

EQuIP

Enhancing the Quality of Industrial Policies



Conceptual Framework

Motivation and Background for the EQuIP Toolbox

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1. Introduction

Industrial development was once considered the central engine of growth and development and this was reflected in the usage of the term industrialised to denote high-income countries. During the 1950s and 1960s, governments therefore took an active role in their economies' development by supporting and protecting strategic industries or, in other words, by using industrial policy. Many economies developed rapidly on the basis of active government deployment of industrial policy (notably in East Asian countries), but others were not as successful. The 1980s, however, saw a change in the international development paradigm towards a free-market-oriented, or "laissez-faire", approach. The "Washington Consensus", which rose to ascendance during that time, argued that developing country governments should take a "hands-off" approach to development and through processes of deregulation, liberalisation and privatisation allow for the market to identify and refine their country's "comparative advantage" in production and trade. Comparative advantage, however, is a static concept which suggests that a country should specialise in what it is best situated to produce according to its factor endowments. In line with this logic, a country that is abundantly endowed with natural resources should specialise in the production and export of raw materials and resource-based goods. While this may help the country become highly efficient at producing resource-based goods, it provides little guidance on how it could move into producing goods that are not resource-based, e.g. high-tech products. This process of economic transformation and movement into new, more complex activities requires industrial policy.

In recent years, the global financial crisis, slow growth or even stagnation in high-income countries, and an increasing number of development failures in lower-income countries have triggered a revived commitment to industrial policy both in developed and developing countries. Tilman Altenburg succinctly articulates this phenomenon in saying:

industrial policy is back on the agenda. it is now widely accepted that those countries which managed to catch up with the old industrialised, high income countries are the ones whose governments *proactively promoted structural change*, encouraging the search for new business models and channelling resources into promising and socially desirable new activities.¹

What is powerful about this particular statement is that it frames industrial policy as the government actively promoting those economic activities which it sees as being socially beneficial, for one reason or another, and thereby acknowledges the infinite number of motivations that a country might have for supporting particular economic activities, depending upon their current context and ultimate objectives. Moreover, this definition leaves our minds open to recognise the important trade-offs which might exist among different goals. There are, for example, very valid reasons for a government to support specialisation in certain economic sectors or activities in order to establish or maintain international competitiveness, but there are equally valid reasons to support a more diversified manufacturing sector so as to ensure strong linkages across sectors and greater economic resiliency. Equally, there are very good reasons for an economy to move into highly sophisticated activities with higher entry barriers and value addition but, especially in a developing country context, there are also reasons to promote labour-intensive sectors that can provide jobs for your citizens and contribute to poverty alleviation. in the words of Sanjaya Lall², "clearly there are not only 'many roads to heaven' but also many heavens". What defines a

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- 1 Altenburg, T. (2011), Industrial Policy in Developing Countries. Overview and lessons from seven country cases, DIE Discussion Paper 4/2011, Bonn: German Development institute (DiE)
 - 2 Lall, S. (2000), Selective Industrial and Trade Policies in Developing Countries: Theoretical and Empirical Issues, Working Paper No. 48. Queen Elizabeth House, University of Oxford

given country's "heaven" and the proposed route to get there will fundamentally depend upon each country's unique context, priorities and objectives. Therefore, while developing countries require industrialisation in order to propel their economies beyond resource-based production and low-productivity services, the shape and form of their industrial strategies will be contingent upon their current conditions and performance and their vision for the future.

Low-income countries face unique challenges and opportunities in the contemporary world. Like never before, countries are subjected to highly competitive world markets. Due to decades of far-reaching and widespread liberalisation, it can be hard for lower-income countries to successfully initiate a process of structural change (i.e. to move from an economic structure dominated by simple agrarian activities to one with more complex economic activities). Efforts to build up a manufacturing sector have become much more difficult for developing countries because they are strongly exposed to competition from countries that have already developed sophisticated industrial capabilities based on cutting edge technologies and that have achieved economies of scale. In a globalised world economy, developing country producers are increasingly competing with foreign manufacturers in both domestic and international markets but often lack the (time and opportunity to develop the) capabilities to be competitive in either cost or quality.

On the other hand, lower-income countries have a unique opportunity to learn from past industrialisation successes and failures and to develop an economic system that generally serves the needs of their current and future populations. We live in an age of unprecedented information. Through a solid analysis and understanding of their current industrial performance and the performance of others, developing countries have the opportunity to design evidence-based industrial strategies to ensure more effective and adaptive policy interventions. Countries can learn from role models (i.e. successful industrialisers) and examine the power of the manufacturing sector to spur structural transformations. While economic growth often features among the main development objectives of lower-income countries (which is reasonable given low levels of economic output and material need fulfilment), recent history has shown the devastating consequences of following a narrow-minded "growth first, everything else after" approach. Many countries have experienced fast economic growth but without production transformation and alongside persistent poverty, rising inequality and high levels of social dislocation and conflict. Other countries have pursued growth with such reckless abandon that they have exhausted the natural resources required for that growth. Today, however, lower-income countries are in a position to learn from past development failures and to pursue innovative new industrial strategies to ensure a more sustainable and socially inclusive development trajectory that maximises the positive effects of industrialisation while minimising its negative effects.

The notions of inclusiveness and sustainability largely represent a reaction by the international community to past development failures but what do these terms really mean? And how do they relate to industrial development? Broadly speaking, inclusive growth can be understood as process whereby large segments of a country's population are able to participate in and benefit from economic growth. The most common definition of sustainable development is a growth trajectory which fulfils the needs of the present population without compromising the ability of future generations to meet their needs. For lower income countries the notion of inclusive and sustainable growth therefore points to two key objectives: The first is the overriding, supreme, importance of broad-based need fulfilment (e.g. poverty alleviation), through active participation in the economy. The other is the importance of taking a longer-term perspective and recognising the need for an economic structure that is resilient and respects the limits of the ecosystem, so that growth today does not come at the expense of prosperity tomorrow.

A simple definition of inclusive and sustainable industrial development would therefore be **the development of an industrial structure that contributes to widespread needs fulfilment without undermining future generations' ability to meet their needs**. With the core objectives of growth and poverty alleviation, we will first want to understand how industrialisation contributes to economic growth. However, history has shown that while growth may be necessary, it is certainly not a sufficient condition for poverty alleviation and active economic participation. Therefore, we need to explore how industrialisation can contribute to inclusive growth. Finally, we will want to examine how we can learn from past environmental and economic failures, and promote an industrialisation trajectory that is resilient and does not undermine future generation's ability to utilise the raw materials and eco-system required for such a transformative economic process.

At the same time, it is important to acknowledge that there may be significant trade-offs between the different dimensions of inclusive and sustainable industrial development. That is, achievements in one area might come at the expense of achievements in other areas and it is very unlikely that all industrial policy objectives can be achieved simultaneously. However, it is not possible to discuss and explore all of these trade-offs in great detail in this conceptual framework document. Rather, this document focuses on shedding light on possible synergies between different objectives in the context of inclusive and sustainable industrial development.

This conceptual discussion will lay the foundations and serve as a point of reference for the EQuIP toolbox. The development landscape has fundamentally changed since the last time industrial policy had its heyday and we need new tools to reflect these realities. Developing country governments can choose among a plethora of methodologies and foreign consultancies that promote traditional approaches to industrialization, emphasizing principles of industrial upgrading and export competitiveness. Whilst these topics are also covered in the EQuIP toolbox, the EQuIP approach is based on the objective to balance out purely economic considerations and to present a more holistic picture of industrialization and how it can contribute to contemporary development objectives. Our hope is that through measuring and monitoring some of the core mechanisms for a more inclusive and sustainable industrial development process (e.g. with the help of the EQuIP methodological toolbox), developing countries will be in a position to critically assess what *they* want to achieve through industrial policies and to pioneer new “blueprints” for the better world *they* envision.

2. Industrial Development and Growth

When we speak about inclusive and sustainable industrial development for lower-income countries, we must first start with a serious recognition of poverty, of a lack of needs fulfilment, which affects a large segment of these countries' populations due to insufficient resources. Spurring economic growth, i.e. the expansion of incomes but also of economic output in the form of an increasing supply of goods and services, is therefore a fundamental policy objective in situations of widespread poverty, as this is the process through which the “economic pie” is enlarged and sufficient incomes are generated to meet the population's basic needs. Our first task is therefore to understand how industrialisation contributes to economic growth – and EQuIP tool 1 presents a methodology for analysing and monitoring this.

At the very heart of development is the need for structural change, i.e. transformations in the country's economic configuration that are conducive to economic growth and poverty alleviation, whereby, broadly speaking, populations move out of subsistence farming and informal services into more productive activities with higher value addition. Indeed, evidence shows that no country has been able to achieve significant income growth and poverty alleviation without structural transformations and economic diversification. In order to ensure basic needs fulfilment an economy needs to provide adequate incomes and a variety of products for their population. The growth and expansion of the manufacturing sector plays a critical role in this development process.³

In broad terms, manufacturing can be defined as the transformation of raw materials into final goods. Manufacturing is therefore something akin to alchemy whereby human ingenuity allows for the creation of a product which is fundamentally different and worth more than its individual parts. We can think about the classic example of Adam Smith's pin factory. A pin is simply a sharpened and refined piece of metal that can be used to hold cloth in place. Historically, we have seen incredible progress in terms of the process with which pins are produced. We have gone from having a single metal smith making pins, to developing factories where each individual is responsible for executing one specific task in the production process (e.g. division of labour), to now having large machines that can efficiently produce millions of pins in a day. This process represents technological change and productivity enhancement in an economy and is commonly considered by economists to be a core driver of growth.

Beginning with the industrial revolution, the manufacturing sector has been the main site of technological innovation and productivity gains in an economy, due to its unique ability to exploit economies of scale and harness the power of “learning-by-doing”. The example above shows the power of “economies of scale” as the ability of one metal smith to produce pins (e.g. output) is fundamentally lower than that of a factory where a number of people work. Furthermore, the “learning-by-doing” is reflected in the ability of people to specialise and become highly efficient in one part of the production process, e.g. the sharpening, elongating, pin head placement, etc. These transformative processes increase the productivity of firms, which incites a larger structural transformation in the economy. Through more innovative production processes there is a “creative destruction” of less productive firms who are outcompeted by more productive ones, resulting in higher overall productivity in the economy. This dynamic process of productivity enhancement, which translates into greater output, in an economy is commonly seen as a main driver of economic growth.

It is due to these unique dynamics that many authors have cited the manufacturing sector as the core engine of economic growth. Since the 1960s, evidence has supported the “Kaldor Laws”⁴ concerning the macroeconomic impacts of industrial expansion:

³ See, for example: UNIDO (2009), Industrial Development Report 2009, Vienna: UNIDO

⁴ See Kaldor, N. (1978[1966]), Causes of the Slow Rate of Economic Growth in the United Kingdom, in: Kaldor, N., Further Essays on Economic Theory, New York: Holmes & Meier.

1. The faster the growth rate of manufacturing output, the faster the growth rate of the overall output of an economy as measured through its gross domestic product (GDP);
2. The faster the growth rate of manufacturing output, the faster the growth rate of manufacturing labour productivity (due to increasing returns);
3. The faster the growth rate of manufacturing output, the faster the growth rate of non-manufacturing labour productivity (due to reallocation of labour).

Historically, industrialisation has been very important for growth and development, not only because of the productivity dynamics occurring within the manufacturing sector but also due to the positive spill-over effects it has on the rest of the economy. Due to the complex nature of manufacturing, it has traditionally had strong consumption and production linkages with other sectors, which result in a positive, re-enforcing and cumulative process of structural transformation and development.

The production linkage reflects the fact that manufacturing requires a myriad of different goods and services from other sectors of the economy to create their final good, which means that, as manufacturing expands, the demand for and investments by input suppliers increase. Furthermore, manufactured goods are also required as inputs for a variety of activities in the economy so improvements in price or quality will have positive implications for those activities. We can think of the example of steel production which has strong forward and backward linkages. As steel production expands, demand for iron ore and coal increases, reflecting backward linkages. At the same time, steel also has a strong potential for forward linkages as increased access to steel in a country can encourage the growth of automotive, construction and other sub-sectors that require steel as input for their own production. We must also not forget that machinery is a product of the manufacturing sector and the productivity increases, which come from the introduction of a tractor or similar equipment in subsistence farming communities, can be astronomical, thereby illustrating the positive spill-over potential originating from manufacturing's production linkages. The consumption linkage relates to these spill-over dynamics but focuses less on the direct materials being used and more on the incomes generated from these linkages. Since the manufacturing sector tends to have higher labour productivity than other sectors in developing economies, the incomes earned from manufacturing employment can be re-spent on locally produced goods and services, thus boosting demand for other domestic economic activities. If the textile industry grows, for example, this will increase demand for cotton, which - if sourced locally - will lead to higher incomes for cotton farmers, ultimately resulting in increased demand for goods and services in the countryside. Similarly, an expansion of manufacturing typically leads to an increase in demand for services such as finance, telecommunication, transportation, logistics, etc. The manufacturing sector is therefore unique as a locus of productivity enhancement and as a driver of aggregate demand and broad-based sectoral growth in an economy. These processes, however, are largely determined by the domestic structure of industry and how well embedded it is in the national economy.

Diversification and Resiliency, Upgrading and Industrial Exports

Above we have already pointed out why diversification of a country's economy, in general, is likely to be beneficial in terms of generating or strengthening linkages across sectors, improving resilience of the economic system, and boosting its innovative capacity through cross-fertilisation. Moreover, we have also seen why, more narrowly, a more diversified manufacturing sector is also desirable. The more manufacturing activities occur in a society, the more likely it benefits from positive spill-over effects to the rest of the economy (e.g. employment, technology and productivity spill-overs). It is also likely to be less vulnerable to, or less severely affected by, adverse developments ("shocks") (see also EQUIP tool 4).

Furthermore, we have seen how the development of a manufacturing sector is vital to ensure a structural transformation of the economy out of agriculture and into industry (which is commonly referred to as “first-tier structural change”). If this process is successful it means that the economy as a whole has already become more diversified (e.g. it is engaged in more activities than it was before). However, in practice, a pervasive problem in many lower-income countries today is still the reliance on simple productive activities (manufacturing or non-manufacturing) which generate little value-added and positive externality to the rest of the society. Unsophisticated products often leave the economy highly vulnerable to external shocks in weather, commodity prices, and fierce foreign competition due to their low barriers to entry. Moreover, the terms of trade for simple commodities tend to decline over time, that is, it will often take more and more exports of simple products to be able to import the current amount of complex goods.

At a certain stage, successful industrial development, thus, also involves the upgrading of productive structures towards more attractive activities. At the level of the manufacturing sector as a whole, upgrading entails a gradual shift towards producing and exporting goods with higher technological content (a process which is also known as “industrial deepening” or “second-tier structural change”). Higher-technology goods tend to have higher entry barriers (implying less exposure to competition and higher rents) and less vulnerability to price shocks as compared to simple commodities. Further, externalities and rents are not associated with all goods equally, and structural transformation towards more complex production can generate strong linkages and positive externalities (i.e. knowledge spill-overs) that benefit the whole society (see EQuIP tool 3).

These advantages of diversification notwithstanding, there are, however, also benefits of specialising in particular manufacturing activities, particularly in the context of highly competitive global markets. EQuIP tool 2 presents methodologies that allow for an assessment of the productive capacities and competitive performance of individual manufacturing sub-sectors (such as the food and beverages, textiles and clothing, or transport equipment sub-sectors, for example). Promoting specialisation can help boost international competitiveness and export expansion. Exports are often taken as an indicator of the international competitiveness of a country’s industrial sector or certain sub-sectors. In a sense, a country’s export portfolio also reflects its achievements in terms of structural change: a higher share of manufactured goods in total exports indicates that agricultural and resource-based exports have become relatively less important; if the country’s export basket is even shifting towards higher-technology products, this can signal further achievements in transforming its economic structure towards more sophisticated, higher-value activities (see EQuIP tools 1 and 3).

More generally, participation in international trade through exporting and importing potentially brings certain benefits to developing countries. At the most general level, it allows them to benefit from the international division of labour. Since it is difficult for a single country to produce all necessary (or demanded) goods itself, or at least to do so in the most efficient (competitive) way, there are certain benefits from engaging in cross-border exchanges of goods and services (the so-called “gains from trade”). In this context, exports earn foreign currency which, in turn, can be used to import goods that are produced more efficiently elsewhere.

Moreover, exporting can help producers to yield economies of scale. In fact, the limited size of the domestic market is often a constraint for producers in developing countries whereby market size refers not only to the number of potential customers but also to their purchasing power. Exporting, on the other hand, means reaching out to international markets, i.e. a much larger pool of potential foreign customers. By tapping into foreign demand, which is often characterised by higher purchasing power, exports can be an additional source of economic growth.

In this context, the manufacturing sector plays a particularly important role given that manufactured products account for over 60% of global trade. Therefore, specialising in order to

compete in global markets on the basis of cost or quality can be an important way to gain foreign currencies. Especially for small developing states, foreign exchange will be necessary to enable them to import those intermediate and capital goods needed as inputs for local production as well as some of the consumer goods necessary to ensure the material needs fulfilment of their populations. These important balance-of-payment issues can be resolved either through exports or through import substitution, which would minimise the dependence on foreign imports.

Besides these potential benefits in terms of overcoming the limits of small domestic markets and earning foreign exchange, exports possibly also offer learning opportunities that can accelerate productivity growth. Exporting to foreign customers who are demanding in terms of quality, consistency and reliability of supply (or at least more demanding than domestic customers) can urge or force producers to enhance efficiency and improve the quality of products and operations. Selling to international markets can, therefore, be instrumental in promoting technological upgrading through “learning by exporting” effects.

However, exporting is not an easy task, not least since competition on international markets has intensified dramatically in the past few decades as a result of globalisation and trade liberalisation. Moreover, the production of goods and services, and of manufacturing goods in particular, has increasingly been fragmented internationally in recent years. That is, the different stages of producing a certain good are now increasingly being carried out in different locations across the world within global value chains (GVCs) which are governed by multinational corporations and lead firms that outsource and offshore production processes and tasks (see EQuIP tool 7). Specialisation today is, therefore, more and more about specialising in certain tasks or production stages rather than in final products or entire sectors.

While in some cases participation in GVCs allows developing countries to enter new markets, new business relationships and the production of (e.g. manufacturing) products that are more sophisticated than the goods they typically produce, there are also the risks of being locked in a ^ specialisation pattern based on low-value activities and of the emergence of enclave economies. â Such enclave economies typically have hardly any linkages to the rest of the country’s productive system and, consequently, generate little local value added, therefore contributing only modestly to economic growth. Meanwhile, if specialisation takes the form of an export basket that is highly concentrated on a few export products and/or export markets, this makes the country quite vulnerable to external shocks (such as abrupt drops in world market prices or in foreign demand from key export markets). From an economic development and sustainability perspective, the benefits of such “enclave” economies and (over)specialisation (or concentration) on a small set of economic activities, export products and/or export markets are therefore questionable.

There are, as we have seen, numerous benefits of a diversified industrial structure that is embedded within the domestic economy. However, today’s world is characterised by a highly integrated global economic context and therefore the objective of developing a resilient and sustainable industrial sector will need to be balanced with considerations on international competitiveness. For, in a globalised economy, competition does not only intensify in international markets but also in domestic markets, even if the country in question does not pursue an export-oriented but rather an inward-looking economic development strategy aimed at diversification and catering to local demand. In today’s globalised economy, it is more difficult to shield domestic producers from foreign competitors so that there is always the risk that foreign producers supply products that are also produced domestically in better quality or at a lower cost, ultimately outcompeting and crowding out local industry (thereby undermining its sustainability). A balanced approach is, thus, required so that the industrial sector becomes neither too isolated nor too exposed to risks such as foreign competition or external shocks, thereby avoiding the repetition of historical mistakes.

3. Industrial Employment Generation and Poverty Alleviation

For lower-income countries, economic growth (which goes beyond the industrial sector) is necessarily a core objective but recent history has illustrated that economic policies that focus purely on maximising the pace of growth can have poor social consequences. What is equally or even more important is the pattern of growth – which has to do with the processes of structural change and productive transformation described above. Many countries (both rich and poor alike) who have followed a “growth first” approach have ended up with highly volatile, inequitable and employment-deprived development trajectories. Broadly, economic growth can be said to be inclusive when large shares of the population are able to participate in and benefit from the growth process. This idea is particularly vital when we speak of low-income countries as the conventional “growth, tax, spend” approach to poverty alleviation and socio-economic development, which is based on the premise that economic growth will generate tax income for the government which it then can use for income redistribution through social policy and welfare spending, is particularly inappropriate and unlikely in these situations.

With a mind towards these realities, an inclusive growth approach takes a longer-term perspective and focuses on broad-based productive employment generation as opposed to redistribution as the key mechanism to ensure broad-based needs fulfilment. It is now a widely accepted fact that in low-income countries, productive employment is the core engine of poverty alleviation (see EQuIP tool 5). For most impoverished citizens, their labour is the only asset they can use to improve their standard of living. Hence, the generation of productive employment opportunities for the underemployed and working poor is critical to achieving broad-based poverty reduction and inclusive economic and social development.⁵

When speaking of inclusive growth, lanchoichina and Lundstrom argue:

“A rapid pace of growth is unquestionably necessary for substantial poverty reduction, but for this growth to be sustainable in the long-run, it should be broad-based across sectors and inclusive of the large part of the country’s labour force. This definition of growth implies a direct link between the macro and micro determinants of growth. The micro dimension captures the importance of structural transformation for economic diversification and competition, including the creative destruction of jobs and firms”⁶ (*emphasis added*).

Having recognised the importance of both economic growth and inclusiveness as development objectives, the question is how the manufacturing sector can contribute to achieving them. Above it was discussed how the manufacturing sector can act as an engine for growth. Meanwhile, history has shown that industrialisation and productive transformation also importantly contribute to productive employment generation - both directly (i.e. through manufacturing jobs) and indirectly (i.e. through creating jobs in other sectors of the economy).⁷

⁵ See, for example: UNIDO (2013), Industrial Development Report 2013, Vienna: UNIDO

⁶ lanchoichina, E. and Lundstrom, S. (2009), Inclusive Growth Analytics: Framework And Application, World Bank Policy Research Working Paper No. 4851, Washington DC: World Bank

⁷ International Labour Organization (ILO) (2014), World at Work Report 2014. Developing with Jobs, Geneva: ILO.

That is, the expansion of the manufacturing sector plays a vital role in such a process of (more) inclusive growth as it incites structural change within an economy whereby employment opportunities with rising productivity are generated. However, this process is not automatic, as some of the most extreme cases of “jobless growth” we have seen in recent decades have demonstrated in countries with highly competitive manufacturing sectors (e.g. the experience of “jobless growth” in different Asian economies⁸). This phenomenon can occur because growth is concentrated in sectors that are not accessible to poor workers or because the labour intensity of growth is very low. That is, it can be the result of a limited labour absorption capacity of the manufacturing sector and/or of limited indirect job generation effects of industrial growth.

Direct employment generation from industrialisation is particularly important for low-income countries where the majority of the population is typically still engaged in subsistence farming and informal services. The low productivity of these activities translates into low earnings and thus low standards of living. Labour-intensive industrialisation therefore plays an important role in poverty alleviation through the direct absorption of the unemployed, underemployed and working poor into more productive activities. Moreover, labour-intensive industries tend to have lower entry barriers for low-skilled workers and are therefore more likely to be accessible to poor populations.

However, an important caveat has to be highlighted: While labour-intensive industries absorb more labour, they might also offer limited scope for technological innovation, upgrading, economies of scale and, ultimately, productivity enhancements. This is an important possible trade-off to be recognised and taken into account by policy-makers.

In any case, the ability for lower-skilled workers to access higher-waged employment in the manufacturing sector has historically also contributed to more equitable growth. Dani Rodrik, for example, argues that the manufacturing sector is where the middle class forms and expands because it can provide higher-waged jobs for lower-skilled workers, thus propelling them into middle-class status which is vital not only for the social cohesion within a country but also in terms of contributing to aggregate demand in an economy (e.g. the consumer linkage outlined above).⁹ The stimulus of aggregate demand is very important for lower-income countries as this is the mechanism through which broad-based sectoral growth and income generation occurs. At initial stages, increased incomes will lead to higher demand for agricultural products, which will help to alleviate poverty for those working in rural agriculture. As incomes continue to rise, it will lead to demand for manufactured products and other goods and services in the economy, which will incite a process of mutually re-enforcing expenditures and investments. It is for this reason that higher-wage employment opportunities in labour-intensive sectors are so important.

However, while some strands of economic theory would predict the direct translation of productivity into higher wages, history has shown that without strong institutional support (e.g. through labour laws, trade unions or government wage regulations), companies can artificially suppress wages so as to usurp higher profits or minimise costs. In many cases, employers are under no pressure to share the benefits of rising productivity with their workers, especially in situations where large shares of the population are underemployed so that firms can easily replace current workers and find people willing and able to work in low-skilled manufacturing activities without offering wage incentives.

At early stages of economic development, in particular, an employment-intensive industrialisation trajectory can be desirable in order to ensure rising employment opportunities that are accessible

8 United Nations Development Programme (UNDP) and International Labour Organization (ILO) (2007), *Asian Experience on Growth, Employment and Poverty*, Colombo: UNDP Regional Centre in Colombo

9 Rodrik, D. (2011), *The manufacturing imperative*, Commentary, Project Syndicate, available from: www.project-syndicate.org/commentary/the-manufacturing-imperative

to the poor, but also to enhance the poor's ability to move into higher productivity sectors over time. This requires education, training and social safety nets which can buffer against the painful effects of structural change which, as pointed out above, often involves processes of "creative destruction" whereby certain, often traditional or unproductive, activities go into decline. Without cash transfer systems or other government support mechanisms in place, populations who are displaced from traditional forms of production can easily fall into a poverty trap unless they are supported through the transition. However, in most low-income countries governments lack the financial resources to fund such social policies. It is therefore important to not only maximise the current poverty alleviating effects of industrialisation through quality employment opportunities but there also needs to be investment in population's current and future capabilities and skills so that the country is able to progressively move into more dynamic and productive activities over time.

In light of the above deliberations, we can understand inclusive industrial development as a process of structural change which generates broad-based opportunities for quality employment and productive activities for large segments of society and which, thereby, contributes to poverty alleviation. While above the focus was on quality employment generation as an important channel for achieving inclusive growth through the absorption into the labour force of un- and underemployed populations (which is covered in EQuiP tool 5), inclusiveness can also be conceived as involving other dimensions as well. For example, inclusiveness can also be understood to refer to an industrial development trajectory that offers opportunities to disadvantaged regions or sections of the population (e.g. women, ethnic minorities, youth) to be included in (i.e. to participate in, contribute to and benefit from) the industrialisation process, thereby reducing inter-regional, inter-gender or inter-generational inequalities (these dimensions of inclusiveness are, however, currently not covered exhaustively in the EQuiP toolbox).

Thus, for lower-income countries the social benefits of industrialisation can be maximised by promoting an industrial structure that is labour-intensive, embedded in the domestic economy (e.g. has high linkages with other sectors), and which provides decent working opportunities for poor and vulnerable populations. Social cohesion and development can therefore be promoted by an industrial strategy that embodies the recognition that economic growth is primarily a means towards broad-based needs fulfilment rather than an end in itself.

4. Sustainable Industrial Development

The term sustainability means many things, but when we think about contemporary industrial development experiences, two core themes arise: The first is the stability or resiliency of the industrial sector. Many countries that pursued export-oriented industrial strategies have been hit hard by external turmoil, e.g. the latest global economic crisis, illustrating the importance of developing industrial structures which can withstand shocks. Second comes the recognition of the intense environmental impact of industrial activities, in terms of resource depletion and environmental contamination. The world is at a tipping point, and the devastating consequences of climate change are becoming increasingly evident, with many low-income countries being disproportionately affected by its negative consequences. While the first theme has been touched upon in Section 2, the second theme will be outlined in the following.

When we approach the issue of environmental sustainability of industrialisation, the concepts of “Greening industries” and “Green industry” (or “eco-industries”) offer useful starting points.¹⁰ Both concepts outline pathways to achieve economic-environmental “win-win scenarios”, with the “greening of industries” concept focusing on increasing (resource, energy, etc.) efficiency and reducing pollution and waste while the “green industry” concept puts emphasis on new markets (for environmentally friendly products and/or renewable energy) and “green jobs”.

When we consider the environmental sustainability of industrialisation, we are, thus, speaking about both the inputs into and outputs of manufacturing activities. On the output side, environmental sustainability relates to the emissions and pollutants that result from production. On the input side, it relates to the natural resources required for the production of goods.

Since low-income countries contribution to global greenhouse gas (GHG) emissions is still minor, it would be unfair to hinder their industrialisation process by imposing on them undifferentiated emissions targets at par with those for high-income countries. However, emissions, pollutants and contaminants as well as their effects (especially on human beings but also on land and water sources) are a serious concern in many developing countries. It is therefore important to develop strategies that, from the beginning, take into account environmental considerations and which, on this basis, can foster industrial development without irreparably damaging the ecosystem it depends on. One important strategy for achieving this is by focusing on enhanced resource efficiency as a mechanism to enhance competitiveness and minimise environmental impacts.¹¹

Our initial definition of manufacturing was the transformation of raw materials into final goods. This definition is important because it draws our attention to the fact that natural resources make up industrial products. All manufacturing requires natural resources, such as water, energy and materials. It is vital that lower-income countries use their resource stocks wisely and do not destroy the resources required for their economy’s growth and development today and tomorrow. Developing countries today have an opportunity to follow a different method of efficiency enhancement which focuses on minimising resource consumption.

The manufacturing sector has historically played a unique role in development as the hub of innovation, technological progress and productivity enhancement in economies. Productivity increases can come from enhanced labour, capital or resource efficiency. However, most of the technologies that were developed in the last two centuries have focused on enhancing labour efficiency. This is likely because of the fact that as industrialised economies continued to develop,

¹⁰ See UNIDO (2011), UNIDO Green Industry. Policies for supporting Green Industry, Vienna: UNIDO

¹¹ See, for example: UNIDO (2011), Industrial Development Report 2011, Vienna: UNIDO

they innovated within a context where labour was increasingly expensive in their countries while raw materials could still be gotten cheaply from developing countries. This is one of the reasons why we have seen labour productivity increase twenty-fold in the last 200 years, while an emphasis on enhancing productivity through resource efficiency has only recently been prioritised (due to resource depletion, volatile commodity prices and rising awareness of climate change).

Developing countries therefore have a unique opportunity to innovate on the basis of enhanced resource efficiency as a way of boosting productivity without having to shed labour. Increased resource efficiency can lead to a reduction in the use of energy, materials, water and other resources as inputs into manufacturing production; where such inputs are imported, increased efficiency can help reduce vulnerability related to dependency from external supply (see EQuIP tool 6). Enhanced resource efficiency is particularly powerful for small and medium enterprises, which account for the majority of firms in most developing countries. Innovating to enhance resource efficiency can therefore be a vital strategy for developing countries not only to promote the greening of their industries but also to enhance their competitiveness against countries that have had a head start in terms of industrialisation. Similarly, to achieve a greening of industry at the output side of manufacturing activity, innovation in technology and production organisation as well as related investments will be necessary to contain the growth of greenhouse gas emissions, contaminants and waste that pollute and degrade the ecosystem.

Such greening of industry efforts are likely to require, or at least benefit from, the emergence and expansion of “green industries”. Broadly speaking, “green industries” are those industries that produce ecologically supportive and/or sustainable products. Creating “green industries” is, thus, about stimulating the development of new economic activities and industries that provide environmental technologies, goods and services - i.e. products aimed at contributing to reducing negative environmental impacts or addressing the consequences of various forms of pollution. “Green industries” include, for example, renewable energy, recycling, waste management and treatment, machinery and equipment for air pollution reduction, bio-products and electric mobility. Wherever supporting the creation of such industries leads to “green jobs”, the result is a triple positive bottom line, i.e. economic-environmental-social win-win-win scenarios. However, it has to be recognised that a number of such “green industries” or “green technologies” might still be beyond reach for developing countries given their level of available capabilities and skills. Yet, the “green industry ambition” of a country cannot only be derived from its actual “green industry” productive capacity and employment but is also reflected in its imports of “green products”, including environmental equipment and technologies.¹²

Overall, sustainable industrial development is about taking a longer-term perspective when deciding which sectors to support and how. It is about the recognition that we live in a world of limits and nothing can go up forever without coming back down. Therefore checks and balances need to be put in place to ensure that the wealth generated today from manufacturing activities will not undermine the chances of equal or higher living standards in the future.

¹² While recognising the huge importance of “green industries”, the EQuIP toolbox currently does not offer related diagnostic and analytical methodologies.

5. Industrial Capabilities and Framework Conditions

Inclusive and sustainable industrial development is the outcome of a complex and dynamic web of processes and interactions between different actors. In the previous sections, we have sketched how inclusive and sustainable industrial development can manifest itself. We have said little about the “enablers” and “drivers” of these outcomes, though. However, for the purposes of evidence-based industrial policy-making it is important for industrial diagnoses not only to be concerned with the measuring of performance but also with understanding why and how a particular performance has come about. That is, it is important to also investigate the drivers of (or obstacles to) industrial performance.

For some time, and during the era of the Washington Consensus in particular, many stakeholders including international organizations and donor agencies emphasised the importance of governments providing and ensuring an “enabling environment” for private sector operations as key determinant of economic growth and industrial development. The focus was on regulatory, policy and other framework conditions that would distort market forces as little as possible (or necessary) while providing a “business environment” conducive to private sector investment. Meanwhile, another school of thought, which has re-gained importance in recent years, has highlighted the accumulation of (industrial) capabilities as a key driving force for industrial development.¹³

Broadly speaking, countries’ industrial capabilities comprise various types of firms’ competencies (associated with production and its organization, technological change and innovations) as well as firms’ production capacity (determined by investments in machines, equipment and other capital goods). The accumulation and further development of these capabilities requires the access to and availability of finance, skills and technology, amongst other things. In addition, countries’ industrial capabilities also relate to the physical and institutional infrastructure supporting the overall productive economy. This includes, inter alia, transportation, communication, quality, innovation and energy infrastructures as well as the richness and efficacy of the (public but also private) institutional landscape.

Factors like these play a crucial role in framing, shaping, influencing and driving countries’ industrial performance. Hence, such industrial capabilities are commonly viewed as the main “drivers” and “enablers” of countries’ industrial performance (EQUIP tool 9 presents methodologies to identify and assess such drivers and enablers). It is for this reason that industrial capabilities have increasingly become the subject and target of industrial policies. Policy interventions today increasingly aim at fostering the development or improvement of such industrial capabilities with the objective of promoting industrial development.

Industrial capabilities also shape and determine inclusiveness and sustainability outcomes of industrialization. The availability of skills, technology, finance and innovation capacities, for example, influences all three pillars of inclusive and sustainable industrial development, i.e. the economic, the social as well as the environmental performance of a country’s industrial sector. However, certain industrial capabilities might be more conducive to achieving economic

9 See, for example: UNIDO (2002), *Industrial Development Report 2002/2003*, Vienna: UNIDO; Lall, S. (2001), *Competitiveness, Technology and Skills*, Cheltenham, UK: Edward Elgar Publishing; Cimoli, M., Dosi, G. and J. Stiglitz (2009), *Industrial Policy and Development. The Political Economy of Capabilities Accumulation*, New York: Oxford University Press; or Andreoni, A. (2011), *Productive Capabilities Indicators for Industrial Policy Design*, UNIDO Working Paper 17/2011, Vienna: UNIDO

objectives than, say, social outcomes. For example, putting a country on an inclusive industrial development trajectory might, at least in the short term, require the promotion of another set of skills than would be needed for achieving (pockets of) industrial upgrading in certain sub-sectors. Similarly, technological progress or adaptation needed to promote the greening of industry and environmental sustainability is likely to be somewhat different from a technological trajectory conducive to achieving industrial diversification, for example. Thus, there are, again, possible trade-offs between different policy objectives that policy-makers have to keep in mind and deal with when designing policies aimed at the development and upgrading of industrial capabilities.

Finally, it is worthwhile pointing out that a country's industrial performance is also shaped by a number of broader framework conditions. These include national factors such as the country's location, its endowments but also sub-sector and firm characteristics. Framework conditions also relate to a number of international and global factors such as the nature of the country's integration into the global economy (e.g. through multilateral, regional and bilateral trade and investment agreements), global regulations and economic governance mechanisms as well as international competition and demand patterns and dynamics. While many of these framework conditions are hard (if not impossible) to change with industrial policy interventions, some can be influenced and shaped by policy action (see EQuIP tools 8 and, to some extent, also 9).

6. EQuIP and Evidence-Based Industrial Policy-Making

As mentioned in the beginning, for industrial policies to be successful it is crucial, amongst other things, for them to be evidence-based. This is where the EQuIP toolbox can come in. It compiles a number of different diagnostic methodologies that allow for an integrated and comprehensive analysis and benchmarking of a country's industrial setup and performance. The different tools and methodologies are based on a set of mostly quantitative indicators that help to shed light on how a given country has been doing and where it stands with regard to the *inclusive and sustainable industrial development* process sketched on the previous pages.

The insights gained from applying the EQuIP toolbox can feed into various stages of an evidence-based industrial policy cycle. First and foremost, they allow undertaking a comprehensive industrial diagnosis that can help policymakers and public analysts to identify the strengths and weaknesses of their country's industrial sector. They also allow benchmarking against other countries. The findings from such diagnostic and benchmarking exercises can help policymakers in formulating a strategy for inclusive and sustainable industrial development and in prioritising areas or sectors for policy intervention. The EQuIP tools allow to establish a comprehensive baseline scenario and, primarily through benchmarking, to come up with realistic target values for key performance indicators.

More broadly, the EQuIP toolbox can be used to outline a comprehensive target system for industrial policy aimed at promoting inclusive and sustainable industrial development. Such a target system can also be used to support policy-makers in their efforts to monitor and evaluate (M&E) the success of policy interventions. It can help policy-makers to identify and learn from past policy failures and recognise possible trade-offs between different policy objectives; such insights can then, in turn, feed into a flexible and continuous adaptation of industrial (and possibly also other) policies.

The EQuIP toolbox also covers issues related to institutional setups and arrangements that are conducive to effective industrial policymaking and goes into discussing possible policy instruments and their implementation for achieving the objectives. In other words it addresses questions such as, for example: What kind of institutions are needed for successful industrial policy-making (e.g. ministerial units, councils, committees, agencies, etc.), how should they be designed, resourced and staffed, and how should responsibilities be distributed and accountability be ensured? How to best establish and design mechanisms that allow and promote information exchange and coordination between different stakeholders (i.e. different ministries, public agencies, private sector actors, universities, financial institutions, trade unions, etc.)?

However, some limitations of both this conceptual framework document as well as the EQuIP toolbox more generally have to be recognised. The conceptual framework should not be considered a final portrayal but rather, as the entire toolbox, in a constant state of work in progress; that is, it should be viewed as a point of departure for discussion towards further refinements of the concept of inclusive and sustainable industrial development. Furthermore, while it offers some hints on *possible trade-offs* between different objectives that policy-makers need to take into account when formulating strategies and policies to promote inclusive and sustainable industrial development, these trade-offs are not explored in much detail; more in-depth analytical work is needed to provide more concrete insights on where such trade-offs can be expected.

In summary, the EQuIP toolkit aims at supporting the creation of lasting strategic decision-making capacities rather than quick fixes. We believe that this is more in line with the idea of an iterative and experimental approach to industrial policy which has been emphasised in recent academic and practitioners' debates. Hence, EQuIP aims at creating national pockets of excellence for industrial strategy and policy design, monitoring and continuous adaptation that can review existing plans/strategies, question new advice received from international advisors, propose new initiatives, and (maybe most importantly) monitor whether ongoing programs are delivering results which are in line with the strategic vision of the country. In a nutshell, applying EQuIP will not deliver industrial strategy blueprints for developing countries as other approaches to industrial policy design attempt. Instead, it will provide a range of inputs into an independent national industrial strategy-setting and a classification device of different types of policy instruments that countries can consider as options when designing their industrial policy packages. Accordingly, the EQuIP approach is based on a number of principles that jointly ensure an evidence-based and flexible approach to industrial strategy formulation. Amongst other things, it emphasises the importance of basing any policy decision on transparent (often quantitative) evidence on country characteristics and conditions, of acknowledging synergies and trade-offs between different policy objectives, of viewing an industrial strategy as the starting and reference point for a continuous experimentation and learning process and presents a structured method for independently assessing and combining policy instruments into coherent industrial policy packages. The industrial policy design is conceived as an open-ended cycle that allows for constant adaptation and to ensure that all stages of the policy cycle are successful, the process must be backed by suitable institutional structures. Thereby, the focus of the EQuIP toolbox is not on identifying any universal best institutional setup, but on analyzing different options for institutional setups and adapting a setup which relates to specific country and state-society contexts. With the recognition of these principles at its heart, we hope that what EQuIP can contribute to sound industrial policy-making in lower-income countries.

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