelles, Sudan, Zimbabwe
Japan	Mozambique	
High Income Developing countries (including Korea, China, Singapore, Taiwan, Malaysia, Turkey etc.)	83 bilateral agreements with individual African countries are reported with this group.	
Israel	South Africa, DRC, Ethiopia	
China	Benin, Botswana, Cape Verde, Cameroon, Chad, DRC, Congo, Cote d'Ivoire, Djibouti, Equatorial Guinea, Ethiopia, Gabon, Ghana, Guinea, Kenya, Madagascar, Mali, Mauritius, Mozambique, Namibia, Nigeria, Seychelles, Sierra Leone, South Africa, Sudan, Tanzania, Uganda, Zambia, Zimbabwe.	
Russia	Angola, Equatorial Guinea, Namibia, Ethiopia,	
Brazil	0	
African countries (excluding North Africa)	There are 72 BITs between and among African countries (excluding North African countries)	

Sources: Meyer et. al, 2010 (OECD); World Bank (2009); UNECA, Europa.eu, WTO and other regional websites

Note: The BIT list does not include TIFAs signed with the US. TIFAs with an African regional grouping are covered in the Trade list separately. Bilateral TIFAs with individual African countries also exist which are not mentioned in either list above.

According to Hagan (2000), BITs allow only foreign country investors to use investor-state arbitration and not host country investors; which effectively elevates foreign investor rights over domestic investors – a stricter binding than the National Treatment principle of the WTO. Furthermore, the MFN principle under the US BIT operates as an interesting variation of the WTO's MFN principle. If a country has a BIT with the US and it grants any benefit or concession to another country in its investment laws, which is over and above that given to the US under the BIT, that concession must automatically be granted to the US investors. A violation to this effect can lead to investor-state arbitration in ICSID.

Among developed countries, BIT partners for developing countries vary. The US treaties have very few exceptions to the restrictions mostly related to security or taxation. In contrast, the EU, Japan, Canada and increasingly China have numerous BITs which allow certain flexibilities, for example, in the form of a broad “balance-of-payments” temporary safeguards, or a “controlled entry” exception that allows a nation to deploy its domestic laws pertaining to capital controls. The Japan- Korea BIT and ASEAN agreements clearly allow for restrictions on both inflows and outflows of capital in the event of serious balance-of-payments problems, or where movements of capital cause or threaten to cause serious difficulties for macroeconomic management (Salucuse, 2010).

Once countries sign have signed BITs, particularly with the US, there is very little that they can do to escape the binding policy constraints in those agreements. Of course, they could potentially violate their agreement, which would amount to risking investor-state arbitration and other sanctions from the partner country. Another option could be to opt out of the BIT completely or renegotiate its terms if possible. Feeling severely constrained in making effective industrial policy choices, several countries have recently taken the latter option and started to revoke their Bilateral Investment Treaties with developed countries. In some cases, since BITs are enforced for a limited time, countries have not attempted to renew them after their duration lapsed.

South Africa has led the way in this regard, revoking 14 of its 47 BITs recently, attracting much criticism from mainstream analysts and the United States. Investor State Dispute Settlement (ISDS) is felt as a major bone of contention for most countries and recently Bolivia, Ecuador and Venezuela have opted out of this option in some of their BITs. India and Indonesia are also reviewing their BIT regime, with a view to renegotiation or revocation of existing BITs containing ISDS (le Roux, 2015).

For developing countries in Africa that have already signed BITs and feel restricted, this trend bodes well. They can follow the lead of larger developing countries and learn from their efforts in renegotiation of investment agreements. Such steps are bound to attract criticism and repercussions from large developed countries such as the US. Smaller African countries may be able to cushion themselves against the potential backlash, if they politically align themselves with these developing countries.

5.1.4. Concluding remarks

Industrial policy-making in today's multilateral rule setting has become a significant challenge for developing countries. The task has become more onerous for those countries that have bound themselves in bilateral trade or investment agreements with developed countries, in pursuit of greater market access.

However, all is not lost. In many places, the multilateral rules allow significant room for making interventions of choice. The WTO appears most tolerant in the use of tariffs, and developing countries have significant scope in this area. Even with subsidies, smart policies can evade several constraints. Flexibilities are largely available in investment policies. While many policies are allowed under TRIMS, the GATS regime allows even more space. In bilateral or regional agreements with other developing countries, the rules are far less restrictive compared to RTAs or PTAs with developed countries.

The real task, however, is for policy-makers to recognise the existence of this space and make an effort to utilise it. Often, countries have been found adopting a holier-than-thou attitude when it comes to making interventionist policies, either because they are misinformed about the existence of policy space or they are too lazy to undertake proactive industrial projects, or they are far too indoctrinated in neoliberal ideas.

Flexibilities are largely available in investment policies. While many policies are allowed under TRIMS, the GATS regime allows even more space. In bilateral or regional agreements with other developing countries, the rules are far less restrictive compared to RTAs or PTAs with developed countries.

In orienting themselves towards transformative industrial strategies, policy-makers are likely to face several hurdles. Pressures from developed countries and international institutions will have to be resisted, if they decide to move away from free market dictates. Moreover, these countries would have to intelligently balance their needs for enhanced market access, which bring certain short-term benefits, and restrictions on industrial policy choices, which harm their long-term development prospects. They will also have to risk facing legal disputes and punishing tariffs from various countries. In doing so, awareness of rules, procedures and specific timelines will be extremely helpful. Those that are not yet part of the WTO or of bilateral agreements could be forewarned to negotiate more smartly when negotiating their deals. The present report is, therefore, an attempt to provide information on what can be done, provided there is a will to do it.

5.2. THE EXPANSION OF GLOBAL VALUE CHAINS

Since the early 1990s, a globalisation of production has taken place, driven by falling transport costs, advances in information and communication technology and lower trade and investment barriers. From 1990 to 2013, the world's trade dependence ratio⁹² increased from 19.5 per cent to 30 per cent, and world FDI inflows as share of GDP increased from 0.9 per cent to 2.3 per cent (reaching a peak of 4.7 per cent in 2007) (WDI, 2015). This growth in international trade and offshoring is underpinned especially by the fragmentation of production processes and the dispersion of tasks and activities within them. This has led to borderless production systems, popularly referred to as global value chains (GVCs).

The proliferation of GVCs has in large part been driven by transnational corporations (TNCs) purchasing more of their raw materials and intermediate inputs from abroad, either through outsourcing parts of their production to companies in the targeted country, or establishing their own production plant abroad to trade within the confines of their own corporation⁹³. Internationalisation of production of goods and services has taken place in practically all product categories – from apparel, footwear, vegetables, fruits, beverages and flowers to computers, mobile phones, automobiles, aircrafts and professional services.

While global value chains have existed since the 1950s, when countries like South Korea and Taiwan were starting their industrialisation (for example, until the late 1980s, Nike's production was almost entirely outsourced to South Korea and Taiwan), the intensity of production segmentation within value chains has increased massively. Consider the production, assembly and retail of an Apple ipod, as outlined by Milberg and Winkler (2013): The hard drive is made by the Japanese company Toshiba, which offshores its hard drive production to companies in the Philippines and China; the display module is made in Japan, by Toshiba-Matsushita; the multimedia processor chip is made by the US company Broadcom, which offshores most of its production to Taiwan; the central processing unit is produced by the U.S. company PortalPlayer; the

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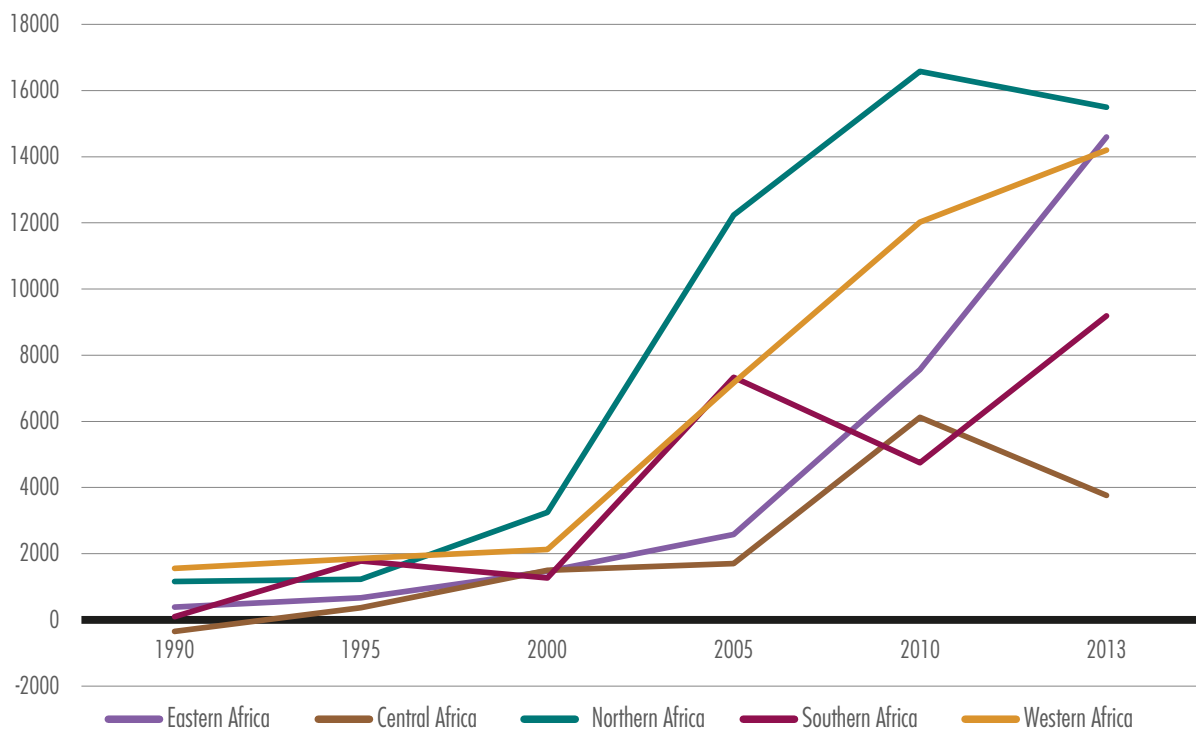
92 This is the average of imports and exports of goods and services.

93 Keep in mind that this doesn't necessarily have to result in an increase in imports for the country that outsources its production, as in some cases, the 'mother firm' thickens links between its subsidiaries abroad.

Taiwanese company Inventec carries out the final insertion, test, and assembly in China; and Apple earns its profit through overseeing distribution and retail.

The search for cost savings, cheap labour as well as market growth has led companies in the West to relocate large parts of their value chains to developing countries. Therefore, FDI inflows and GVC participation have seen the most explosive growth in those countries. From 1990 to 2013, FDI inflows in developing countries increased from \$35 billion to \$778 billion (from 17 per cent to 54 per cent of world FDI inflows). In Africa, FDI inflows have increased roughly 20-fold in the same period, from \$3 billion to \$57 billion (from 1.4 per cent to 4 per cent of world FDI inflows), with all sub-regions experiencing a significant increase, as seen from **figure 5.3**.

Figure 5.3 FDI inflows in Africa, million \$

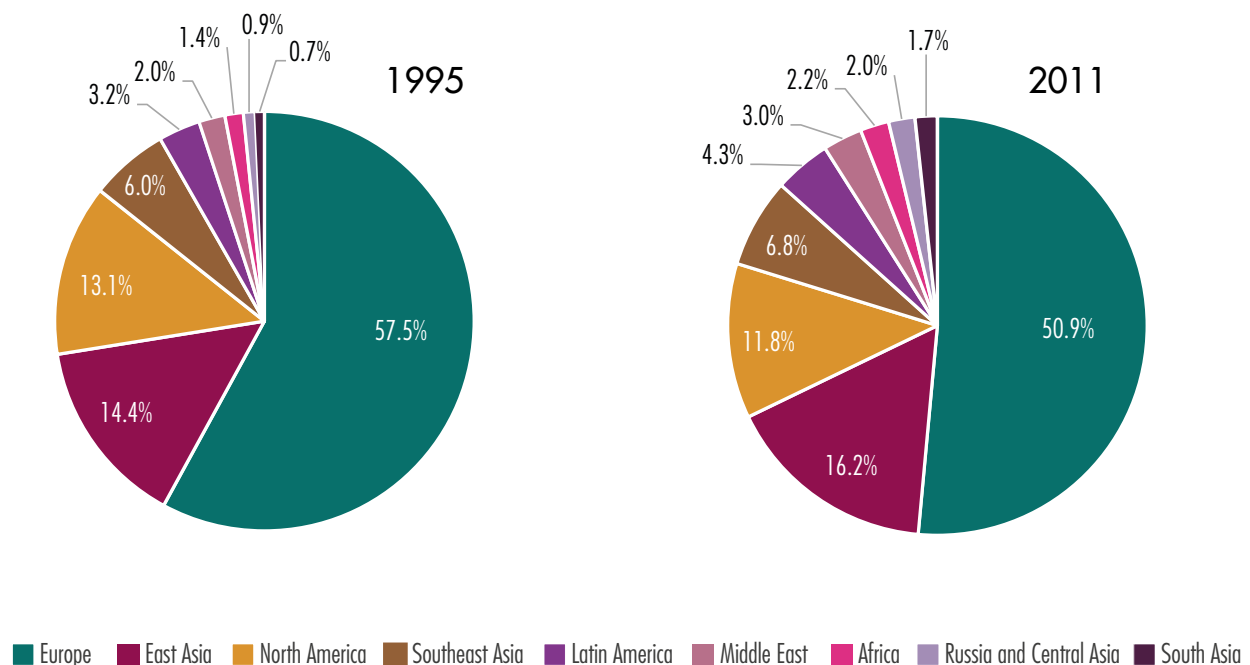


Source: Authors' calculations from UNCTADSTAT 2015

The participation in GVCs is commonly measured by 'trade in value-added' (TVA). It takes into account both the share of foreign value added in a country's exports – called backward integration – and the share of a country's value added in other countries' exports – called forward integration. The developing-country share of global TVA has increased from 22 per cent in 1990 to 42 per cent in 2010 (UNCTAD, 2013). As can be seen from **figure 5.4**, Africa's share of this trade has increased from 1.4 per cent in 1995 to 2.2 per cent in 2011⁹⁴.

94 This does not mean that global value chains are unimportant in Africa. It is rather an indication of Africa's share of world trade, which was only 3.3 per cent in 2013.

Figure 5.4 Share of global trade in value added



Source: AfDB-OECD-UNDP (2014)

This 80 per cent increase is the highest growth of global value chain integration of all world regions, after South Asia.

Although African countries export some manufacturing intermediates (which involve backward integration) to the rest of the world,⁹⁵ Africa's participation in GVCs remains at lower rungs – a high degree of forward integration driven by exports of primary commodities. However, this is not a new development that GVCs have brought about. Natural resources and unprocessed agricultural products have always dominated Africa's exports. What is new is that TNCs are increasingly coming to invest in Africa.

This section will address both the positive and the negative effects that the expansion of global value chains has on the productive structures of developing countries, with a particular focus on Africa, and the implications for industrial policy. We will argue that, while the GVCs have altered the way things are produced and thus the way industrial policy can be conducted, many 'old-style' industrial policy measures are still valid. The challenge for industrial policy-makers is to find a way to work with TNCs more closely while making it sure that they do not erode the possibilities of nurturing domestic productive capabilities.

95 These are mostly resource-based manufacturing goods, such as metals, chemicals, plastics and fuels.

5.2.1. Upsides of GVCs

Developing countries' participation in GVCs involves net inflows of FDI. Because most developing countries have small stocks of savings (especially least developed countries in Africa), attracting FDI is an important tool to raise investment rates.

(a) Theoretical arguments

Developing countries' participation in GVCs involves net inflows of FDI. Because most developing countries have small stocks of savings (especially least developed countries in Africa), attracting FDI is an important tool to raise investment rates. Attracting FDI can also result in technological upgrading, as TNCs generally bring with them superior technology (machines, production methods and marketing and management practices) that can 'spill over' to domestic firms (Farole and Winkler, 2014; UNCTAD, 2007; Lall, 2000). This can happen through many channels: increased competition; imitation by domestic firms ('demonstration effect'); backward and forward linkage effects; heavier export exposure, which in turn entails exposure to the

technological frontier; joint ventures and technology transfer deals, often mediated, or even imposed, by the 'host' government; and movement of workers and managers from foreign firms to domestic firms.

Second, the expansion of global value chains means that production has become increasingly segmented. In theory, this should make it relatively easier for developing countries to specialise in particular links in a GVC, developing advantages in a range of small, narrowly defined items, without having all the upstream capabilities in place (Bigsten and Söderbom, 2009; Gereffi and Lee, 2012). For example, you don't need to have an auto assembly plant in order to enter the auto industry – you can become a specialised supplier of certain parts and components.

Third, given that most developing countries' participation in the global economy nowadays happens through participation in GVCs, GVCs become the main channel through which these countries attain gains from trade openness. For example, there is rich evidence that countries that have higher export volumes generally grow faster than countries that export less (Frankel and Romer, 1999; Sachs and Warner, 1995). Furthermore, the expansion of markets arising from trade may enable firms to take advantage of economies of scale that cannot be achieved when sales are limited to the domestic market (OECD, 2013 b). This partly explains why firms that engage in international activities show significantly higher productivity levels, compared to those that do not (UNCTAD, 2013).

Fourth, lead firms in GVCs often specify the exact characteristics of what their suppliers should produce and how they should produce it. With growing product differentiation and increased consumer awareness of social and environmental concerns, quality standards set by lead firms for their suppliers are a key mechanism by which they govern value chains (Gereffi et al., 2011, Gereffi and Lee, 2012). These standards can induce firms to improve the quality of their products and upgrade production management, as proven by some smallholders who are successfully entering niche markets for organic products (Humphrey, 2008).

(b) Learning from GVC success: the cases of Singapore and China

Singapore is a good example of how to successfully attract FDI and integrate into global production networks. Between 1971 and 1995, FDI net inflows as share of gross fixed capital formation in Singapore was 22.9 per cent, the highest in the world in this period (Chang, 2006 a). Between 1980 and 1990, Singapore received more FDI in absolute terms than any other developing country (Huff, 1995). This is astonishing considering that it only had a population of no more than 3 million people in 1990. On a per capita basis, using 1990 population, the figures were \$767 for Singapore compared to \$1.50 for China, the latter of which was the fourth largest LDC recipient of FDI at the time (Huff, 1995).

Given the lack of entrepreneurial talent and technological knowhow in Singapore, attracting TNCs from abroad provided a perfect strategy to acquire state of the art technology and access to global networks. Policies for attracting FDI included liberal entry and ownership conditions, a range of custom designed financial incentives and efficient and transparent administration (Lall, 2000). In parallel with these policies, heavy investments were made in infrastructure and education oriented towards industries that they sought to promote and attract TNCs into. Singapore remains of the most internationally integrated economies – after Luxembourg, it has the highest GVC participation in the world (OECD, 2013b).

China is another good example of how to utilise GVCs for economic growth and development. It is arguably more relevant than Singapore, as it grew rapidly during a period in which the segmentation of international production networks really started to intensify. It has become a significant global player in almost all manufacturing product categories, from textiles, garments and toys to cars, ships and electronics.

China has increasingly directed its production heavily towards the international market – by 2000, the country's manufactured exports had expanded 26 times the value recorded in 1981 (Memedovic, 2004). This tremendous growth has benefitted especially from Export Processing Zones (EPZs). These are zones that give favourable treatment to the entry of foreign firms and are specifically geared towards processing intermediate goods for the purpose of exporting final goods. Between 2000 and 2008, China accounted for 67 per cent of the world's processing exports (Gereffi and Lee, 2012). The share of foreign-invested enterprises in processing trade rose rapidly during the expansion of China's processing trade: from 39 per cent in 1992 to nearly 70 per cent at the end of 1990s and to 85 per cent in 2008 (OECD, 2013 b). Chinese exports are also starting to add more domestic content, no longer simply involving the assembly of imported inputs. Domestic value added in China's total exported value rose from 49 per cent in 2000 (Kee and Tang, 2013) to 66.2 per cent in 2011 (OECD, 2013). This means that Chinese firms in EPZs are increasingly moving simple contract assembly to 'full-package' manufacturing, with Chinese firms controlling all stages from material procurement to product design.

In most African countries, however, firms are still struggling to gain access to GVCs beyond natural resources and unprocessed agricultural exports. Whereas GVCs have benefitted a number of countries in East Asia, the same gains haven't really materialised in Africa. The next section will look at the challenges posed by GVCs.

Whereas GVCs have benefitted a number of countries in East Asia, the same gains haven't really materialised in Africa.

5.2.2. Downsides of GVCs

(a) TNCs are expanding and consolidating their power

The global expansion of TNCs has been nothing short of immense. From 1990 to 2013, total assets of foreign affiliates increased from \$4 trillion to \$97 trillion (from 18 per cent to 127 per cent of world GDP), and employment by foreign affiliates increased from 21 million workers to 71 million workers (UNCTAD, 2014 b). In 2010, The Guardian calculated that Wal-Mart (the world's largest retail company) ranked as China's seventh largest trading partner, ahead of the United Kingdom).

The power of TNCs has also been consolidated significantly. Since the early the 2000s, practically every global industry has had only a handful of firms accounting for 50 per cent or more of the industry's global market share (Nolan, 2007). The immense rise in revenue and size of TNCs has almost entirely taken place among companies in the West (most significantly in the United States), even though companies from some developing countries, such as Brazil and China, have advanced in international ranking. Of the top 100 companies in the world, as ranked in the Financial Times 500 for 2014, only eight are from developing countries - six from China, one from Brazil and one from Russia. Of these eight, only one is outside the oil or banking sectors – the Brazilian beverage company Ambev.

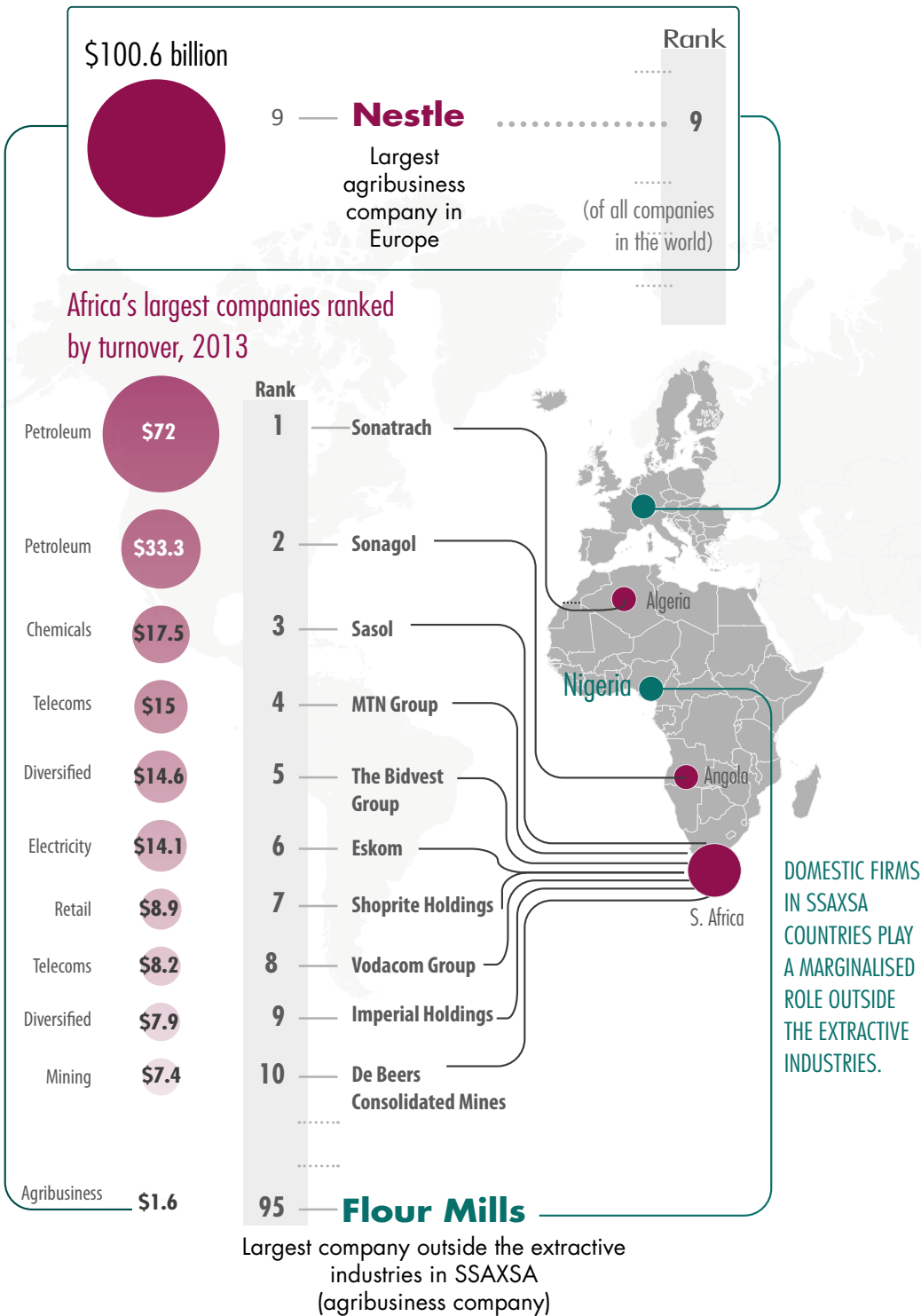
Figure 5.5 shows us the largest companies in Africa. In the SSAXSA region (Africa excluding South Africa and North Africa),⁹⁶ Flour Mills of Nigeria, an agribusiness company, is the largest outside the extractive industries. The fact that it ranks as low as 95 illustrates the marginalised role that domestic firms in SSAXSA countries play outside the extractive industries. By contrast, the largest agribusiness company in Europe, Nestle, ranked 9 of all companies in the world in the same year, with an estimated turnover of \$100.6 billion, 63 times larger than Flour Mills of Nigeria.

The structure of global production networks differs between sectors, but some useful general distinctions can be made. The early seminal contributions to GVC research are motivated by the observation of the growing importance of global buyers (most often based in the West) as key drivers and dictators in the formation of internationally dispersed production and trade networks (Gereffi, 1994). Product specifications are usually designed by the buyers and branded companies, and then production is carried out in independent factories located in developing countries. This type of GVC is referred to as a Buyer-Driven Value Chain (BDVC) and has become dominant in labour-intensive consumer goods industries, such as garments, footwear, toys, consumer electronics and furniture. Large retailers and brand name merchandisers, such as Wal-Mart, Tesco, Nike and Reebok are examples of lead firms.

On the other hand, Producer-Driven Value Chains (PDVCs) typify industries in which large industrial enterprises play a central role in controlling the production system. PDVCs are most characteristic of capital- and technology-intensive industries, like automobiles, aircraft, and electrical machinery. International subcontracting is common, especially for the most labour-intensive production processes.

⁹⁶ The SSAXSA region is made up of 47 countries and often considered to most accurately represent Africa in an aggregate manner, at least when talking about the continent from an economic point of view.

Figure 5.5 Africa's largest companies ranked by turnover, 2013



Source: Authors' calculations from the Africa Report (<http://www.theafricareport.com/top-500-companies-in-africa-2013.html>)

However, the distinction between BDVCs and PDVCs is not useful in all contexts. In the apparel industry, GAP is a good example of a typical lead firm in a BDVC, without its own manufacturing facilities, but Levi-Strauss governs a vertically integrated chain (see Kaplinsky and Morris, 2001) more in line with the PDVC structure. The food industry value chain is typically classified as a BDVC, but in Africa, big companies, such as Nestle, are setting up their own production facilities, so it is increasingly acquiring the characteristics of a PDVC.

Although the GVCs that operate in Africa fit into many different typologies, the common feature, as indicated earlier, is that large TNCs with home bases outside the continent are gaining increasing shares of the African market, especially in food and retail.

Although the GVCs that operate in Africa fit into many different typologies, the common feature, as indicated earlier, is that large TNCs with home bases outside the continent are gaining increasing shares of the African market, especially in food and retail. A most recent case in point is the stakes bought by Danone (the world's biggest yoghurt company) in Africa's major dairy companies. In 2014 it bought a 40 per cent stake of Brookside Dairy Limited, East Africa's largest milk company, giving Danone access to over 140,000 milk farms across the East African region. Beyond this acquisition, the company has also set plans to raise its stake in the Moroccan dairy company Centrale Laitiere to more than 90 per cent. Centrale Laitiere holds a 60 per cent share of the Moroccan dairy market (ECA, 2015).

According to ECA (2015), “transnational foreign-owned firms in the longer run are not far from taking full control of almost all profit-making opportunities at the expense of the ... weak African smallholder agriculture, totally crowding out along the way the emergence of indigenous-owned food giants or branded agribusiness...there is urgent need to see African governments intervene to prevent emerging success stories of the indigenous food sector be financially cannibalised and owned across Africa by the most financially endowed firms in the food and retail industry” (ECA, 2015, p. 108-109).

(b) TNCs are appropriating increasing shares of profits

The problem with the expansion and consolidation of the most powerful global companies is that it allows a small number of actors to appropriate increasing shares of profits – accruing from technological dominance (fortified by strong protection of intellectual property rights), brand name recognition, and privileged access to low-cost capital – over a larger market.

Unsurprisingly, the last decades of increased offshoring have coincided with increased corporate profits as share of national income in almost all major industrialised countries. Milberg and Winkler (2013) found that US corporate profits as percentage of gross value added increased from 25 per cent to 65 per cent from 1970 to 2010, while at the same time, US goods imports from low- and middle-income countries as a percentage of total goods imports increased from 10 per cent to over 50 per cent. TNCs based in the West are basically

growing their profit shares from intangible activities that are increasingly knowledge- and skill-based. The knowledge they incorporate is tacit in nature, and acts as natural barriers to entry. They offshore parts of the results of their innovations (that is, use them to produce things abroad) but not the innovative capabilities, locating almost all their technology-creating activities in their home countries. Relatively little R&D, other than lower-level support laboratories, has been relocated to developing countries (Dicken, 2011). This trend was actually observed as early as 1966 by Raymond Vernon. In his product life-cycle theory, he argued that products have a cycle of globalisation, with (mass) production eventually being offshored to poorer countries, with the richer countries retaining much of the profits (Vernon, 1966).

The companies that possess capabilities in the tangible realm, which have low barriers to entry, like primary commodity production and labour-intensive manufacturing, are losing out.

For example, in the coffee industry, producing countries (growers and exporters) appropriated half of the total income of the final retail price of processed coffee (roasted and ground) until the mid-1980s. When the farm-gate prices of coffee crashed in the early 1990s, retail prices of processed coffee stayed the same, shrinking the income share of producing countries. This change was driven by increased market power of the largest coffee TNCs, who controlled marketing and distribution links. Today, 90 per cent of the total income from coffee, calculated as the average retail price of a pound of processed coffee, goes to the countries where the TNCs have their home base (ECA, 2013).

We are seeing a similar trend in low-technology manufacturing industries, such as the textile, garment and footwear, as competition among developing countries is growing. With greater participation of China and other Southeast Asian countries in the global economy, the developing country share of low technology manufacturing exports has almost tripled since 1980 and the global pool of unskilled labour has doubled since 1990 (Kaplinsky and Morris, 2001; Kaplinsky 2005, 2013). Therefore, after sustained growth in the prices of globally traded manufactures until the early 1980s, we have witnessed an aggregate relative decline in these prices, most significantly for those exported by developing countries (Kaplinsky, 2005). Milberg and Winkler (2013) confirm this trend: they find that clothing, footwear, textiles, furniture and toys all experienced import price declines (relative to U.S. consumer prices) over two decades of more than 1 per cent per year on average, or 40 per cent in the period from 1986 to 2006. The global competition in low-technology manufacturing is only likely to solidify, with what seems like an endless supply of cheap labour in Asia and especially Africa in the years to come.

Therefore, TNCs from high-income countries are likely to continue to enjoy a 'race to the bottom' among developing countries – declining global wages as a consequence of abundant supply of unskilled labour in those countries. At the same time, developing countries are likely to suffer from a 'fallacy of composition' – many of them entering the production of low-technology manufacturing goods in the belief that it will significantly boost their export earnings, only to find out that the earnings are nowhere as high as expected, as the prices of those goods have fallen exactly because so many countries have started to producing them.

(c) Failing to enter, getting locked in or getting tossed from a GVC

As mentioned, lead firms in GVCs set stringent quality standards to be met by their suppliers. In some instances, these standards induce greater productivity, but because they are set at such high levels, many firms in developing countries struggle to enter GVCs, not to speak of establishing and managing their own value chains. In the food industry, for example, to ensure food safety and quality, large supermarkets work with a small group of preferred, generally large-scale suppliers that are capable of meeting stringent requirements. This marginalises small farms unable to comply because of high costs and lack of required skills (Gereffi and Lee, 2012; Dolan and Humphrey, 2004). In the horticultural industry, it is also becoming increasingly difficult to meet private quality standards. To upgrade in the chain (e.g. from production to packaging), suppliers must invest in new technologies to understand hygiene standards in pack-house operations, set up on-site laboratories for product and staff health tests, and have access to a local packaging industry that can supply appropriate containers. Few developing country firms have the money or the capability to make such investments.

In certain cases, suppliers may even find themselves locked into certain activities within value chains. This most commonly occurs when firms try to functionally upgrade, meaning that they acquire new functions in the chain, such as moving from production to marketing or design. But if suppliers start engaging in activities that are conducted by the lead firms, power relations may limit knowledge flows within the chain. This is illustrated well by the experience of the Sinos Valley shoe cluster in Brazil (see ECA, 2013). In the 1960s, new buyers from the U.S. started targeting suppliers in the cluster that could deliver larger volumes of standardised products. The larger firms were able to meet the new requirements, experiencing increases in product quality in the process. The early 1990s saw the rise of rival Chinese producers and downward pressure on prices. Given years of experience in the global footwear industry, it was timely for the Sinos Valley cluster to move further up the value chain to marketing and design, where rents were better protected. This did not happen however, as 1) large producers in the cluster were reluctant to move to areas of design and marketing for fear of retaliation from the cluster's main buyers, which represented nearly 40 per cent of the total cluster exports and 2) US buyers did not diffuse their capabilities in design and marketing. The cluster simply got stuck with selling shoes to the Americans at declining prices.

The low entry barriers and intense competition in the production of low-technology manufactured goods, as discussed in the previous section, also enable TNCs to 'toss' suppliers out of their value chains. Lead firms can simply relocate supplier activities in their chains if labour costs get too high. Kaplinsky and Morris (2001) provide the case of a firm making denim jeans in an export-processing zone in the Dominican Republic during the early 1990s. It specialised in sewing denim jeans, using materials imported from the US, designed in the U.S. and cut in the U.S., selling them under the brand of a major international company. The local firm began by getting \$2.18 per jean. But as neighbouring countries devalued their currencies, thereby reducing their labour costs in terms of US dollars, the firm in the Dominican Republic was forced to reduce its charge-rate. However, even this was not enough and the work was eventually sourced elsewhere.

(d) FDI does not automatically bring about economic benefits

As previously discussed, FDI can have benign effects on the host economy, as seen with the case of Singapore and China. But attracting FDI can in some cases be harmful. Some of these have already been discussed: FDI can easily ‘jump’ from country to country at the peril of poor countries’ industries and the fact that TNCs are generally careful to protect their real innovative capabilities can make domestic firms stuck at the lower end of a value chain.

Additionally, attracting FDI can result in a decrease in a country’s net foreign exchange earnings (although one would generally assume that the opposite would happen). TNCs usually import many of their inputs from abroad. In some cases, their import bills may be higher than their export earnings, resulting in a fall in the country’s net foreign exchange earnings. This is why some countries, notably India, used to have ‘foreign exchange balancing requirement’ for TNC subsidiaries (that is, they had to export at least as much as they import), although this regulation has been illegalised by the TRIMs agreement of the WTO (Kumar, 2005).

Most crucially, the extent to which FDI brings about positive or negative effects on the domestic economy depends on how the government handles it. Completely restricting FDI is ill advised, but so is an ‘open door’ policy that leaves matters entirely to the free market. And in between these two extremes, there are many different ways of managing FDI.

South Korea heavily restricted FDI, relying primarily on capital goods imports, licensing, and other technology transfer agreements to acquire technology (Chang, 1997). It only permitted FDI as a last resort of obtaining technology or gaining access to world markets. Even in joint ventures with foreigners, the South Korean government encouraged majority-Korean ownership or at least 50-50 joint ventures (Lall, 2000; Westphal, 1990). In Taiwan, FDI has played a more important role than in South Korea, but there were still plenty of regulations (Chang, 1997). In the 1960s, the attitude towards FDI was relatively liberal but became more selective in the 1970s. All foreign investment proposals were evaluated in terms of how much they would encourage new exports, transfer technology, and intensify input-output links. A concerted effort was made to ‘marry’ export-oriented foreign affiliates and domestic suppliers in order to replace imports, insofar as it did not damage the exporting firm’s international competitiveness. Policies included export requirements, local content requirements, and/or joint venture requirements (Wade, 1990, 2011).

As mentioned above, Singapore and China have successfully utilised FDI and GVCs for economic development. But, their policies towards GVCs were always parts of a strategy to develop national productive capabilities, most importantly (but not exclusively) through industrial policy.

In China, a range of government policies has been used to support targeted industries – most importantly subsidised loans from state owned banks and the protection from foreign competition through tariffs and local content requirements for the foreign affiliates. In addition, the state has mediated consolidation of smaller firms to create large companies in an attempt to compete with the big global businesses. In the electronics industry, examples of these are the China Electronics Corporation

and the SVA group (Chang et al., 2013). Additionally, TNCs have been made to form joint ventures with Chinese companies, mostly SOEs or companies associated with the government, so that the state can retain effective control of foreign affiliates (Roehrig, 1994).

The Singaporean government used different policies. First of all, to raise its low domestic investment rate, it introduced forced saving schemes, imposing mandatory savings contributions by employers and workers. As a result, Singapore had the highest domestic savings rate in the world in the 1980s and 1990s (Huff, 1999). Second, the labour market in Singapore has been highly regulated. To be able to compete with other newly industrialising economies in Asia, wages in labour-intensive manufacturing were repressed between 1972 and 1979. Third, in sectors assessed to be critical for economic prosperity, Singapore has been reluctant to invite TNCs, opting instead to set up SOEs. Singapore's SOEs produce 22 per cent of GDP and include world famous Singapore Airlines and companies in the shipbuilding and telecommunications industries (Chang et al., 2013).

5.2.3. Implications for industrial policies

In addition to asking how to formulate industrial policy in the current era of globalised production, one must more importantly ask: has the industrial policy challenge for African countries fundamentally changed since the 1990s in light of the proliferation of GVCs? Do lessons from success stories like Korea and Taiwan – who started their industrialisation before the dramatic expansion of GVC – hold less validity as a result of it?

We should keep in mind that, although GVCs have strongly proliferated since the 1990s, countries like South Korea and Taiwan did not develop in a world devoid of GVCs. As mentioned in the introduction, Nike – one of today's largest brand names in the global footwear industry (and sporting outfits and accessories industry) – outsourced almost all its shoe production to South Korea and Taiwan from the late 1970s to the late 1980s. Even before that, in the late 1950s, Taiwan started carrying out massive assembly operations for Japanese companies on electronic consumer goods, including televisions, refrigerators, air conditioners, automobiles, diesel engines, and several other items (Wade, 1990). Almost all of the components were shipped in from Japan, before the Taiwanese eventually imposed local content requirements. So people who say that lessons from these countries hold little validity today because production was not globalised, have clearly missed out on key historical facts.⁹⁷

In the African context, AfDB-OECD-UNDP (2014) emphasises 5 key considerations that must guide policy measures in the era of GVCs: 1) Policies must be value-chain-specific and provide the best environment for developing/integrating into the identified value chain with the most potential. 2) Making the most of value chains implies trade-offs, as prioritising one sector over another creates winners and losers. 3) Entrepreneurship and

⁹⁷ Of course, what is special about countries like Taiwan and especially Korea is that they were not satisfied with being parts of GVCs controlled by foreigners and tried to set up their own GVCs from relatively early on. For example, when South Korea's Hyundai decided to produce its own model, Pony, in 1975, it sourced resources from all over the world. The Italian company Italdesign carried out the design; Japan provided the transmission, engine (both from Mitsubishi) and car body moulding (Ogihara Mould Company); and funds came from Barclays Bank in the UK (Steers, 1998).

collaboration between the public and private sector is crucial, and requires strong business associations. 4) The power and ownership of a GVC can determine which pathways to productivity growth are open and which are not. For example, upgrading to higher-value processing activities may not be feasible in certain GVCs due to the tight control of processing activities that is retained by large manufacturers, such as in the global coffee or cocoa industry. 5) Low-road strategies in GVCs risk a ‘race to the bottom’. Therefore, when African countries attract foreign firms in order to integrate themselves into GVCs, they must also focus on creating skills and domestic productive capabilities for upgrading within GVCs.

...when African countries attract foreign firms in order to integrate themselves into GVCs, they must also focus on creating skills and domestic productive capabilities for upgrading within GVCs

These considerations are supremely important, but most of them were arguably equally relevant 50 years ago, and thereby do not point out if or how industrial policy needs to adjust to the new era of globalisation. Point 4 is an exception in this regard. As we have seen, the proliferation of GVCs has entailed a rise in global power of the largest TNCs, which have restricted options open to developing countries in terms of creating their own GVCs – for example, the creation of its own automobile or electronics GVCs by Korea.

Milberg et al. (2014) more explicitly discuss how industrial policy must be changed in an era of GVC expansion. They make three major points. First, industrial policy must shift its focus from developing ‘industry’, where ‘industry’ can be understood as the fully integrated production structure, to various ways of upgrading in GVCs (finding niche activities/stages/tasks). “Now the issue facing firms and governments is less than that of finding new, more capital-intensive goods to sell to consumers in foreign countries. Instead it requires moving up through the chain of production of a particular commodity or set of commodities into higher value added activities” (Milberg et al. 2014, p. 171). Second, industrial policy must increasingly be more wary of the harms of import protection for intermediate goods, as competitive success under GVCs requires cheap and easy access to such goods. Third, more now than before, the capture of value within GVCs depends on the constellation and power among lead firms. Industrial policy must look at lead firms and their corporate strategies, focusing on connecting and bargaining with them.

As for the first point, specialising in particular segments of a value chain (and importing inputs), rather than hosting a fully integrated chain, can indeed bring about economic benefits. As discussed in chapter 4 (China and Malaysia) and earlier in this section (South Korea, Taiwan, Singapore, and China), many East Asian countries have achieved some success from labour-intensive assembly manufacturing. Taking advantage of its large pool of low-wage English-speaking workforce, India has also reaped benefits from specialising in particular segments of global service industries (e.g. call centres for IT companies or banks, back offices of airlines).

However, the benefits from specialising in these labour-intensive segments of GVCs are limited. As Milberg et. al. (2014) also emphasise, call-centres and other service activities that India has come to specialise are low-skill-based and haven’t brought about much

technological upgrading. Assembly manufacturing brought about large benefits in countries like South Korea, Taiwan, and Singapore only because they used it as a basis for building higher-level productive capabilities, including especially nationally-controlled GVCs (e.g. electronics in South Korea or Taiwan) and at that as a part of ambitious industrial policy strategies. Malaysia is said to be in a ‘middle-income trap’ because it has not been able to use its GVC participation for productive-capability upgrading as much as Korea, Taiwan, or Singapore have done (Cherif and Hasanov, 2015). China is still struggling to achieve high domestic content in high-technology manufacturing, even though it is close to acquiring control over full-fledged GVCs in textiles, apparel, and consumer electronics.

Moreover, it should be borne in mind that, left alone, specialisation in lower-end segments of GVCs creates limited linkages to the domestic economy, limiting their impacts on economic development (see, for example, Hirschman, 1958). We have discussed above the case of the Dominican sewing industry, but the most prominent example of it is assembly manufacturing in Mexico in the post-NAFTA period. The country opened up massively to foreign investors and became one of the world’s leaders in assembly manufacturing, but largely failed to create linkages to the wider economy, resulting in what Gallagher and Zarsky (2007) has termed “The Enclave Economy”.

This brings us to Milberg et al. (2014)’s second point about the importance of having cheap and easy access to imports of intermediate goods. Firms that produce for the world market need to have access to imported intermediate goods, if they are to produce goods that meet international quality standards. Especially when those firms operate as parts of GVCs controlled by TNCs, easy access to imported intermediate inputs become even more important, as the lead firms in GVCs are likely to demand even higher quality standards. Indeed, even countries like Japan, South Korea and Taiwan, which used import protection extensively, were relatively liberal with imports of intermediate goods, whether they were used by foreign affiliates or by domestic firms exporting.

Of course, being too liberal with imports of intermediate inputs (which a country too intent on industrialising through joining GVCs are prone to be) can have severe negative long-term consequences for the development domestic productive capabilities. In Latin America, increasing trade liberalisation over the 1990s resulted in the growth of foreign firms’ share of input sales to the manufacturing industry relative to domestic ones, preventing the emergence of domestic producers of those inputs and even destroyed the existing linkages to domestic producers. A careful balance need to be struck between the short-run need to use intermediate inputs of highest quality, which are necessary for exporting, and the long-run need to develop national capabilities in the production of those inputs, which are essential for creating a solid basis for economic development.⁹⁸

The third point made by Milberg et al. (2014) is perhaps the most valid one – and is similar to point 4 made by AfDB-OECD-UNDP (2014). The expansion of GVCs has made it more important to establish connections and bargaining with TNCs, especially for Africa, where

98 From this point of view, Ethiopia – arguably the most successful African country in nascent stages of industrial transformation – is going in the right direction when it declares a central goal in its industrial policy to be reducing its dependence on imported inputs in most prioritised manufacturing industries – textiles and garments and leather and leather products (MOFED, 2010). Such policy stance is taken, among other things, in order to create better linkages to the supplier industries (Ethiopia has Africa’s largest livestock population and good opportunities for cotton cultivation), to avoid using scarce foreign exchange reserves on importing inputs, and to reduce the risk of foreign firms relocating their production activities to other countries, as it frequently happens in the textiles and garments industry.

most export-oriented manufacturing and services are controlled by TNCs from the West or high-middle income countries. In this process of connecting with TNCs, industrial policy-makers need to make it sure that two things are done.

First, they need to identify the ‘right’ industries – find which industries have the greatest potential for generating economy-wide productivity growth, given domestic constraints (e.g. whether the country has the right kinds of infrastructure or skills) and global conditions (e.g. how fast the overall demand is expanding, where the ‘niches’ are). In the process, attempts should be made to establish direct links with manufacturing firms, producer service providers, research institutes, and government ministries from countries that have the technological know-hows and production experiences in the relevant industries.

Second, industrial policy-makers need to induce foreign firms to create linkages with the domestic economy. They should create incentives for those firms to strengthen links with domestic suppliers. One of the traditional methods for this, local content requirements, is now prohibited by the WTO, but some African countries (e.g. Ethiopia) are not yet members of the WTO and can use them legally. Even for WTO member countries, these may be introduced informally through negotiations with the foreign investors (as it was done in many rich countries, including the UK). Moreover, other measures to promote linkages between TNC affiliates and the domestic economy are still perfectly legal. Requirement for joint venture, which gives domestic partners access to high level technologies and managerial skills, is one such measure. ECA (2013) suggests that the host country puts requirements on the foreign firm to report regularly on local sourcing and the degree of local value added, including a clear ‘roll-out’ plan for future local sourcing. “Such a mechanism is likely to focus the minds of their chief executives, engender a climate of moral enforceability and help to encourage local linkages” (ECA, 2013, p. 244). Conditions could also be imposed legitimately on technology transfer and the conduct of R&D in the host country (even if that can only be at very low levels, to begin with). Host country governments can make the fulfilment of these requirements less burdensome for TNCs by providing a well-trained workforce by funding TVET (technical and vocational education and training) programmes and the university departments producing engineers and scientists.

Third, industrial policy-makers should pay attention to the possibility of upgrading not just through the development of capabilities to physically produce goods but also through the development of producer services, such as design, marketing, and branding. This may sound like an impossible task for African countries, but Sammy Ethiopia, a company specialising in hand-woven textiles and garments, is doing just that. Their products are spun, woven, dyed and embroidered using techniques stemming from old Ethiopian traditions, but also designed and branded by the company. They export their products to high-end retailers in Australia, France, Germany, Italy and Japan. Although it’s questionable whether an operation like this can be duplicated with more modern techniques (Sammy Ethiopia’s products are largely marketed based on the fact that they are hand-made), it is a good example of something African that sells in Western markets, completely ‘made in Africa’, and is a testament of the popularity of African brands in the West. To have more firms like Sammy Ethiopia, industrial policy-makers need to provide support for capability developments in these producer services, especially for SMEs, through subsidies, public service provision (e.g. export marketing, design), and encouragement of inter-firm” cooperation (see section 3.4.2.(b)).

5.2.4. Concluding remarks

This chapter has discussed both the upsides and downsides that the proliferation of GVCs has on the productive structures of developing countries – especially those in Africa – and the implications of this for industrial policy.

On the upside, GVC participation brings inflows of FDI, which brings in capital, technologies, and higher quality standards. It also allows developing countries to enter sophisticated industries that they cannot on their own, by allowing them to become specialised niche producers. The experiences of the East Asian countries, especially China and Singapore, show how GVC participation can bring great benefits.

However, in Africa, the gains from GVC participation has not materialised very much, even though FDI inflows to the continent has increased 20-fold since 1990. This is because GVC participation has downsides as well as upsides. The growing power of TNCs means that a small number of actors appropriate increasing the shares of profits arising from GVCs. If developing countries are to capture larger shares of profits, they need to upgrade within GVCs and eventually create and control their own GVCs (as Korea did with automobiles and electronics). This, in turn, requires intelligent industrial policy, as indeed shown by the experiences of the East Asian countries – not just Korea and Taiwan, which engaged with TNCs in quite selective ways, but also the more TNC-friendly China and Singapore. Unless it is done as a part of a well thought-out industrial policy strategy, GVC participation can actually harm developing country economies. For example, in many Latin American countries, neo-liberal reforms in the late 1980s and the 1990s attracted a lot of TNCs but this led to the decline of domestic intermediate inputs producers, as the TNCs chose to import most of their inputs.

Even though GVCs have been part of the global industrial landscape at least since the 1950s, it is true that the recent expansion of GVCs has made it more important for developing countries to establish connections and bargaining with TNCs. This is particularly true for Africa, where most export-oriented manufacturing and services are controlled by TNCs from the West or high-middle income countries.

However, as we have repeatedly pointed out in this report, taking GVCs seriously does not mean that developing countries can – or, even less, should – give up on industrial policy. When they contemplate participation of their domestic firms in GVCs, developing country industrial policy-makers need to do their best to choose the industries with the largest potential, given domestic constraints and global conditions, and induce the foreign firms that control the particular GVCs to create as many linkages as possible. They should also pay attention to the possibility of upgrading not just through the development of physical production capabilities but also through the development of producer services, such as design, marketing, and branding.

5.3. CONCLUSION

In this chapter, we have examined how recent changes in the global economy have affected industrial policy options for developing countries. We looked at two most important aspects of these changes – changes in global rules, which have resulted in shrinking policy space for developing countries, and the changes in the global organisation of production, that is, the rise of the GVCs. In our discussion, we have shown that the reality is much more complex than what is suggested by the standard narratives on changing global rules and on GVCs.

Policy space may have shrunk but is still considerable for most developing countries. Many industrial policy measures are ‘domestic’ and therefore not affected by the changes in global rules, while there is still a lot of room for manoeuvre even in areas covered by the new (more restrictive) global rules. Moreover, developing country industrial policy-makers need to fully understand the global rules, if they are not to give upon implementing certain policies simply because they think it may be banned. There are also grey areas to be exploited – rules that are de facto not observed by anyone (e.g. rules on R&D subsidies) or rules that are complex to interpret and thus ambiguous.

The expansion of GVCs has downsides as well as upsides. The rise of GVCs may have opened up new opportunities for technology acquisition for developing countries. But it has also constrained long-term options for these countries, as the global expansion of GVCs has resulted in the consolidation of power and increasing appropriation of profits by transnational corporations based in the West, making it more difficult for developing countries to upgrade their economies in the long run. Countries need to make very strategic decisions about their future development paths and policy measures needed to achieve their goals, before they join particular GVCs.

As we have shown in this chapter, if anything, these changes have made it even more necessary for developing country industrial policy-makers to be smart about their policies. Restrictive global rules have made it even more necessary for them to be careful about figuring out potential legal pitfalls and to be innovative about designing policy measures. The rise of GVCs has made it even more important for those policy-makers to be aware of global trends and to be aware of interactions between different policy measures.



Chapter 6

Summary and

Conclusion

In this report, we examined the theories, historical cases, and the changing global environment of industrial policy, with a view to suggesting useful lessons for industrial policy-makers in Africa.

Before going into the main arguments, we first discussed the contrasting but equally simplistic discourses of ‘African growth tragedy’ and ‘Africa rising’ that have dominated the discussion of Africa’s development in the last two decades (Chapter 2). We showed that both these discourses are based on factual misrepresentations about Africa, flawed understanding of other countries’ histories, and flawed theories of how economies develop. On the bases of these critical examinations, we argued that Africa is neither structurally destined for under-development nor has it suddenly entered a new golden age. This means that a lot of Africa’s future prospect will depend on what policies, especially industrial policies, are adopted for what purposes.

In Chapter 3, we explored the key theoretical issues relating to industrial policy, including implementation issues. The mainstream view is that there are few theoretical justifications for industrial policy, but this is wrong – there are many respectable theories justifying it. Of course, these justifications are not enough to guarantee the success of industrial policy, as there are many practical (which does not mean ‘less fundamental’) issues involved in the policy implementation process, such as politics, administrative capabilities, coordination, and development planning, all of which need to be taken seriously. Finally, we argued that, in order to develop a good understanding of industrial policy, we need to learn a range of theories for and against it and synthesise them.

In Chapter 4, we discussed the industrial policy experiences of different countries in different eras. Four groups of countries were discussed: (i) the rich countries in the post-WWII period; (ii) the rich countries when they were developing countries themselves in between the late 18th and the early 20th century; (iii) the more advanced developing countries in the 20th century; (iv) and the poorer developing countries (including two African countries, Ethiopia and Rwanda) in the last few decades. With regard to the developing countries, we presented number of detailed industry-level case studies, showing how those countries have managed to achieve some notable successes in industrial policy, despite the widespread belief that industrial policies in the developing countries have mostly been failures. By deliberately discussing wide ranges of countries, industries, and policy measures, we showed that there are diverse ways to achieve success in industrial policy, hoping to help liberate the ‘policy imagination’ of African industrial policy-makers.

In Chapter 5, we discussed two recent changes to the global industrial policy environment that are supposed to have completely changed the way in which developing countries can construct and implement industrial policy – namely, the re-writing of global economic rules and the rise of the so-called global value chains (GVCs). We argued that the recent changes in the global rules of trade and investment have certainly shrunk the ‘space’ for industrial policy by developing countries, but that there is still a considerable amount of space that

can be, and has to be, utilized by ‘smart’ industrial policies. In relation to the GVCs, we agreed that their rise has, on the whole, constrained industrial policy options for developing countries, although it has also created new opportunities. However, more importantly, we emphasised that the constraints cannot be overcome and the opportunities cannot be fully utilized without the help of ‘smart’ industrial policy.

Being fully aware that the exact lessons that can be drawn from the report depends on the values, goals, and ambitions that each country (and indeed each policy-maker) has – as well as the economic, political, and administrative conditions that it (he/she) operates under – we draw the following broad lessons for the industrial policy-makers of the African countries.

First, the importance of productive capability-building in economic development cannot be emphasised too much. If a policy limits the possibilities of building productive capabilities in the long run – as policies like free trade or unconditional participation in GVCs are likely to do – it should not be adopted or, at least, adopted with a deliberate plan to phase it out as soon as possible (as Korea and Taiwan did with their EPZs).

Second, economic theories are necessarily limited in representing the full complexity of the real world, but industrial policy-makers need to clearly understand the key theories behind arguments for and against industrial policy, if they are to make informed policy decisions. The report could only offer a very general review of those theories, but it is hoped that the review can offer some useful signposts for policy-makers in navigating the varied and often obscure theoretical terrain of the industrial policy debate.

Third, industrial policy-makers need to acquaint themselves with a range of industrial policy experiences, if they are to design policies with the greatest possible effectiveness. It is said that life is stranger than fiction, and this holds true when it comes to industrial policy. As shown by many of our examples, real-life cases of industrial policy often cross theoretical boundaries that are supposed to be water-tight – even sacrosanct. Without knowing such cases, policy-makers will be bound by theoretical demarcations and cannot fully exercise their ‘policy imagination’. In order to help them in this endeavour, in this report we have offered a wide range of country and industry experiences.

Fourth, contrary to the conventional wisdom, the recent changes in global industrial policy environment – the shrinkage in ‘policy space’ and the rise of GVCs – have not made industrial policy irrelevant. If anything, they have made it even more important for developing country industrial policy-makers to be ‘smarter’ than before. Unless they know exactly what are possible (and not) under the new global economic rules, developing country industrial policy-makers are not going to use all the policies they can. Unless they fully understand the costs and the benefits of joining a GVC in a particular industry, those policy-makers cannot develop policies that will allow their countries to maximise the long-term net gains from the GVC in question.

Finally, as they say, knowledge is power. In the last few decades, developing country policy-makers have too readily adopted 'standard' free-market, free-trade policies because they are not aware of alternatives and, even if they do, they are not intellectually and politically confident enough to adopt alternative policies. This is not because those policy-makers are less intelligent or less well educated in the conventional sense. It is because developing country policy-makers have to spread themselves far more thinly and work under much greater pressure than do their rich country counterparts, due to the meagre financial and human resources that they command. However, as shown by the examples of Korea and Taiwan in the past and of Ethiopia or Uzbekistan today, good industrial policy can be run in difficult circumstances – if the policy-makers have decent theoretical and empirical knowledge about industrial policy and, more importantly, if they have the self-confidence to defy the conventional wisdom. This report is meant as a tool to help them acquire such knowledge and self-confidence.



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African countries are in the process of upgrading and promoting the development of higher-productivity sectors, including manufacturing and high-end services. One of the key elements is the need to expand the industrial sector, which provides opportunities for employment generation, integration and value addition for boosting export earnings and income generation.

This specialized report is intended as a contribution to the thinking process of how to conceptualize and implement transformative industrial policies. It aims to serve as a guide for supporting member states and provide concrete strategies for the integration of industrial policies into national development plans across the continent.

