Morocco's 2014-2020 Industrial Strategy and its potential implications for the structural transformation process

by Karim EL MOKRI

Summary

Morocco is now more than ever threatened by the trap of middle-income economies. On one hand, it is caught between increased competition from low-income countries in low productivity and labor-intensive sectors and, on the other hand, the difficulty of accelerating its pace of structural transformation towards activities with higher value added and higher technological content. International experience shows that few countries have managed to climb to the status of an advanced economy. The structural transformation process may be, in fact, impeded by several factors relating to market failures, a technological gap, a lack of know-how and human capital, inadequate institutional quality, etc. Overcoming these handicaps is often associated with the need to conduct an effective industrial policy, which should encourage private investment and orient it towards the most dynamic and complex sectors. The purpose of this policy brief is not in fact to assess Morocco’s new industrial policy and the feasibility of its stated objectives in terms of added value and job creation, but rather to judge the appropriateness of the choice of sectors targeted by this strategy, by highlighting the positioning of these sectors in the Product Space as well as with regard to the current cognitive and productive capacity of Morocco.

Morocco’s industrial policy has gone through several phases since the 1960s. Indeed, during the period between 1960 and 1980, Morocco had opted for a strategy of substituting imports in order to put in place a production system capable of reducing dependence on the acquisition of industrial goods from abroad. Although this approach has enabled the country to establish the basic pillars for a number of industries, this model however began to lag in the late 1970s, a situation exacerbated by the debt problem during this phase. Morocco was thus left with an industrial fabric characterized in particular by some distortions due to protectionist policies and the formation of monopolies, and by the weakness of spillover effects, linked to the national productive sector’s lack of integration. From the early 1980s until 2005, Morocco had tried to address the shortcomings identified by fostering a policy focused on promoting exports. The latter allowed more labor-intensive sectors to develop, namely textiles and food. In contrast, the industrial sector in Morocco has remained limited to exports, mainly low value-added, geographically concentrated and with a low level of competitiveness compared to emerging countries in Asia, Eastern Europe and MENA. Starting in 2005, Morocco experienced a turning point in relation to the industrial policy model adopted by implementing a strategy based on global business, considered among the most dynamic sectors of world trade. Thus since 2005 the country has seen a succession starting with the Emergence Plan and the National Pact for Industrial Emergence, before initiating its new industrial policy entitled the 2014-2020 Industrial Acceleration Plan, which materialized after having noted the lack of progress in terms of competitiveness and
industry's low contribution to growth and employment.

The aim of this policy brief is thus to briefly analyze the sectorial targeting strategy of the 2014 – 2020 Accelerated Industrial Plan, by highlighting the positioning of these new industrial ecosystems in the Product Space, and by comparing Morocco’s current cognitive and productive capacity.

1 – Debate surrounding the justification of industrial policy: the contribution of the economic literature

Economies gradually develop as their productive structures migrate towards activities with high added value and higher knowledge content (Paus 2012). This transition is conditioned by the accumulation of sufficient capacity in human capital and technological, entrepreneurial and managerial resources. However, when a given economy is unable to meet these conditions, it finds itself trapped in the middle-income class between, on the one hand, competing low-income countries that are more competitive in terms of labor costs and, on the other hand, the advanced countries situated at the technological frontier with innovation-based economies (Tran 2013, Agenor et al. 2012).

For their part, Hausmann et al (2011) indicate that the structural transformation process generally obeys a rule known as “path dependency.” This assumes that each country is channeled towards products that require cognitive abilities and know-how that are similar or close to those required by the goods and services it already produces. In other words, economies are rarely able to move directly to remote and more complex products. This hypothesis could explain the middle-income trap and the fact that very few countries have been able to improve the complexity of their economies and climb to the category of developed countries (Felipe, Kumar and Abdon 2010; OCP Policy Center 2016). The inability of countries in the middle category to advance to a higher level of complexity can be explained by market failures, particularly in the coordination and dissemination of knowledge. This type of market failure constitutes one of the main obstacles to entrepreneurship and private investment in new higher-productivity sectors (Rodrik 2004).

“...The success of industrial policy depends more on the quality of its practical implementation...”

Similarly, Rodrik and Hausmann (2003) and Hausmann et al. (2007) introduced the “cost discovery model” to explain the inability of private entrepreneurs to explore new products. The basic idea is that companies pioneering the exploration of possibilities to produce new products face high uncertainty about the costs to be incurred through the discovery process (to deepen their knowledge about the new market, competition, technology use, and the costs of adapting these technologies to national specificities, etc.). However, when a contractor is committed to this process and achieves this experience, it generates positive externalities, since competitors will be able to take this knowledge to these new markets without having to fully bear the initial costs of discovery. In other words, the information generated by the pioneering entrepreneur concerning the new product becomes a kind of public good accessible to competition and imitators. This may discourage private entrepreneurs from wanting to play the role of pioneer, thus impeding the economic transformation process.

All these factors may explain why the market cannot alone enable rapid transitions to more complex products. This market failure is among the main reasons given in the literature to warrant the use of industrial policies.

It should be however noted that many authors defend the idea that market forces are able to efficiently allocate resources between sectors and branches and oppose government intervention through industrial policy, given that it can generate distortions within the context of “Government Failure” (Anne Kruger 1993 and Deepak Lal 1983).

Faced with this controversy that continues today, an analysis of industrial policy should probably be approached from a different angle. Indeed, in his article “Industrial Policy: Do not Ask Why, Ask How,” Rodrik (2008) showed that to move forward in this debate, we had to accept the fact that industrial policy is only one task among many that governments are responsible for, such as policies (monetary, fiscal, exchange, education, employment, etc.) where the intervention of the state is however less disputed. The same author adds that the arguments presented in the literature against industrial policy were not robust and that the effectiveness of industrial policy depends largely on the quality of its

practical implementation. In the same sense, the findings of a recent study by the OCP Policy Center propose that industrial policy should not be seen as a matter exclusively for governments, but rather it should be based on a coherent framework in order to enable every stakeholder (government / private sector / financial sector) to optimally play its role.

2 - A brief inventory of the manufacturing sector

During the period from 2008 to 2014, the manufacturing sector in Morocco accounted for almost 15.3% of GDP, compared to about 15.5% for the primary sector and 55% for services. However, during the same period, manufacturing (processing industries) only contributed to GDP growth by 0.4 percentage points on average, compared to 2 points and 3.3 percentage points, respectively, in the primary and services sectors. The weakness of the sector’s contribution to growing the Moroccan economy occurred parallel to a continued decline in the share of employment in industry, with net losses in some years (2011, 2012 and 2014). These developments are indicative of an unfinished process of creative destruction, since job creation in new sectors fails to offset losses observed in conventional sectors. Moreover, despite the momentum of certain services, the insufficient development of the Moroccan industrial sector in industries and products with high added value and high technological content is a serious factor blocking the country’s structural transformation process.

« Despite its efforts, Morocco’s positioning in the most sophisticated industries is insufficient.»

This is clearly reflected by Morocco’s ranking per the economic complexity index (ECI) in 2014, where it holds the 78th spot out of 124 countries. According to this indicator, which assesses the level of productive and cognitive abilities of a given economy, through the sophistication of its exports and diversification of its export structure by product, Morocco is positioned in the intermediate complexity class (Figure 1). However, it remains closer to the lower limit and is thus placed behind several developing countries, including in the MENA region (Tunisia, Egypt, etc.). It should be emphasized, however, that the Moroccan economy has grown in complexity in an almost continuous trend since 2009 (Figure 2). Nevertheless, over the long term, the process of the structural transformation of the Moroccan economy can be described as slow. Indeed, by observing changes in Morocco’s Product Space between 1995 and 2014 (Figure 3) indicates that the structure of Moroccan exports experienced moderate changes in sophistication since the country is mainly positioned in low complexity products, such as textiles and food processing, while its presence in products with high technological content remains insufficient. The last period has however experienced a relative acceleration of the sophistication of Moroccan exports, with gradual diversification into more complex areas such as automotive and aerospace. These two sectors are among the professions targeted by the new industrial policy adopted by Morocco and entitled the 2014 – 2020 Industrial Acceleration Plan. The plan aims to level three main weaknesses of the Moroccan economy, namely, access to financing for industrial projects, access to land and integrated platforms, as well as the establishment of quality training that is adapted to the requirements of the sector. In addition, the 2014 - 2020 Industrial Acceleration Program focuses on a number of ecosystems namely, automotive, aerospace, textile and leather, chemical and parachemical, heavy goods vehicles and bodywork, construction materials, and the pharmaceutical industry. Most of these sectors are considered among the most dynamic in world trade in products, offering a high potential for Morocco to better integrate into global value chains.

3 – Morocco's industrial acceleration plan and the potential implications of sector choices made

The objective of this section is to analyze the appropriateness of targeted industries by Morocco in the 2014 – 2020 Acceleration Plan. To do this, we use the "Product Feasibility" approach (Atlas of Economic Complexity, 2014). This allows the sectors targeted by the Moroccan industrial policy to be placed in the "Product complexity gap" space.

(2). Idem.
To measure the product complexity, we use the product complexity index "PCI" published in the Atlas of Economic Complexity. Hausmann and Hidalgo define the PCI as an indicator that classifies exports based on the productive capacities and know-how required to produce them. In other words, a product is qualified as complex when a country having a diversified export structure produces it and when the country primarily produces low ubiquity products (sophisticated goods that are not easily achievable by many countries). Thus, industrial capital goods and products in the chemical, electrical and advanced electronics sectors that require high qualifications and abilities and are only produced by a limited number of countries have a high PCI, while

Figure 1: Dynamics of countries ranked according to the Economic Complexity Index (ECI) between 1995 and 2014

Source: Developed from the Economic Complexity Index (ECI) from the Atlas of Economic Complexity.

Figure 2. Morocco’s ranking according to the Economic Complexity Index (rank out of 124 countries)

Source: Developed with data from Atlas of Economic Complexity
Figure 3. Evolution of the Moroccan exports’ Product Space between 1995 and 2014

Source: The Atlas of Economic Complexity, “Center for International Development at Harvard University” and author’s graphical explanatory notes
agricultural products or exports of unprocessed products have a low PCI, since they do not require advanced productive and cognitive abilities.

«The new Industrial Acceleration Plan targets the sectors that may have potential positive impact in terms of growth and sophisticated exports.»

Regarding the gap, we used the indicator named "capacity gap," also from the Atlas of Economic Complexity. This indicator implicitly reflects the gap between the productive capacity available to a country and that required by a new product. The greater the gap, the more that country will have to build new productive / cognitive capacities to position themselves for a new product.

The industrial acceleration program focuses on different ecosystems, namely automotive, aerospace, textile and leather, chemical and parachemical, heavy goods vehicles and bodywork, building materials and the pharmaceutical industry. According to data from the 2014 Atlas of Economic Complexity, with the exception of the textile and leather sector, the most targeted sectors belong to the product communities with a complexity level above the average of the basket of goods actually exported by Morocco, which is at 0.81. Chart 4 traces the product feasibility space for Morocco, and depicts that the "machinery and electrical and electronic equipment" and "transport equipment" communities, which include automotive, aerospace and bodywork, targeted by Morocco’s new industrial policy, are characterized by complexity levels that are among the highest.

Consequently, and given the positive empirical relationship between complexity and economic growth, Morocco could benefit in terms of growth by targeting these branches, provided, however, that it has the necessary absorptive capacity in order to consequently enable both a better integration rate of local added value and the continuous improvement of the country’s position in the most dynamic production phases and complex value chains in question.

Charts 5 and 6 provide a more detailed and disaggregated view of production possibilities that Morocco could consider for the two sectors: the groups "transport equipment" and "electrical equipment," respectively. Although the country recently experienced an accelerated positioning in the automotive industry and aerospace sectors, by attracting foreign investors, Morocco only holds the revealed comparative advantage (RCA> 1) for a few products (in dark circles in Figures 5 and 6), while Morocco still has yet to explore most other products of the two communities in question (in light colored circles). Morocco will thus have an interest to diversify, within these two categories, to products whose RCA is currently less than 1, and precisely to those whose level of complexity is higher than the current basket of Moroccan exports, equal to 0.81.

The product community entitled "Chemical," which includes two other sectors targeted by Morocco’s

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Figure 4. Opportunities for Moroccan exports (communities of aggregated goods)

![Figure 4](image)

Source: The Atlas of Economic Complexity, Center for International Development at Harvard University and author's graphical notes

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industrial policy, namely chemistry and parachemistry, as well as the pharmaceutical industry, also offers high levels of complexity, while remaining below those listed under "machinery and electrical equipment" and "transportation equipment." Consequently, a good positioning for Morocco in these industries would also be beneficial in terms of complexity and growth. Figure 7 gives a more detailed view of the opportunities available in Morocco to better position itself in the category of chemical and pharmaceutical industries. Thus, despite the progress made by Morocco in the fertilizer sector, many opportunities remain undeveloped because most products within this community remain unexplored (Morocco is at RCA <1), and especially because the majority has higher complexity levels than the average of the products exported by Morocco today.

Aside from the potential gains in terms of growth, Morocco's good positioning in these highly complex areas, it should be emphasized that these offer an

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Figure 5. Opportunities for Moroccan exports (in the disaggregated transportation equipment community)

[Graph showing opportunities]

Source: The Atlas of Economic Complexity, Center for International Development at Harvard University

Figure 6. Opportunities for Moroccan exports (in disaggregated machinery and electrical / electronic equipment communities)

[Graph showing opportunities]

Source: The Atlas of Economic Complexity, “Center for International Development at Harvard University”

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additional benefit in the case of a middle-income country. Indeed, Hausmann and Hidalgo showed that overall, the products that have a high level of complexity are usually located in the densest part of the Product Space, in the sense that they are more connected to other products at least as complex. In other words, if Morocco can be well positioned in some of these complex sectors targeted by its new industrial policy, this will allow it to diversify and further develop the cognitive and productive capacity required by other more complex areas in the Product Space, thus conditioning its growth path. This phenomenon described in the previous sections, and known in the literature as the "Path dependency"⁶ could have a leverage effect by amplifying the positive impact of the diversification and sophistication of exports in the country’s process of structural transformation. The automotive industry is an example since after the installation of a first French car manufacturer, other foreign investors in the same area followed, first to enjoy the reduced uncertainty surrounding the discovery process of the Moroccan market, induced by the pioneer investor and, secondly, to take advantage of the preliminary accumulation of knowledge acquired by labor and local businesses in the sector (relative integration observed in the sector and specialized training programs launched in the automotive industry).

"By positioning itself on sophisticated products, Morocco could accelerate its structural transformation to even more complex sectors within the framework of what is called ‘development path dependency.’"

Given these elements, the sector choices for Morocco’s 2014 - 2020 industrial policy seem relevant when it comes to high complexity product communities (automotive, aerospace, chemical and pharmaceutical industries, and heavy goods transport and bodywork industries), as they contain products that are close to the efficiency frontier of the “Complexity - Gap” space, and also in relation to the expected benefits in terms of growth and accumulation of knowledge and expertise. Nevertheless, the most complex products are also those that are most distant from the level of knowledge and current know-how in the Moroccan economy. To move to complex remote sectors, which is a strategy described in the literature as "long jumps," requires a significant accumulation of productive capacity and the establishment of pioneer businesses or investors. Consequently, industrial policy would be a major contribution if it can reduce uncertainty and the cost of discovering new products by the private sector, and also if it can offer the public

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(6). Hausmann and Klinger, 2007
goods needed to encourage private investment and avoid market failure. It is noteworthy that with the difficulty of emerging domestic private pioneers in high complexity sectors, in its industrial strategy Morocco has opted for a core group of foreign firms (foreign automakers and aerospace companies), in order to acquire the knowledge and expertise needed and subsequently ensure positive externalities for national companies.

Par ailleurs, force est de constater que parmi les activités couvertes par le Programme d’accélération industrielle de l’économie marocaine, figurent deux branches à complexité faible ou intermédiaire, à savoir le textile et le cuir. Comme le montre le graphique 8, le Maroc de par son historique, est déjà présent sur plusieurs produits dans la catégorie Textile, tandis que sur l’ensemble des produits où il ne dispose pas d’avantage comparatifs révélés, toujours dans la catégorie textile, seulement un nombre limité offre un potentiel de complexité supérieur à la moyenne des exportations marocaines.

« The Industrial Acceleration Plan an eclectic strategy that also targets certain sectors with low to moderate complexity, which are labor intensive.»

It is also important to emphasize the need for a middle-income country like Morocco to continue an ongoing diversification into components and products with higher added value and to not settle for production lines such as less sophisticated assembly activities or wiring. This requirement is crucial in avoiding the middle-income trap and being overtaken by low-income countries.

Moreover, it is clear that two low and middle complexity branches, namely textiles and leather, are among the activities covered by Morocco’s industrial acceleration program. As shown in Figure 8, Morocco through its history, is already present for several products in the textile category, while for all products where it has no revealed comparative advantage, also in the textile category, only a limited number offer the potential for above average complexity for Moroccan exports.

Targeting these two low / intermediate complexity sectors can be justified in Morocco’s case through criteria other than sophistication. First, the existence of high youth unemployment, typically sectors such as services and high labor-intensive industries, such as textile and leather, can help to reverse the trend. In addition, it is important to remember that 40% of the population lives in rural areas, thereby increasing the risk of excess unskilled labor supply in urban areas due to rural exodus. Faced with such challenges, only encouraging complex, generally capital-intensive activities that are less suitable for unskilled labor, cannot sufficiently absorb the abundant supply of unskilled labor.

Thus, if the potential gains in terms of complexity and growth justify the choices made concerning the most sophisticated sectors, the criterion of employing labor, mostly unskilled, however, could justify the choice of parallel low complexity and intensive labor sectors, such

Figure 8. Opportunities for Moroccan exports (disaggregated Textile community)

Source: The Atlas of Economic Complexity, Center for International Development at Harvard University
as textiles. However, the interest in such low complexity activities should be only transient (short / medium term) in order to avoid the risk of resource allocation to predominantly non-viable operations in the long-term, since low-income countries will end up catching up to Morocco in these activities, with a more competitive cost of labor for these types of production. Removing incentives for these categories can thus be conducted gradually when the proportion of the unskilled labor in relation to the total labor supply will decrease in favor of skilled labor that can be absorbed by complex sectors.

This refers to the need to mitigate a recurring problem of paramount importance for the Moroccan economy, namely the urgency of education reform in terms of quality and adaptability to market needs and also to the essential role for vocational training and continuing education in business (Agenor and El Aynaoui 2015).

4 – An eclectic industrial policy requires stringent rules of good governance

Overall, we can conclude that the choices in terms of the sectors targeted by the 2014-2020 Moroccan industrial policy seem to be justified by the potential positive impact that these sectors could have on growth, sophistication and diversification of Moroccan exports. This policy could be described as eclectic as it brings together products / sectors with various levels of complexity and follows several criteria at once. To achieve this, Morocco’s new industrial strategy provides a number of incentives tailored to the challenges ahead, particularly for public-private partnerships to design appropriate training programs, grants for continuing education, a public investment fund dedicated to industry, preferential bank loans to support the internationalization and restructuring of domestic enterprises, the introduction of the principle of industrial compensation in order to increase the integration of the local component, a renewed approach to facilitate land access, built specialized industrial zones, etc.

Nevertheless, it is important to emphasize that on the basis of international experience, particularly that of some Asian countries, the success of industrial policy in the case of middle-income countries requires some discipline in terms of monitoring and implementation, as well as a certain adaptability that would give decision-makers the timely opportunity to engage in preventive and corrective measures with regard to objectives.

Meanwhile, and in addition to conventional measures for the development of the productive and cognitive abilities of industry, which can involve various measures such as tax incentives and grants for continuing education, R&D, improving the quality of education, access to finance, the business environment and the effectiveness of institutions, industrial policy should be guided by two key principles in order to prevent the attempts at correcting market failures resulting in inefficient public interventions:

- The first principle is to limit the eligibility period accorded to private investors for incentives under the industrial policy, with subsidies that should be gradually reduced over time (Melitz 2005; Miravete 2003). Incentives will also need to be conditioned by the performance of the beneficiary companies and in accordance with the carrot and stick approach.”⁷ Rodrik (2008) indicated that the successes experienced by Asian economies such as South Korea and Taiwan are due in part to the fact that the incentives used in industrial policy were conditioned by export performance. Other studies have also highlighted the importance of an industrial policy conditioned by results (Lin, 2012). For this, it is conceivable to establish a rule stipulating that beyond a certain period that can vary by sector or type of product, subsidies, tax incentives and financing guarantees would be withdrawn for companies that did not demonstrate export performance in the targeted product. In the case of middle-income countries such as Morocco, this prevents the proliferation of classes of subsidized and uncompetitive firms and improves the efficiency of public spending in industrial policy.

- The second principle could help avoid market failure and the inability of the private sector to engage in discovering new complex products. This rule would ensure that incentives are designed to reward risk-taking by the pioneers in new complex products. Operationally, It is conceivable to have a progressive system where, for a limited period varying by industry, the pioneering entrepreneurs will receive subsidies and greater incentives than investors who follow them later, since they will face lower uncertainty. The pioneer status should be defined clearly: a system in which any new investor in the target product is considered a pioneer, provided that the number of established companies in the new market does not exceed level N1. Once this threshold is reached, the government can give incentives, however less than those granted to the pioneers, and which will be for a first generation of imitators that have the status of “first followers.” These measures, which will also be limited in time, will end as soon as the number of companies that have managed to settle in the branch in question reaches a second threshold N2 (with N2> N1).

«The success of industrial policy must be based on two key principles, incentives conditioned by beneficiary performance and the ability to reward pioneers’ efforts with respect to free riders.»

Finally, it must still be clarified that in the case of a country like Morocco, it is important to increase the pace of implementing reforms related to certain institutional aspects that are decisive for the development of industry and private entrepreneurship in general. As such, the acceleration of the new framework implementation for competition should be one of the main priorities at the institutional level, in order to reduce the formation of monopolies and subsidies related to them and to mitigate the entry barriers for new innovative companies with high potential. The application of this new framework could be an important contribution especially if the institution in charge has the necessary powers to impose sanctions against anticompetitive practices.
References

About the author, Karim El Mokri

Karim El Mokri was a resident Senior Economist at OCP Policy Center. Prior to that, he had worked for more than 9 years, at the Central Bank of Morocco (Bank Al-Maghrib) where he was in charge of the monetary studies Unit since 2009, after having served as economist at the Inflation Unit since September 2004. Karim El Mokri was in charge of economic and monetary development’s assessment for monetary policy and financial stability purposes, in addition to modelling and forecasting issues. His main fields of interest are development economics and long term growth, monetary policy and exchange rates, international economics and financial stability. He holds a Master degree in economics from the University Mohammed V of Rabat - Morocco and an engineering degree from the National Institute for Statistics and Applied Economics.

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