

Chapter 5

Public policies for productive transformation in North Africa

This chapter examines government policies required for productive transformation in the countries of North Africa. These countries face structural constraints, which hinder international trade and the creation of quality jobs, both of which are necessary to reduce inequality. These challenges require changes to production and trade structures.

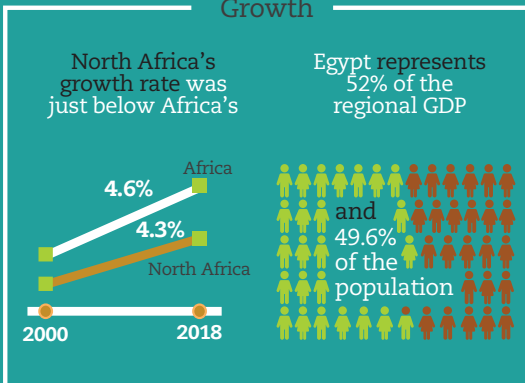
The chapter begins with an analysis of production structures through an examination of macroeconomic aggregates and North Africa's place in international trade. It then goes on to indicate sectors in which countries have specialisation advantages and identifies both the opportunities for trade expansion and the obstacles faced by both the private sector and foreign investors within a context of weak regional integration. Finally, this chapter proposes government policies to realise successful productive transformation in the region.

BRIEF IN

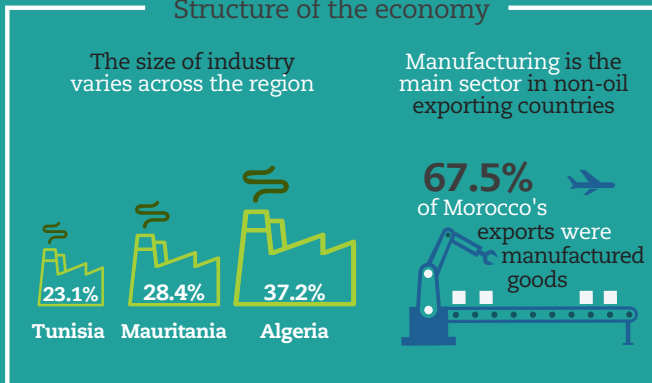
Productive transformation in North Africa has been hindered by a large **concentration of exports** in oil and gas, as well as low value-added products. Other obstacles play a role, including a lag in **innovation and technology**, weak regional integration and insufficient logistics infrastructures, an unattractive business climate, and financing difficulties. In the area of human capital, government policy can support research and development (R&D), as well as innovation, through financing and technology transfer. Furthermore, measures to encourage **intra-regional trade** are essential. These include harmonising technical standards and lifting barriers for the free circulation of goods and services (especially non-tariff barriers). Finally, North Africa can make improvements to security and the business environment by reforming investment codes, as well as tax incentives for public-private partnerships (PPPs).

Public policies for productive transformation in North Africa

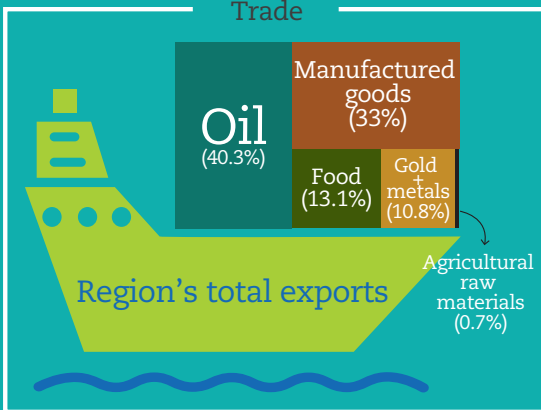
Growth



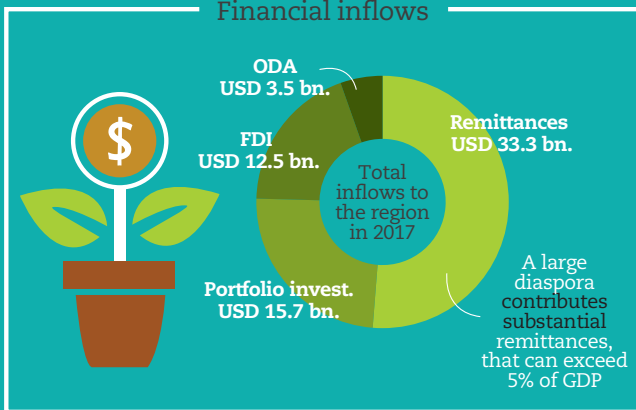
Structure of the economy



Trade



Financial inflows



Regional strategies for productive transformation

The region should step up its investment in human capital and innovation

Average annual spending on R&D as % of GDP, 2000-15



OECD countries



North Africa

Researchers per million inhabitants, 2000-15



OECD countries



North Africa

Potential value chains in the region



North Africa regional profile

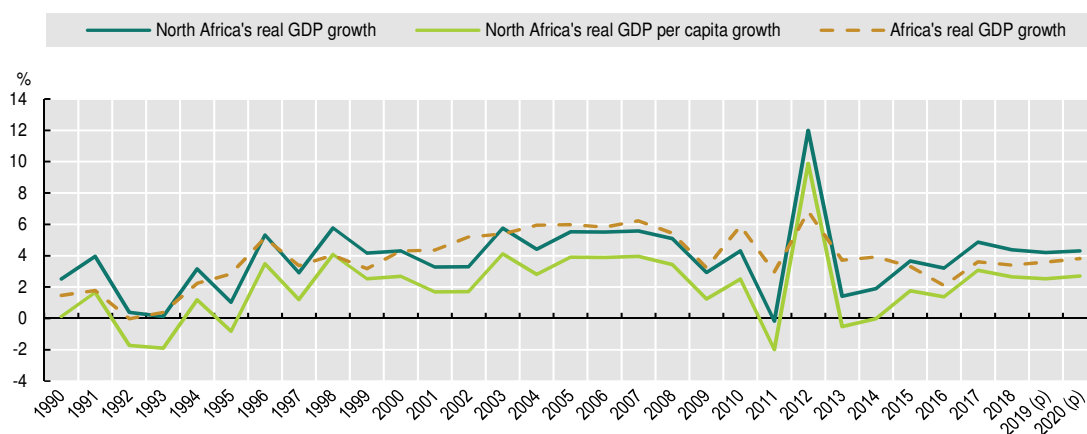
Table 5.1. Capabilities for productive transformation in North Africa, 2000-18

		Source	2000	2014	2015	2016	2017	2018
Production technology	Employers and paid employees as % of total employment	ILO	68.0	69.8	69.9	72.5	72.1	72.3
	Labour productivity as % of United States productivity	CB	36.6	32.5	32.5	32.7	33.2	33.4
	Private gross fixed capital formation as % of gross domestic product (GDP)	IMF	14.6	16.0	16.6	18.1	17.6	17.4
	Capacity for innovation, 0-100 (best)	WEF	-	-	-	-	31.5	32.0
Regional network	Intra-region as % of imports in intermediate goods	Comtrade	3.1	5.4	4.1	3.0	2.9	-
	Intra-Africa as % of greenfield foreign direct investment inflows	fDi markets	-	0.2	0.2	0.3	0.2	0.8
	Venture capital availability, 1-7 (best)	WEF	-	2.6	2.6	2.7	2.6	2.7
Capacity to meet demands	ISO9001 certification as % of Africa's total	ISO	15.9	40.1	41.8	43.8	38.2	-
	Fully- and semi-processed goods as % of region's total goods export	Comtrade	44.9	51.7	57.7	61.7	54.5	-
	Share of Africa's total consumption goods import (%)	Comtrade	35.9	33.1	33.1	33.2	31.2	-

Note: ILO – International Labour Organization, CB – The Conference Board, IMF – International Monetary Fund, WEF – World Economic Forum, ISO – International Standards Organization.

Sources: Authors' calculations based on data from The Conference Board (2019), *Total Economy* (database); fDi Markets (2019), *fDi Markets* (database); ILO (2019), *Key Indicators of the Labour Market* (database); IMF (2019), *World Economic Outlook* (database); ISO (2018), *The ISO Survey of Management System Standard Certifications* (database); DESA/UNSD (2019), *UN Comtrade* (database); and WEF (2018), *Global Competitiveness Report*.

Figure 5.1. Growth dynamics in North Africa and Africa, 1990-2020



Note: (p) = projections.

Source: Authors' calculations based on IMF (2019), *World Economic Outlook* (database).

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Table 5.2. Financial flows and tax revenues to North Africa and private savings (current USD, billion), 2000-17

		Average 2000-04	Average 2005-09	2010	2011	2012	2013	2014	2015	2016	2017
External financial inflows	Foreign direct investment	4.1	18.0	13.8	6.4	14.7	12.2	11.2	11.1	13.1	12.5
	Private Portfolio investments	0.1	-0.7	9.1	-3.1	-3.4	2.6	4.3	0.6	-1.4	15.7
	Remittances	8.7	16.5	23.0	25.5	30.0	29.0	31.7	29.2	29.6	33.3
	Public Official development assistance	2.6	3.3	2.7	4.0	5.0	8.9	7.3	5.0	5.4	3.5
Total foreign inflows		15.5	37.1	48.6	32.8	46.2	52.7	54.6	46.0	46.6	64.9
Tax revenues		47.7	99.9	117.9	140.9	145.3	145.6	141.5	119.2	112.9	108.0
Private savings		58.5	127.4	164.0	169.3	189.6	188.9	184.5	154.6	155.7	132.8

Sources: Authors' calculations based on IMF (2019), *World Economic Outlook* (database), OECD-DAC (2018a), *International Development Statistics* (database), OECD-DAC (2018b) *Country Programmable Aid*, and World Bank (2019a), *World Development Indicators* (database).

Production structure in North Africa

The macroeconomic situation remains weak

The average growth of GDP per capita in North African countries was 2% during the period 1990-2017, and was hence too limited to reduce inequalities, poverty and unemployment. Between 2010 and 2014, growth was at 2.2%, before falling to 1.5% (Table 5.3) between 2015 and 2017. The weak performance at the end of the 2000s and the beginning of the 2010s can be explained by the international financial crisis and the Arab Spring. North Africa, which extends from the coast of Morocco and Mauritania on the Atlantic to the Red Sea in Egypt, has not yet succeeded in maintaining strong and stable growth because of a number of obstacles: unstable oil prices, low rainfall levels, political tensions, and terrorist attacks (Egypt, Libya, and Tunisia). Morocco (1.9%) and Egypt (2.2%) have shown better performance since 2015, as opposed to Mauritania (0.5%) and Tunisia (0.25%).

All six countries share a number of characteristics: little trade between each country, minimal processing of raw materials, and high unemployment rates amongst young people in urban centres (approximately 30% in Algeria, Morocco and Tunisia). In addition, there are important disparities in development and income between regions within each country. Apart from these points in common, their profiles are very different. Algeria and Libya are first and foremost oil producers. The economies of Morocco, Tunisia and Egypt are more diversified, due to dynamic manufacturing sectors and a more diversified industrial sector (textiles, automotive, agribusiness). With a population of 97.6 million in 2017, according to the World Bank, Egypt stands out as one of the major economic drivers in Africa, far ahead of Algeria (41.3 million), Morocco (35.7), Tunisia (11.5), Libya (6.4), and Mauritania (4.4).

Poverty levels and rankings on the Human Development Index (2017 HDI report updated in 2018) vary. Algeria, which had a 5.5% poverty rate in 2011 (the latest official numbers according to the national definition of the poverty threshold), is ranked 85th out of 189 countries, between Thailand and China, in the high human development category. Tunisia (95th, 15.2% poverty rate in 2015) and Libya (108th with more than a quarter of the population in need of humanitarian aid according to the United Nations) follow. Egypt (115th, between South Africa and Indonesia, with a 25.2% poverty level in 2010) and Morocco (123rd, with a 4.2% poverty level in 2014), belong to the medium development category. Mauritania is ranked in the low human development category (159th between Lesotho and Madagascar, with a poverty level of 31% in 2014).

According to 2018 World Development Indicators (WDI), the percentage of industry (including construction) in the GDP of these countries ranges from 37.2% in Algeria to 33.8% in Egypt, 28.4% in Mauritania, 26.1% in Morocco, and 23.1% in Tunisia.

Table 5.3. Some macroeconomic aggregates in North Africa (as a percentage of GDP)

	1990-94	1995-99	2000-04	2005-09	2010-14	2015-17
GDP per capita (growth rate)	0.3	2.3	2.3	3.3	2.2	1.5
Government spending	16.8	16.2	16.9	15.7	17.6	18.2
Investment	22.9	20.0	21.1	26.9	29.9	32.6
Private investment	14.5	12.0	12.0	17.3	23.7	25.9
Exports	30.4	29.2	33.3	44.4	41.3	30.9
Imports	33.4	30.5	33.3	41.4	47.2	46.3
Remittances	4.4	2.7	3.8	5.4	5.6	5.0
FDI	0.7	0.6	2.8	4.8	4.6	4.3

Source: Authors' calculations based on World Bank (2019a), *World Development Indicators* (database).

Capital accumulation and increased public spending have driven growth since the middle of the 2000s. Between 1990 and 2017, domestic demand could have driven growth, but was impeded by institutional constraints. Domestic investment has remained relatively high (29.9% of GDP over the period 2010-14 and 32.6% over 2015-17) and has even overtaken OECD ratios (20.9% in 2016; World Bank, 2019a). Overall investment has progressed despite public investment remaining stable, thanks to private investment (close to 80% in total). Despite the fact that government spending has increased only slightly (16.8% of GDP from 1990-94 and 18.2% from 2015-17), it remains steady and is consistent with that of OECD countries (17.8% in 2016; World Bank, 2019a).

Egypt had the lowest ratio of public expenditure between 2015 and 2017 (11.1% of GDP), in contrast to Mauritania, which had the highest, at 21.7%. Public spending is mainly financed by raw material exports, and by oil in particular. This exposes the country to international market pressures. Consequently, an increase in government spending has not supported public investment enough to boost growth.

Trade flows remain unbalanced. Aside from the period from 2005-09, North Africa imported more than it exported. After an increase in the 1990s and 2000s, there was a sharp decrease in exports, returning to levels of the early 1990s. This trend has accentuated the imbalance in trade, whereby imports have continued to rise. The trade balance of North African countries remains heterogeneous. The downturn in the international economy, marked by a fall in oil prices, has affected the oil producing countries. Exports in Algeria fell from 45.3% of GDP from 2005-09 to 35.5% from 2010-14, and then down to 22.7% from 2015-17. Libya has experienced a similar situation, with its exports falling from 68.3% to 62.5% to 38% over the same period. In short, Algeria and Libya have seen their share of exports in GDP decrease by over 20% in twelve years, with the price of crude oil ranging from a high of over USD 160 to a low of nearly USD 36 per barrel. Egypt also experienced a decline in exports, from 29.7% of GDP between 2005-09, to 13.3% between 2015 and 2017. However, the decline remains limited in Tunisia (48.8% to 41.6% over the same period) and Mauritania (41.8% to 39.1%). Only Morocco saw the share of its exports increase (32.4% to 35.4% of GDP). Oil resources provide comfortable incomes for some countries, but increase their vulnerability to external shocks.

External resources (remittances and foreign direct investment, FDI) increased, although they showed a slight decline in 2015-17. A large diaspora from the region contribute substantial remittances that sometimes exceeds 5% of GDP, with a peak of 8.4% in Tunisia between 2015 and 2017, compared to 0.5% in Algeria.

With 192 new projects financed per year between 2010 and 2017, representing 23.9% of FDI on the continent, North Africa remains the most attractive region in Africa for FDI. The bulk of capital flows are concentrated in Morocco (38.4% over 2010-17) and Egypt (35.2%), while Tunisia (13.3%) and Algeria (9.6%) remain less attractive (UNCTAD, 2018). The FDI/GDP ratio was 0.4% for Algeria compared to 6.1% between 2015-17 for Tunisia, due to the size of its economy and despite the limited number of new projects in 2017. The type of FDI also differs according to the country (Table 5.4).

Table 5.4. Top 5 most attractive sectors for FDI (stock) in North Africa

	Algeria, 2016	Egypt, 2017	Morocco, 2017	Tunisia, 2016
1	Industry (61.9%)	Oil sector (67.3%)	Industry (23.4%)	Industry (52.7%)
2	Building and public works (15.8%)	Services (11.2%)	Real estate (18.2%)	Telecom. (35.3%)
3	Services (15.1%)	Manufacturing (10%)	Telecom. (13.6%)	Tourism (8.2%)
4	Tourism (2.1%)	Building and public works (4.5%)	Tourism (9.6%)	Transportation (1.8%)
5	Agriculture (1.4%)	Agriculture (0.1%)	Energy/mining (6.3%)	Agriculture (0.9%)
Total	96.3%	93.1%	71.2%	98.9%

Source: Adapted from data taken from Algeria's National Agency for Development and Investment (ANDI) (*l'Agence nationale pour développement de l'investissement*), 2018, FIPA-Tunisia, 2016, Central Bank of Egypt (CBE, 2018) and Morocco's Finance Ministry (OCMF) (*Office des changes du ministère des Finances*), 2019.

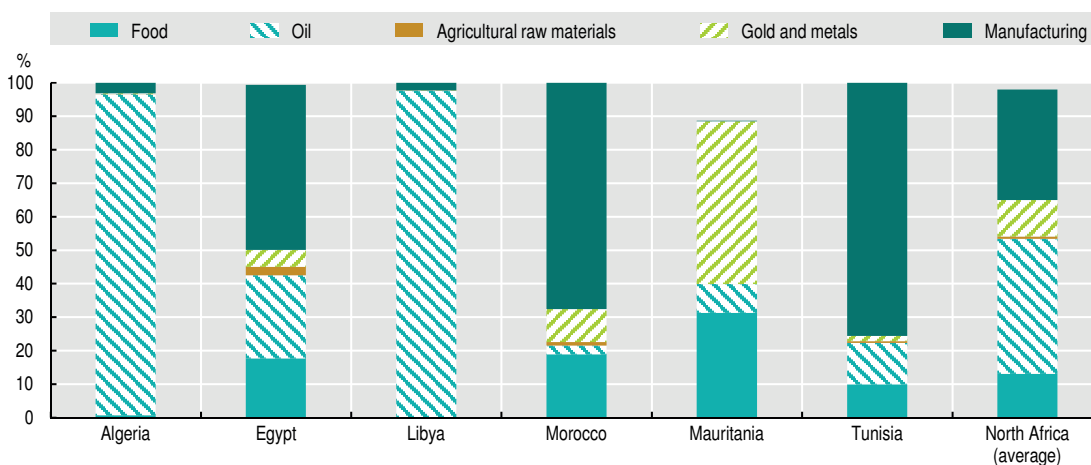
With the exception of Morocco, FDI (in stock) is largely concentrated in the same sectors. For Algeria, Egypt and Tunisia, five sectors account for more than 90% of FDI, with industry being the most attractive. In Egypt, the oil sector has received the majority of FDI, due to the economic zone established by China. Overall, the construction industry, telecommunications and tourism are all equally attractive sectors for FDI. This is not the case for the agricultural sector, due to climate risk.


The concentration of FDI in the industrial sector is positive for technology transfers, an essential part of productive transformation. FDI in the same sectors will induce countries to compete with each other to attract investors. This will pressure them to improve their institutions and implement reforms, like those launched by Morocco and Tunisia. FDI in similar sectors can be positive for the development of regional production chains and economies of scale.

North African exports remain focused on raw materials to developed countries

Despite their geographic proximity to Europe, North African countries do not have very diversified exports. On average, oil remains the region's leading product (40.3%), followed by manufactured goods (33%), food (13.1%), and gold and metals (10.8%). Agricultural raw materials do not appear in the average export mix, as they account for only 0.7% of total exports (Figure 5.2).

Figure 5.2. Average breakdown of goods exported by North African countries, 2010-2017



Source: Authors' calculations based on World Bank (2019a), World Development Indicators (database).
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This overall dynamic fails to highlight the disparities between countries. Algeria and Libya rank 18th and 21st in the world for oil production and 95% of their exports are derived from this product. Their economies are narrowly based and vulnerable to external shocks. Foreign sales of black gold have fallen slightly due to a decline in international prices and political instability in Libya. With the exception of Morocco, the other countries of North Africa also export oil, but to a lesser degree. Diversifying these economies in order to reduce their dependence on oil and to foster their productive transformation would be a step forward.

Compared to Algeria and Libya, the economies of Morocco and Tunisia are more diversified. The majority of exports are manufactured goods: 75.5% of exports in Tunisia and 67.5% in Morocco over the period 2010-17. The two countries' share of exports in the manufacturing sector has been growing since 2010, especially in Tunisia. The

manufacturing industry is also very strong in Egypt (representing 49.3% of exports on average between 2010 and 2017). Manufacturing is the sector of specialisation in non-oil exporting countries. This specialisation has brought about the development of specific services, such as marketing, intellectual property and certifications. This trend is an indicator of productive transformation within the economy.

However, exports from Tunisia and Morocco in the manufacturing sector are limited to a certain number of industries (e.g. clothing, textiles, leather, chemicals, electrical switching equipment, car parts) and are often dependent on imported goods. These industries do not require highly skilled workers. However, according to estimations from the International Labour Organization, these sectors employ 25% of the workforce in North Africa (ILO, 2019). Furthermore, manufacturing has become less profitable in European countries due to competition from Asia. The relatively low cost of labour¹ and the geographic proximity of Morocco and Tunisia to Europe are factors that have facilitated the delocalisation of certain industries from developed countries. The two economies also both export food products, with Morocco out-producing Tunisia in this industry (18.9% of total exports compared to 9.9%). However, Tunisia exports some oil (12.4%), unlike Morocco, which exports gold and metals (9.8%).

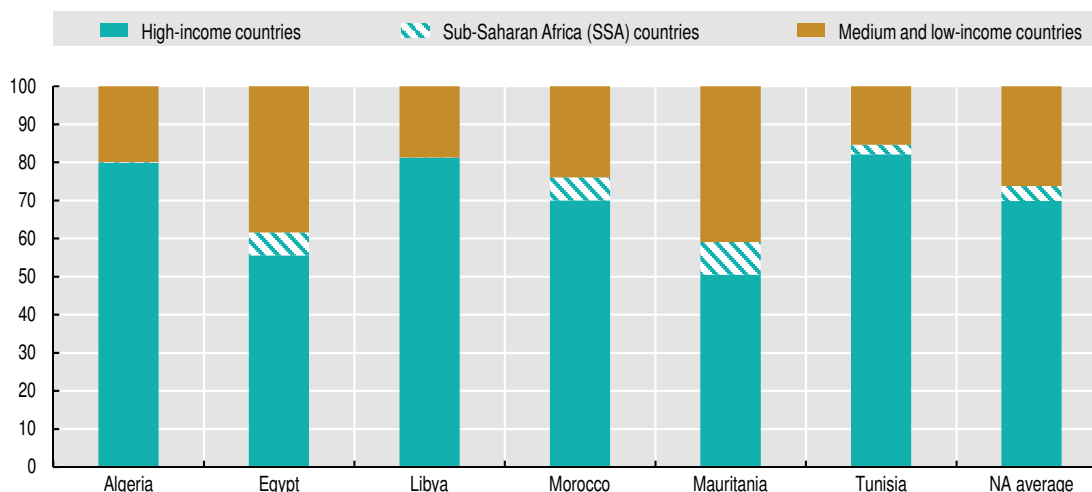
Egypt has the most diversified economy. Manufacturing constitutes almost half of all exports, oil a quarter, and food products, agricultural raw materials, gold and metals, another quarter. The share of manufactured products in total exports of goods rose from 40.4% in 1995 to 53.6% in 2017. This increase offsets the decline in oil exports from 37.2% to 21.3% over the same period.

Finally, Mauritania shows a low degree of productive transformation, despite the relative diversification of its exports. By focusing on low-value export of minerals (gold and metals, 48.6% of exports between 2010 and 2017) and agricultural raw materials (31.3%), the country does not take full advantage of international trade. Fishing illustrates this paradox. In 2014-15, the industry represented between 30% and 50% of exports, approximately 29% of state revenue and 55 000 direct and indirect jobs. However, its national fleet of 4 000 vessels remains very artisanal, with less than 400 000 tons of catch per year in 2014 and 2015, and only two fishing ports in Nouakchott and Nouadhibou. In 2014 and 2015, of an exploitable potential of over 1.6 million tonnes per year, half of the catch was made in the Exclusive Economic Zone (EEZ). This zone was largely exploited by long-distance trawlers (60%) operating under the open license regime (from China, Russia, Ukraine and the European Union). Industrial fish processing accounts for less than 10% of exports. About 80 plants are limited to storage and freezing (PECH Committee, 2018).

Productive transformation in North Africa requires countries to include more high-tech goods in their export baskets. The share of these goods remains minor throughout the region, except in Morocco and Tunisia, with high-tech exports representing 5.6% and 5.4% of total exports in 2010-16. In order for productive transformation to succeed, countries need to embrace the technologies needed to develop sophisticated goods. This requires reforms toward a more stimulating economic climate for investors.

Two-thirds of North African exports go to high-income countries (Figure 5.3). Demand is highest from high-income countries for oil and manufactured goods. These countries are key trading partners. The proximity to Europe reduces transport costs and facilitates the export of raw materials. Since 2010, 69.9% of North African exports have been destined for high-income countries, reaching a high of 80% of exports for Tunisia (manufactured goods), Algeria and Libya (oil), and about 50% for Egypt and Mauritania. The dynamics of these exports vary for each country and the international situation. Exports are increasing in Egypt and Morocco, decreasing in Algeria, Libya, and Mauritania, and remain stable in Tunisia. Imports of commodities by high-income countries, and oil in particular, are shrinking, as alternative sources of energy develop in these markets.

Figure 5.3. Destinations of North African exports, average 2010-17



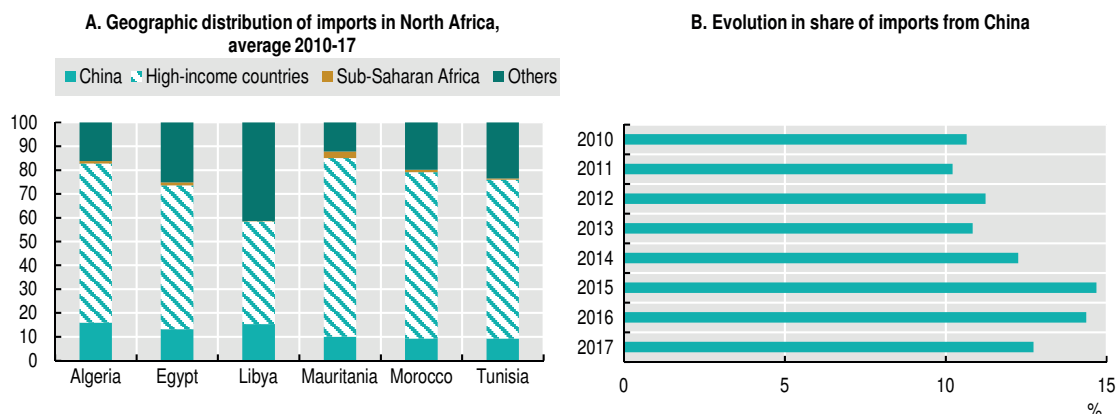
Source: Authors' calculations based on World Bank (2019a), *World Development Indicators* (database).
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There were fewer exports from the region to low and middle-income countries because of their demand structure. Only 26.2% of North African exports go to low-income countries, of which 3.9% goes to sub-Saharan Africa (SSA). The oil-producing countries, notably Algeria and Libya, export very little, if at all, to sub-Saharan Africa. On the other hand, Morocco and Egypt send more than one-third of their exports to low-income countries. However this share has declined over time in favour of high-income markets. SSA receives on average only 6% of exports from Egypt and Morocco. Despite the decline in Moroccan exports to low and middle-income countries (dominated by exports to non-African countries), those to SSA countries have increased since 2010 because of growing interest in this area. Morocco has applied for membership to the Economic Community of West African States (ECOWAS) in order to benefit from preferential tariffs. Mauritania exports the most to middle and low-income countries, mainly fish, gold and metals, with 8.5% of its exports going to SSA.

North Africa's integration into the global economy can also be viewed in the context of the geographic distribution of its imports, which shows an increase in purchases from China. Egypt is the most diversified country in terms of origin of imports, while Mauritania receives the majority of its imports from high-income countries, at nearly 75%. These countries remain North Africa's largest trading partners in terms of imports (over 60%, Figure 5.4A). Imports from SSA remain negligible, as North African demand is mainly for capital-intensive finished products.

The share of imports from China rose consistently between 2010 and 2015 (14.7%) before falling between 2016 and 2017 (Figure 5.4B). An increase in ties between these countries is positive for rapid productive transformation: infrastructure can be built at lower cost and gradual technology transfers are facilitated. This example of a South-South partnership should increase competition in the market for sophisticated goods, currently dominated by high-income countries. Consequently, high-income countries will have to adjust to the needs of North African countries. Nevertheless, technology transfers from China, essential to the process of productive transformation, are yet to be seen. Proper value chains between local and Chinese companies in these countries need to be developed.

Figure 5.4. Import structure in North Africa



Source: Authors' calculations based on World Bank (2019a), *World Development Indicators* (database).
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North Africa's integration into the global economy and its production capabilities are linked to the labour market. Indeed, growth generated by productive transformation should lead to more highly skilled jobs. This shift should result in a decline in the share of agricultural employment and a transfer of workers to the industrial sector. However, the current structure of the labour market offers few prospects for highly skilled jobs. Most jobs are created in agriculture and services (72% of the total), compared to 28% in the industrial sector (AUC/OECD, 2018). These numbers confirm the limited extent of productive transformation, which should increase employment for highly skilled labour and improve countries' production and export profiles.

Product development and commercial potential of North African countries

This section assesses the commercial potential of North African countries from a perspective of the Product Space Study. Identification of revealed and latent comparative advantage niches will reveal the potential for productive transformation in these countries.

Box 5.1. Product Space Method of Analysis

The concept of product space was developed by Hausmann and Klinger (2006) who postulated that the speed by which a country can migrate from the production of unsophisticated, low value-added goods to that of sophisticated, high value-added goods depends on their proximity to products in which the country has developed a comparative advantage. Over time, countries improve the composition of their exports by moving into the product space of goods that are related to their current exports rather than unrelated goods (Hausmann and Klinger, 2007; Hidalgo et al., 2007).

World Bank data (available on the WITS website) disaggregated to four digits in HS (Harmonised System) nomenclature are used. The identification of goods in which each country has a revealed comparative advantage (RCA) is based on the Balassa (1965) approach. In the analysis of productive transformation, latent comparative advantage niches (LCAs) of North African countries are identified and consist of products which are not yet exports, in which countries could easily develop a comparative advantage. A product is considered an export if the country has demonstrated a comparative advantage in that product for at least four years during a certain period. Once the products have been identified, analysis is restricted to data from 2015 for the purpose of brevity.

Comparative advantage is characterised by low diversification of exports in North African countries

Exports comprise mainly raw materials or low value-added products. Comparative advantage is varied, ranging from highly concentrated (Libya and Algeria) to relatively diversified (Egypt, Morocco, Tunisia). Economic activity is thus highly contrasted (Table 5.5). The export baskets of North African countries represent between 90% and 99% of their total exports. Productive transformation requires higher added value for products already present, as well as a greater diversification in exports.

Table 5.5. Key features of revealed comparative advantages (RCAs) in North Africa

	Algeria	Egypt	Libya	Mauritania	Morocco	Tunisia
Number of exports	16	242	15	22	170	214
Percentage of world exports	99%	87%	96%	98%	89%	90%
Number of exports at 50%	2	15	1	3	9	11
Number of exports at 75%	2	73	2	5	32	42
Number of exports at 90%	3	242	3	8	170	214

Source: Authors' calculations based on DESA/UNSD (2019), United Nations Comtrade (database).

The export baskets of Algeria and Libya contain few goods, 16 and 15 respectively, which account for 99.1% and 96% of their exports. Exports focus on oil and its derivatives, more than 90% of exports (Table 5.6). Productive transformation has been extremely limited. Mauritania's export basket is also concentrated (98% of exports, with five products out of 22 accounting for 70% of exports). These sales are dominated by iron ore, copper and gold (52%), and seafood (29%).

In Egypt, Morocco and Tunisia, the export basket is more diversified. It contains respectively 242, 170 and 214 products representing approximately 90% of sales abroad. In fact, Egypt's export basket is more diversified than that of Tunisia and Morocco: 15 products account for half of the exports, compared to 11 in Tunisia and nine in Morocco (Table 5.6).

Table 5.6. Main exports of North African countries

Country	Key products as a percentage of total exports in 2015
Algeria	Petroleum oils and oils obtained from bituminous minerals (55%); petroleum and other gaseous hydrocarbons (40%); ammonia, anhydrous or in aqueous solution (1.6%); mineral or chemical nitrogen fertilisers (1.3%).
Egypt	Petroleum oils and oils obtained from bituminous minerals (27%); wires, cables, including coaxial cables (4%); fresh or dried citrus fruit (2%); clothing (2%); gold, including gold plated with platinum (2%).
Libya	Petroleum oils and oils obtained from bituminous minerals (64%); petroleum and other gaseous hydrocarbons (22%); gold, including gold plated with platinum (7%).
Mauritania	Iron ores and concentrates (30%); molluscs (17%); frozen fish (17%); copper ores and concentrates (12%); gold, including gold plated with platinum (10%); petroleum oils and oils obtained from bituminous minerals (4%).
Morocco	Wires, cables, including coaxial cables (12%); motor vehicles (9%); diphosphorus pentoxide, phosphoric acid, polyphosphoric acids (6%); clothing (5%); mineral or chemical fertilisers (5%); natural calcium phosphates, natural aluminium-calcium phosphates and phosphate chalk (3%); tomatoes, fresh or chilled (3%); molluscs (3%).
Tunisia	Wires, cables, including coaxial cables (13%); clothing (10%); olive oil and derivatives (6%); petroleum oils and oils obtained from bituminous minerals (4%); electric apparatus for switching (4%); parts and accessories of motor vehicles (3%); monitors and projectors, not incorporating a television receiving device (3%).

Source: Authors' calculations based on DESA/UNSD (2019), United Nations Comtrade (database).

RCAs show similar export structures, with the same products in various export baskets, hence the low level of trade between countries. Petroleum oils and oils obtained from bituminous minerals, predominant in exports from Algeria and Libya, are found in all baskets, as are electrical wires and cables and clothing in Egypt, Tunisia and in Morocco.

The pattern of comparative advantage shows that export baskets consist mainly of raw materials, or semi-finished and finished products with low added-value. Automobiles are manufactured in Morocco because assembly lines exist there. Value could be added to this activity through the manufacturing of spare parts. The identification of each country's latent comparative advantage (LCA) focuses on goods that are missing in export baskets and on which countries can easily position themselves, as these goods are close to current comparative advantage niches. Like RCAs, LCAs vary according to the country (Table 5.7).

Table 5.7. Main products with latent comparative advantage in North Africa

Country	Products
Algeria (16 products)	Acyclic alcohol and its derivatives, tanned or raw hides and skins, onions, shallots, garlic, unwrought aluminium, natural cork, clothing, etc.
Egypt (155 products)	Rubber tires, medicine, pastry products, fruit (apricots, cherries, peaches, nectarines, plums), plastic packaging (caps, lids, capsules and others), etc.
Libya (16 products)	Remelting of iron or steel ingots, unwrought aluminium, acyclic hydrocarbons, raw hides cattle skins, waste, parings and debris of plastics, etc.
Mauritania (20 products)	Prepared or preserved fish, oil seeds and oleaginous fruits, waste, parings and scrap of plastics, raw hides and bovine skins (including buffalo), precious stones (other than diamonds), alliaceous vegetables, tomatoes, etc.
Morocco (101 products)	Motor vehicle accessories, fresh apples, pears and quinces, iron or steel articles, plastic articles, fish fillets, etc.
Tunisia (142 products)	Taps, valves and similar apparatus for pipes, electronic integrated circuits, electronic structures and parts, petroleum gases and other gaseous hydrocarbons, packaging articles, unwrought aluminium, etc.

Source: Authors' calculations based on DESA/UNSD (2019), United Nations Comtrade (database).

Analysing LCAs yields two findings. On the one hand, the latent export basket is more diversified in countries which have a large number of RCA products, notably, Egypt, Morocco and Tunisia. The possibilities for export diversification are more limited for Algeria, Libya and Mauritania. On the other hand, the North African latent export basket contains few high added-value goods, except for automobile parts and accessories (Morocco) and faucets (Tunisia). Generally, quality upgrading requires increased technological know-how and a better business climate.

The structure of company ownership affects the comparative advantage of exports (both RCA and LCA). Private capital, both domestic and foreign, facilitates productive transformation more than state-owned businesses. Egypt, Morocco and Tunisia stand out with a high level of domestic private investment in business, namely 93.4%, 89.8% and 92% respectively in 2013. Companies with at least 10% of shares owned by foreign shareholders represent 7.2% of the total in Egypt, 12% in Morocco and 11.7% in Tunisia in the same year. Instability caused by the Arab Spring has had a negative impact on private share ownership, which went from 7.2% in 2013 to 4.9% in 2016 (World Bank, 2019b).

Export baskets contribute little to GDP in North Africa

The next two sections examine the productive transformation in North Africa through the lens of export sophistication. At this level, two approaches are possible.

The first, proposed by Hausmann, Hwang and Rodrik (2007), is based on the contribution of exported products to aggregate productivity as measured by GDP per capita. It leads to the calculation of the PRODY index which measures the contribution of an exported good to GDP per capita, indicating the implicit technicality of the products.

The second, developed by Hausmann *et al.* (2011), is based on the analysis of product complexity; that is, the sophistication of the combination of factors of production (physical capital, human capital, labour, know-how). Complex goods will tend to be produced in a limited number of countries while low-complexity goods may be manufactured in a large

number of countries. The complexity of an economy reflects its ability to produce a wide range of goods with different levels of sophistication.

Results for the PRODY index show that North Africa's export baskets contribute little to its GDP. This contribution is lowest in oil-exporting countries, while countries with more diversified markets fare better. Egypt, Morocco and Tunisia, for example, which have larger export baskets, show a similar distribution in their products' contribution to GDP per capita. Exports in Mauritania and Algeria, are less diversified, and contribute little to GDP per capita, particularly in Algeria. As a whole, in view of the fact that PRODY is relatively limited in North African countries, productive transformation should concentrate on diversification, and focus on products which contribute substantially to GDP per capita. These products are more complex and will therefore require more technological know-how. In this sense, non-oil-producing countries are in a better position to undergo productive transformation and benefit from it.

The products and economies of North Africa lack complexity

North Africa's export products, and their economies in general, lack complexity. Furthermore, products from Morocco, Egypt and Tunisia are generally more complex than Algerian or Mauritanian products. Quality upgrading, in the context of productive transformation, in countries such as Egypt, Morocco, and Tunisia, can occur rapidly, as these countries already manufacture relatively complex, high-value products. The capabilities of these countries in terms of human capital and infrastructure will be advantageous for technological innovation. This will improve product quality and greater integration into the global value chain. The complexity of an economy can be understood via the combination of know-how and other factors that enable the production of more complex products.

The level of complexity in the economy is linked to actors' available know-how. Knowledge and skills are broadened through the interaction between individuals in increasingly complex networks, resulting in the manufacturing of more sophisticated products. The economy's complexity is intrinsically linked to the complexity of the products it produces. It is reflected in the product composition of a country as well as its knowledge structures.

Table 5.8. Economic Complexity Index (ECI) of North African countries, 2000-16

	2000-04	2005-09	2010-14	2015-16	2000-16
Algeria	-0.9	-0.9	-1.6	-1.2	-1.1
Egypt	-0.4	-0.2	-0.3	-0.2	-0.3
Mauritania	-1.0	-1.7	-1.7	-	-1.5
Morocco	-0.7	-0.5	-0.6	-0.8	-0.6
Tunisia	-0.3	-0.1	0.2	0.1	0.0
Average	-0.6	-0.7	-0.8	-0.5	-0.7

Source: The Observatory of Economic Complexity (2018).

In general, the economies of North African countries are characterised by low economic complexity. The most complex economies are Tunisia and Egypt, and the least complex are Algeria and Mauritania. These results corroborate the analysis of product complexity. Between 2000 and 2016, Algeria and Mauritania's economic complexity decreased, whereas Egypt and Tunisia's increased. An economy's complexity is a reflection of a country's real potential for productive transformation. From this standpoint, Tunisia, Egypt and Morocco are all well positioned.

Constraints to productive transformation in North Africa

Despite North Africa's attempts at industrialisation and the region's assets, productive transformation remains limited. This is due to highly concentrated economies, particularly for oil-producing countries. A number of obstacles prevent countries from integrating into global value chains: (i) a lag in innovation and technology; (ii) weak regional integration and insufficient infrastructure networks; and, (iii) a poor business climate and financing difficulties.

A lag in innovation and technology persists

North African countries lag far behind in the domain of human capital, innovation and technology, compared to OECD countries (Table 5.9).

Despite progress in education and training, the average human capital index in most of these countries (with the exception of Tunisia) is less than half of the OECD average. This is because of a lack of researchers and insufficient spending on R&D. In North Africa, the number of researchers per one million people is a third that of OECD countries (Table 5.9). The region devotes a meagre 0.7% of its GDP to R&D, compared with 2.4% in OECD countries. Technological skills and overall innovation indicators, at 19.5 and 28.8, are almost half of the OECD values (40.9 and 50.7, respectively). The lack of competitiveness is apparent, although a number of significant disparities exist with regard to knowledge acquisition and ICT. Algeria is less competitive than Egypt, Morocco and Tunisia. Morocco has shown improvement in the field of ICT, while Tunisia has improved in the acquisition of skills and competences.

Table 5.9. Technology and innovation indicators in selected North African economies

	Algeria	Egypt	Morocco	Tunisia	Av.	OECD
Number of researchers per 1 million inhabitants**		569.98	866.61	1 636.52	1 024.37	3 545.74
R&D spending as % of GDP**		0.58	0.71	0.67	0.66	2.43
Human capital and research	25.91	22.95	25.13	43.23	29.31	49.75
Knowledge and technology outputs	13.42	21.13	19.88	23.39	19.46	40.88
Information and communication technology (ICTs)	25.9	43.82	63.59	58.36	47.92	77.33
Global Innovation Index (GII)	23.9	27.2	31.1	32.9	28.78	50.69
Competitive Industrial Performance Index (CIP)*	0.01 (94 th)	0.03 (73 rd)	0.04 (63 rd)	0.04 (61 st)	0.03	

Notes: * Value of 2016 CIP and ranking in brackets. The CIP of the top five countries are: Germany (0.52), Japan (0.40), China (0.38), United States (0.37) and Korea (0.37). France (0.27) is ranked 11th out of 144 countries.

** Average between 2010 and 2015.

Source: Authors' calculations based on World Bank (2019a), *World Development Indicators* (database) and Global Innovation Index (2018), *Global Innovation Index* (database).

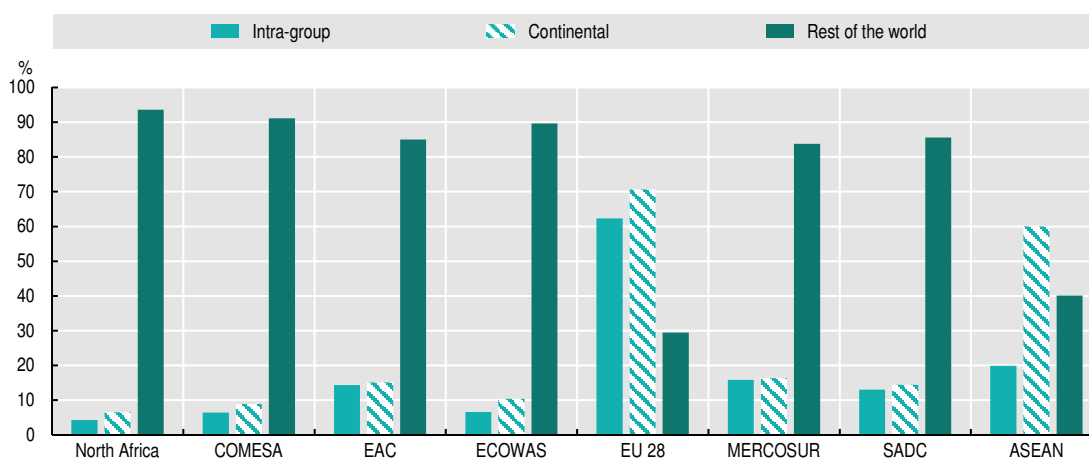
Regional integration infrastructure networks in North Africa can be strengthened

The low level of trade integration has slowed productive transformation and has hindered the implementation of regional value chains (RVCs). Intra-regional trade represented only 4.7% of total trade between 2010 and 2017, lower than other blocks, such as the Common Market for Eastern and Southern Africa (COMESA, 9.4%), the West African Economic and Monetary Union (WAEMU, 13.7%) and the Southern African Development Community (SADC, 19.2%) in Africa, or the Association of South East Asian Nations (ASEAN, 24.4%).

Weak regional integration is a result of strategies which favour North-South, rather than South-South, integration. In addition to competition for FDI, little genuine desire for a regional export platform, hubs for joint production, or RVCs exists.


Intra-regional trade also faces other commercial and non-commercial constraints. Trade barriers are very high, especially non-tariff barriers (e.g. technical, sanitary and phytosanitary standards, import licensing procedures, pre-shipment inspections, rules of origin). Trade is also limited by an unfavourable regulatory framework, a weak business climate, underdeveloped infrastructure and poor logistics performance.

Figure 5.5. Intra- and extra-regional trade in North Africa, average 2010-17



Notes: North Africa (NA), Association of South East Asian Nations (ASEAN), Common Market for Eastern and Southern Africa (COMESA), East African Community (EAC), Economic Community of West African States (ECOWAS), European Union 28 (EU 28), Southern Common Market (Mercosur), Southern African Development Community (SADC), West African Economic and Monetary Union (WAEMU).

Source: DESA/UNSD (2019), United Nations Comtrade (database).

StatLink  <https://doi.org/10.1787/888933967568>

The Logistics Performance Index based on surveys in the region is lower than the average of developed and developing countries (Table 5.10). North African countries lack efficiency in customs clearance procedures and infrastructure quality. Transport costs are high, despite extensive coastlines. Transshipment costs, difficulties encountered during transit, and an absence of harmonised regulations also remain burdensome.

Specifically, Libya's performance in customs clearance, monitoring and product traceability is poor. Its infrastructures have deteriorated since the fall of the Gaddafi regime. Mauritania suffers from weak trade and transport infrastructures as well as a lack of logistic services. The other countries are confronted with congested ports, limited access to railroad and port services, and poorly standardised border procedures (with the exception, to an extent, of Egypt and Morocco).

Table 5.10. Logistics Performance Index in North Africa, 2018

	Algeria	Libya	Egypt	Mauritania	Morocco	Tunisia	NA	ECA
Efficiency of customs process	2.28	2.00	2.67	2.36	2.16	2.27	2.29	3.04
Quality of trade and transport infrastructure	2.45	2.17	2.91	2.58	2.09	2.27	2.41	3.13
Ability to ship internationally at competitive rates	2.54	2.18	2.94	2.80	2.15	2.53	2.52	3.14
Competence and quality of logistic services	2.53	2.21	2.95	2.59	2.06	2.45	2.46	3.21
Tracking and traceability	2.65	1.90	2.91	2.57	2.18	2.78	2.49	3.27
Frequency of on-time delivery	2.89	2.78	3.30	3.09	2.54	3.20	2.96	3.24
Score	2.56	2.21	2.95	2.67	2.20	2.59	2.53	3.65

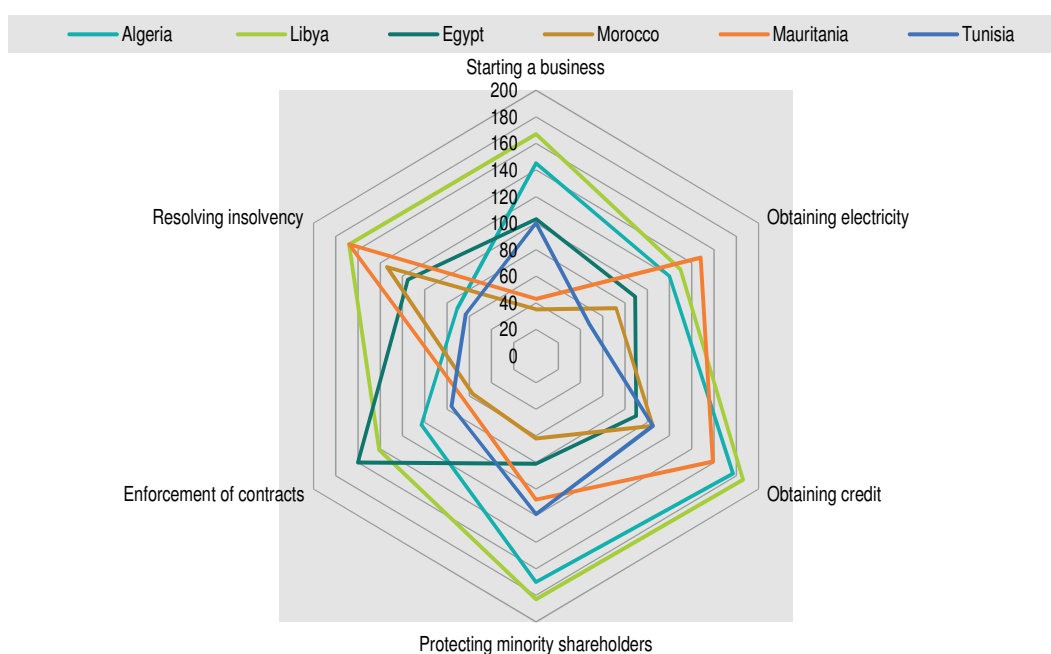
Notes: Europe and Central Asia (ECA) and North Africa (NA).

Source: Authors' calculations based on World Bank (2018a), Logistics Performance Index (database).


The business climate and access to financing need improvement

Productive transformation in the countries of North Africa is slow because of weak institutions. Indeed, the *Doing Business* report rankings² showed poor performance in the business climate category for these countries (Figure 5.6). Although Morocco and Tunisia are improving in this area, major progress needs to be made in the areas of entrepreneurship and insolvency regulation in Algeria, Libya, and Mauritania, in particular. Businesses in all countries are confronted with problems that affect their competitiveness, namely property transfer, financing, corruption and non-payment.

Figure 5.6. Business Climate Index in North Africa, 2017



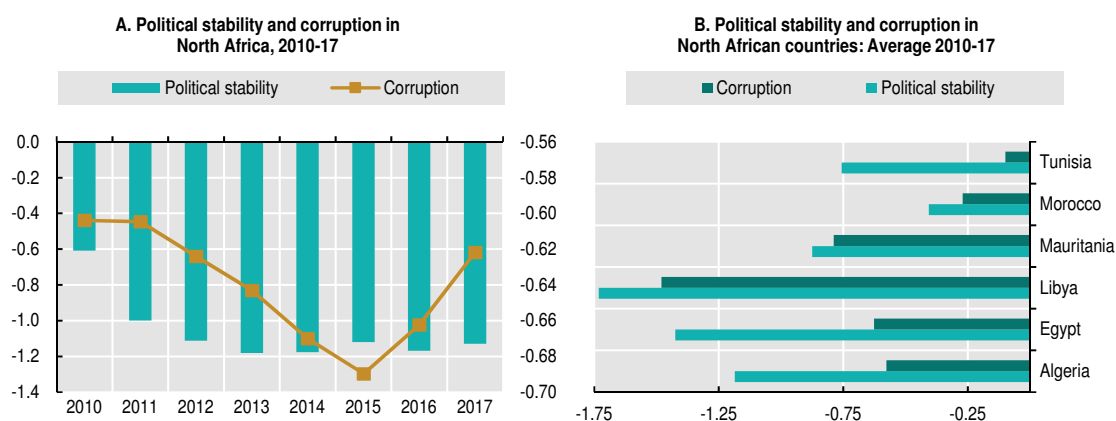
Note: Economies are ranked on their ease of doing business, from 1–190. A high ranking means the regulatory environment is more conducive to the starting and operation of a local firm depending on each dimension considered.

Source: Author's calculations based on World Bank (2017), *Doing Business 2018: Reforming to Create Jobs* (database).
StatLink  <https://doi.org/10.1787/888933967587>

The Arab Spring adversely affected the business climate. The problem of weak institutions was made worse by a growing informal sector and the risk of political instability. The share of the informal economy in the non-farm sector went from 47.3% in 2000-04 to 53% in 2005-09, decreasing slightly to 50.2% in 2010-14 (ILO, 2015). The size of the informal economy varies, and did so in particular over the period 2010-14: Algeria (40.7%), Egypt (49.6%), Morocco (70.1%) and Tunisia (40.2%). The informal economy has hindered productive transformation, as it causes losses in tax revenue and poor economic forecasts.

In addition, political instability and corruption are major issues, which go together and which have increased in a region (Figure 5.7A) that is also confronted with security issues. These problems are more evident in Algeria, Egypt and Libya than in Morocco and Tunisia (Figure 5.7B). Political instability increased in particular between 2010 and 2017 in Egypt, Libya and Tunisia. At the same time, corruption levels increased in Algeria, Libya and Mauritania. This has impeded domestic and foreign investment, indispensable for productive transformation.

Figure 5.7. Political stability and corruption control in North Africa



Source: Authors' calculations based on World Bank (2019a), *World Development Indicators* (database).
 StatLink <https://doi.org/10.1787/888933967606>

Financing and private sector support represent two major challenges. Financial systems are weak, both on a structural and institutional level, despite progress in some countries. Access to financing for farmers is still very difficult compared to other sectors for a number of reasons: farming is considered high-risk, there are few guarantees, and rural areas are difficult to reach. Mining and services also lack the financial means to develop economies of scale (Table 5.11). The weakness of capital markets prevents countries and businesses from developing economic ties at all levels.

Table 5.11. Access to financial services in North Africa

	Algeria	Egypt	Mauritania	Morocco	Tunisia
Percentage of companies that view the cost of/access to financing as difficult	50.1	23.4	52.4	27.7	23.9
Loans granted to private sector by financial institutions (% of GDP)	22.1	28.1	20.8	63.2	73.4
Unpaid loans (% of total)	11.4	7.2	27.6	6.90	14.5
Stock market capitalisation (% of GDP)	-	13.8	-	57.1	20.3

Source: World Bank (2018b), *Global Financial Development Report 2017/2018: Bankers without Borders*.

Thanks to the Casablanca Stock Exchange, Morocco has the highest market capitalisation on the continent, at 57.1% of GDP. It is low in Egypt and Tunisia and almost non-existent in Algeria and Mauritania. This limits companies' access to financing. As a result, credit levels are minimal in North Africa, particularly in Algeria, Mauritania and Egypt. In addition to limited access to financing, Mauritania and Tunisia have a high percentage of unpaid loans. By increasing information asymmetry between bankers and economic actors, this further restricts access to the financing necessary for productive transformation. The high level of unpaid loans can explain credit rationing by banks to small- and medium-sized companies.

Public policies to support and reinforce productive capacity in North Africa

Investing in human capital and innovation

Public policies to improve human capital can lead to greater support for R&D. There are not enough researchers and not enough funding for research in these countries. It is in this context that Morocco, for example, has created technology parks (*cités de l'innovation*) in Marrakesh, Fez, Rabat and Casablanca, partnering with universities. These parks can serve as hubs for R&D projects, young entrepreneurs, business and industrial clusters. Morocco has also strengthened its Technical and Industrial Centres (*centres*

techniques industriels),³ which accompany businesses in their technological development. Development centres for advanced technologies have also been established (OECD, 2018).

Greater support of business innovation can improve competitiveness. This can be realised through the implementation of financing mechanisms and the transfer of technological know-how. These R&D measures can be accompanied by career guidance, the development of information systems in the labour market to better anticipate required skills, and a stronger partnership between business associations and the state. This has been the case with the automotive sector in Morocco. Business associations set up working committees in order to recommend specific policies to the government (creation of test laboratories, research subsidies, and financial incentives for entrepreneurs). This has resulted in a more educated and highly skilled work force.

Innovation policy remains weak. Results are poor as shown, for example, by patent filings of SMEs. The company GS1 Tunisia's "Tunicode" programme provides bar codes for local products according to GS1 standards, and represents, nonetheless, a good example of innovation policy. Effective public policies require closer links between the private sector and vocational training institutions and/or science and technology institutes. Assistance programmes for certification and patent grant projects are needed, as well as vocational training for long-term-unemployed young people.

Public policies should be defined according to the comparative advantage of each country. Morocco, as part of its industrial emergence plan in the late 2000s, identified the automotive sector as strategic and potentially competitive. The government invested in the training of technicians and specialised managers, with subsidies ranging between EUR 450 and EUR 2 700 per person per year. The government also supported the creation of the Automotive Industry Training Institutes (IFMIA) in Casablanca, Kenitra and Tangiers, with a view to promoting automotive clusters. This attracted USD 1.5 billion in investment by the French car group Renault (Maturana et al., 2015).

Innovation in agriculture

Policies to strengthen human capital in agricultural countries, Mauritania in particular, can target specialists such as agronomists, technicians, and biologists. The establishment of test laboratories and improvements in technical and managerial skills can lead to quality upgrading of products and a better position in the value chain. Training programmes on sanitary and phytosanitary standards are required.

National innovation programmes can facilitate productive transformation in agriculture. These programmes cover everything from seed production to irrigation and processing, marketing and distribution. They should also include crop conservation techniques and food processing, as well as certification programmes for high added-value industries (organic, halal, etc.). This can promote regional brands and increase competitiveness on a continental and global scale.

Agriculture in North Africa can take advantage of digital technology to boost productivity and competitiveness. Governments can implement policies to encourage the creation of technology clusters in agricultural science and the emergence and development of start-ups. They can also put into practice new pumping and irrigation techniques based on solar and wind energy. The Bizerte⁴ cluster in Tunisia, for example, consists of an agribusiness tech hub, a network of "Agro'tech" partners, and 150 hectares of industrial space. In addition, in order to make agriculture more competitive, ICTs can be used in decision-making, irrigation management, fertiliser control and disease prevention.

Innovation in extractive economies

Extractive economies (notably Algeria and Libya), require R&D policies to improve innovation. Upgrading skills in engineering and project management and co-operation

with leading foreign firms can help them integrate into extractive industry value chains. An increase in exchange programmes between multinationals and local partners can reduce the existing technological gap.

Innovation in manufacturing

Economies with comparative advantages in the manufacturing industry, such as Morocco and Tunisia, need to reduce the knowledge gap with competitors to provide good quality products. This will involve developing skills, as well as new management and engineering practices, and the financing of more quality business schools, as there are very few at the moment. Most importantly, the textile-clothing sector requires specific education and training policies, as the industry changes constantly. Governments can strengthen innovation capabilities through training in design, marketing, branding, etc.

The automotive and aerospace industries have strong growth potential but require new skills in marketing, technological development and communication. Improvements in productivity and competitiveness require skills training for the new technological era (artificial intelligence, digitalisation, big data). Education policies which aim to provide a more educated workforce can help this changing industry.

Innovation in services

Public policies can facilitate productive transformation in countries that have made progress in the service industry, such as Tunisia, Morocco or Egypt. In particular, services play an important “invisible” role in manufacturing (marketing, supply chain, R&D, design and training). Investment and development in science, technology, engineering and innovation is essential. The Sfax Science Park in Tunisia and the Casablanca Technology Park in Morocco are interesting examples of synergies between the world of innovation and smart business (Box 5.2). In particular, these countries can develop skills in the field of communication, information technology and languages. Transitioning from an educated and inexpensive workforce to a highly skilled workforce can improve the quality of services and attract new investment. Strengthening regulation in personal data protection and intellectual property rights can increase these countries’ attractiveness. Countries can also increase the number of call centres and high-tech hubs, and provide training in outsourcing.

Box 5.2. The Sfax Technology Park and the Casablanca Technology Park

Technology parks are stimulating a new fabric of creative and innovative businesses, creating skilled jobs and increasing competitiveness. The Sfax Technology Park was launched in 2004 to foster ICT and multimedia. It consists of 10 500 m² for businesses and a R&D, IT, Multimedia and Digital Data Processing Centre. It has developed production spaces, a research environment and advanced training facilities. It has served as an incubator for an experienced pool of skilled labour, and has created a network of companies that co-operate in their respective specialisations.

The Casablanca Technology Park is based on ICT (Web 2.0, mobile technology, e-commerce) as well as green technologies. This successful experiment in business incubation was replicated in Rabat, Tangier and Fez. Since its creation in 2005, the park has supported nearly 800 innovative companies. It consists of 280 Moroccan start-ups and SMEs, with nearly 2 000 employees, the majority of which are under 30, and has a turnover of more than 60 new start-ups every year. It has strengthened the competitive advantage of Morocco through the creation of synergies, the pooling of research infrastructures, and the acquisition of skills and knowledge through partnerships with universities and industries in the region.

Value chains can exploit existing complementarities between countries

RVCs can improve the position of these countries in global value chains. The potential for complementarity is evident and the resources needed for integration upstream or downstream in certain chains exist. RVCs can be developed if regional investments are made, infrastructure and transport networks are constructed, and specific trade policies are implemented. The productive characteristics of countries in the region and their comparative advantages are likely to facilitate RVCs and hence their positioning in global value chains.

The textile value chain

Egypt, Morocco and Tunisia have been able to integrate the textile-clothing value chain and benefit from their geographic proximity to Europe and the free trade agreement with the United States (for Egypt and Morocco). The creation of integrated production networks targeting specific niches (design, branding, marketing) can result in quality upgrades. This is because these countries possess the know-how and raw materials (wool, cotton, etc.) are readily available.

The automotive value chain

North African countries can also exploit their geographic position. Progress made in the automotive industry can also promote the value chain. Co-operation between Algeria, Morocco and Tunisia in the field of automobile assembly, for example, would offer important opportunities to each of these countries. RVC integration is possible, especially as these countries possess the necessary raw materials such as gas, oil, steel and renewable energies. They also have special economic zones (Tangier Automotive City in Morocco, free zones in Bizerte and Zarzis in Tunisia). Morocco and Tunisia can take advantage of their proximity to Algeria to develop sales activities for automotive components. Algerian companies can establish joint ventures with their Tunisian and Moroccan counterparts to develop assembly activities (ECA, 2016).

The aeronautics value chain

RVCs in aeronautics are possible, and both Morocco and Tunisia have made progress in this area. Geographic proximity to industry leaders and the existence of on-site industrial assembly platforms (Midparc and Nouacer in Morocco, Aéroport M'Ghira in Tunisia) can make quality upgrades possible. The development of skills in prototype design, modelling and production is crucial. The appropriate logistical infrastructure required for FDI in high added-value activities (e.g. mechatronics, software development, 3D parts modelling) is equally important.

The energy value chain

The existence of natural resources (oil, gas and mining) in North Africa can enable RVCs based on energy.

Processing industries can be developed throughout the region, including synthetic fibre industries for textiles and clothing, and plastic industries for the manufacture of aeronautics components.

Furthermore, RVCs can be developed in renewable energies. Specialised production units already exist and technical and operational skills are available. Two main levers are in place and can support the development of these RVCs: co-operation projects with Europe to produce solar energy and regulations favouring the investment of local actors (Box 5.3).

Box 5.3. Potential for renewable energy in North Africa

The region has enormous potential in solar energy, due to some of the most favourable sunshine on the planet: up to 3 900 hours per year, with fairly high average solar radiation values (GIZ, 2013). Most countries have adopted long-term strategies to increase the share of renewable energy in their energy mix: 52%, 37% and 30% in Morocco, Algeria and Tunisia respectively by 2030, and 42% in Egypt by 2035.

In Morocco, the national energy strategy (2016-30) aims to reduce energy dependence to 82% in 2030, while Tunisia has implemented a Solar Plan (TSP). Egypt implemented a strategy to limit dependence on fossil fuels in 2014. Finally, in Algeria, the government plans to establish a national renewable energy industry.

There are co-operation and partnership projects between North African countries and several European countries which aim to invest in solar energy and export it to Europe. These include the “MedGrid” and “MED-TSO” projects of the Mediterranean Solar Plan for North Africa, established by the Union for the Mediterranean. They plan to export 22 000 MW to Europe by 2030 (ECA, 2018).

The agribusiness value chain

In view of the importance of agriculture in the region, RVCs need to develop in the agribusiness sector. Potential in this sector has not been fully realised, even though the possibilities to improve technically (productivity) and economically (processing and marketing) are evident. Factors which can contribute to the transformation of the region into a competitive hub include: the presence of industrial processing clusters, diversified production, a growing demand for quality from markets, and the development of a number of distribution techniques (e.g. marketing, branding, and certification). Countries can sign agreements for joint management of water resources and joint support of regional brands⁵ of processed products to help develop RVCs.

Support for RVCs requires integrated and coherent policies in each sector. This can encourage actors to take advantage of supply chain segmentation to meet the specific needs of their economy (ECA, 2018). Such policies can help the private sector exploit the attributes of each country, strengthen the country’s competitiveness, and stimulate the interconnection of economies in the region.

Countries can benefit more from current trade agreements⁶ and the presence of multinationals in order to improve their branding, retail and RVC development. Countries can aid the development of RVCs in the region by negotiating cumulative rules of origin for countries that have signed several free trade agreements (and therefore have problems with rules of origin). Furthermore, countries that have received offers from Europe to sign full and in-depth free trade agreements (Egypt, Morocco and Tunisia), should co-ordinate closely between each other. Finally, countries can harmonise trade rules with partners in the region.

Strengthening regional and continental integration

Greater regional integration is a positive rather than negative development, even if countries continue to compete with each other. Exports from Egypt, Morocco and Tunisia in textiles and clothing, for example, are relatively high in the region, although their share in relation to world exports remains quite low: 3.2% for Egypt, 1.2% for Morocco and 0.5% for Tunisia (ECA, 2018). This shows that historical differences can be overcome

in favour of immediate economic interests. A transition from competitor to partner is beneficial for all. Countries can achieve this by collaborating on well thought-out training and knowledge transfers and by developing regional industrial platforms. They can also procure raw materials from neighbouring markets for regional industries and conduct concerted negotiations with international investors.

The importance of regional complementarity does not diminish the importance of continental integration. Trade openness under the African Continental Free Trade Area (AfCFTA) can be beneficial for at least three reasons.

- First, it can facilitate the flow of skills, technology transfer and complementarities in infrastructure.
- Secondly, it can reduce dependence on traditional markets (the European market in particular) and capitalise on the benefits already acquired (quality, logistical know-how, etc.).
- Finally, it can bring about real growth opportunities, especially for local businesses to upgrade their products. Moreover, regional demand in Africa is shifting towards more processed goods. This sector grew 1.5 times faster than the annual average between 2005 and 2015 (AUC/OECD, 2018).

Continental integration can encourage integration of production, strengthen RVCs and support productive transformation in North Africa. Through the facilitation of trade and capital flows, the AfCFTA can impel each country to nurture its comparative advantages and develop its industries. It can enable the creation of successful business models which can be replicated throughout the region. This can result in quality jobs for young people and women and more buoyant industrial sectors, including agribusiness, textiles and clothing, leather, wood and paper, automobiles and transport equipment, electronics and metals (ECA, 2018).

Greater openness towards trade on the continent can help countries adapt to demand and develop sectors in which they have an advantage.

- Morocco has already signed trade and investment agreements between the *Office Chérifien des Phosphates* (OCP) and organisations in sub-Saharan Africa, such as the Community of Sahel-Saharan States (CEN-SAD) and WAEMU, to produce and export fertilisers.
- Tunisia has also signed tax and investment agreements with several sub-Saharan African countries. This has increased exports in cast iron, iron and steel, paper, cardboard and plastics.
- Finally, Egypt's membership in COMESA has boosted exports in essential oils, electrical materials and hydrocarbons.

Government policies on ICT investment and transport infrastructure should increase trade between North Africa and the rest of the continent in the medium and long term. Major Trans-African highway projects, such as the Cairo-Dakar highway or the Algiers-Lagos highway are in progress. In addition, new shipping lines are being planned, like that of Wazzan II in Morocco, which links the ports of Tangiers (Morocco), Casablanca (Morocco), Monrovia (Liberia), Abidjan (Côte d'Ivoire), Tema (Ghana), Takoradi (Ghana) and Cotonou (Benin). Another shipping line will link the cities of Gabès and Sfax (Tunisia) to Dakar (Senegal), Abidjan (Côte d'Ivoire) and Tema (Ghana).

The continental free trade agreement should lead to market defragmentation. Countries can harmonise legislation, regulations and licensing procedures to achieve greater mobility of goods, services and skills. This, in turn, can improve access to raw materials and human capital for businesses. Common policies can facilitate trade.

Countries should develop multimodal trade corridors, establish border posts, standardise administrative documentation, and sign regional transit agreements.

Intra-regional trade facilitation measures are essential. Countries need to remove barriers to the free movement of goods and services in the region (especially non-tariff barriers), harmonise technical standards, and simplify customs and border control procedures. They should also sign bilateral, mutual-recognition agreements regarding conformity assessment for high added-value products. Better communication and understanding between parties regarding existing regional free trade agreements is also necessary.

Finally, greater monetary and financial integration should be encouraged. The establishment of a regional financial information system would allow banks to manage risks linked to intra-regional transactions. Once regulation, infrastructure and financial instruments have been harmonised, currency convertibility can ease trade and eliminate bottlenecks that occur in fragmented financial markets. With this in mind, the implementation of the African Development Bank's (AfDB) 2010 action plan is necessary, as it will be beneficial for investors in sectors which show comparative advantage.⁷

Infrastructure and logistics can stimulate the private sector

In order for RVCs to develop fully, infrastructure issues should be resolved. North African countries can attract more investment if they modernise basic infrastructure and improve connectivity of ports and airports. Delegating port and airport management to efficient operators can reduce wait times and improve shipment tracking. Public entities involved in infrastructure management in these countries may need restructuring.

Improving infrastructure in countries with high agricultural potential

Agricultural countries need to develop rural infrastructure which can bring down transportation costs and increase competitiveness. The creation of local supply bases can ensure access to farm inputs, such as pesticides and seeds, and hence increase efficiency. In addition, a stronger water infrastructure (dams, dikes, supply and sanitation systems, etc.) can facilitate productive transformation. Increased investment in water systems and water resource management is also important. The Oum-Er-Rbia project in Morocco, for example, provides irrigation services and improves farmers' access to technology, financing and agricultural markets. It enables capacity development for both borrowers and agencies involved in the project.

Improving infrastructure in extractive economies

For some extractive economies, improvements in power supply are essential. The construction of infrastructure to connect main supply sites to ports can increase efficiency in the value chain. Furthermore, modern and efficient transport networks (road and railway) can facilitate the movement of heavy and rather hazardous goods and improve links between sectors within the value chain. Finally, productive transformation can develop further through the installation of additional oil refining units in both exporting (Algeria, Egypt, Libya) and importing (Morocco and Tunisia) countries. Processing plants in plastics and composites, the automotive and aeronautics industries, synthetic fibres and fabrics, chemical products and fertilisers, etc., can also advance productive transformation. Egypt, for example, launched a vast project to modernise and expand its refineries at the beginning of 2017. Of the estimated USD 8 billion total for the project, USD 4.3 billion was devoted to the Egyptian Refining Company (ERC)'s refinery in Mostorod.

Improving infrastructure in the manufacturing industry

Strategically planned and managed business clusters and special economic zones (SEZs) are highly beneficial for countries with comparative advantages in industry and, more specifically, in manufacturing. The Suez Economic Zone, which was established by China, has allowed Egypt to move up the value chain in the oil industry (drills and components). Similar zones have been created in Mauritania (mining), Morocco and Tunisia (manufacturing), and Algeria and Libya (oil) and should be mainstreamed in the future.

The development of freight distribution clusters, or logistic zones, leads to cost reduction, more connectivity and greater competitiveness. Regulations need to be relaxed with regards to a number of activities (warehousing, consignment, and transit) and countries should strive for greater market flexibility when it comes to transport and logistic services. The port of Alexandria in Egypt sees a high percentage of foreign trade (60%) pass through each year. Faced with an increase in industrial activity, port authorities needed to improve local and regional connections. In 2015, they launched the Great Alexandria Port 2035 Strategy to expand the port area and modernise infrastructure. The port will have new terminals, a SEZ, new industrial logistics centres, and a tourist area with a marina.

Governments need to ensure that SEZs have spillover effects on the economy as a whole. To avoid the establishment of a dual economy (onshore/offshore), incentives and benefits granted to companies in these areas should have time limits. Governments can help prevent economic disarticulation by providing the necessary infrastructure for the successful interaction of all actors in these zones. Governments should negotiate with businesses that wish to settle in these areas. Performance contracts can set out objectives, such as jobs, added value creation, and export targets. In return, governments can support businesses with regards to property taxes, training and project financing, etc. The “Tangier Med” zone in Morocco is an interesting example. The government and fixed-term investors have signed Performance contracts pertaining to a number of industries located in the area (mechanical and metallurgical, automotive, aeronautics, logistics).

Improving infrastructure in the service industry

The telecommunications infrastructure and, particularly, the provision of broadband internet and low-cost communications is essential to service economies. Access to these services remains expensive in some countries (Morocco for broadband internet and Mauritania for mobile telephony). An opening of the market to foreign operators can break up monopolies, improve the quality of service, bring down prices, and hence benefit businesses.

Public-private partnerships (PPPs) are good solutions for infrastructure investment, especially as the legislative framework exists. To this end, governments can tap into technical and managerial expertise and train officials from different ministries and public agencies. Legal provisions need to further protect investors (transparent and credible tendering processes, interministerial co-ordination, limited political interference, etc.). Infrastructure projects should be properly studied and prepared to qualify as bankable. Countries can establish a central platform for PPP authorisations and licences. As for tenders, governments should focus on performance requirements rather than technical specifications. Moreover, the allocation of projects should be based on justified needs and not on inappropriate political motivations. Finally, reforms are essential for the development of partnerships, particularly in the areas of energy subsidies and foreign exchange risk management (OECD, 2014).

Technological advances can be exploited to optimise infrastructure management. For example, new communication technologies, fibre optic cables and satellite systems can

be used to increase infrastructure efficiency and improve demand management. This can be applied to the control of the power grid, the reading of water and electricity meters, the monitoring of road congestion, logistics management and public transport. New technology can ultimately help reduce transaction costs and improve competitiveness (Konrad Adenauer Stiftung, 2017).

In order to strengthen the private sector on the African continent, governments need to commit to providing a conducive institutional and regulatory environment. Necessary measures include: a greater number of diplomatic and trade representatives, a simplification of customs procedures, increased private sector financing by banks, and an easing of exchange rate regulations.

Improving the business climate and access to financing

In order to improve the business climate, governments can change labour market regulations, strengthen intellectual property protection and prevent rent-seeking. In addition to R&D, governments can improve access to information, reduce administrative barriers, and digitise administrative procedures in order to attract investment. In addition, the consistency and coherence of regulations and laws is essential. Moreover, fiscal stability is often more attractive to investors than temporary exemptions or other incentives. Nonetheless, these can be granted to actors leading innovative projects that create value.

Improvements to the business climate should also focus on strengthening domestic production to establish channels between the local economy and multinational firms. This initiative can be driven by a national innovation scheme, which can generate technology and information flows between companies and institutions. The objective of such a scheme is to reduce the gap between offshore and onshore sectors, as well as to facilitate upgrading and increase efficiency.

Existing government codes and investment laws, especially in Egypt, Morocco and Tunisia, are favourable to foreign investors, but remain inadequate for these countries to successfully integrate into regional and global value chains. Governments need to support businesses, notably SMEs. Public-private partnerships should be encouraged to improve productive capacities and foster links between multinational firms and local firms. The PPP model for the construction of the “Noor” solar power plant in Ouarzazate, Morocco, can be used as an example of how to attract foreign partners.

Governments should prioritise policies to improve the business climate based on their economic potential. In the case of high agricultural potential, public investments can target irrigation systems, greenhouses and cold storage, and be a catalyst for private investment. In an extractive economy, government investment can concentrate on contract enforcement, permit regulation, pricing transparency, and combating corruption. As for manufacturing industries, sector-specific investment and trade-related measures can be taken in favour of businesses, especially SMEs. These measures include the protection of property rights and the establishment of an appropriate bankruptcy code. Finally, in service economies, policies can focus on opening up and strengthening connections between local and international actors. This can happen through a gradual, well thought-out liberalisation of the tertiary sector.

Improving the business climate goes hand in hand with strengthening the entrepreneurial spirit. This can facilitate innovation and upgrading. Local entrepreneurs, who are more committed and more familiar with the characteristics of the market, can increase production and, above all, adapt when faced with economic difficulties. Better yet, they can serve as a vital base for the local market in the event of disengagement by

multinational firms (AfDB/OECD/UNDP, 2014). To this end, local decision makers need to be more involved in the promotion of SMEs and employment policies. At the same time, policy makers should target productive entrepreneurs who want to create value rather than benefit from tax, monetary and financial benefits.

North African countries can build and/or develop an entrepreneurial base through training programmes in particular, the financing of young entrepreneurs, and the support of strategic partnerships with local firms. Targeted actions for young project leaders can enable them to set up quickly with minimal costs and prospect for international markets. Various actions are possible: providing facilities to comply with international standards, supporting marketing platforms in target countries, and removing barriers to venture capital development. In addition, training centres and universities should be encouraged to respond to market needs, facilitate dialogue with the private sector, and ensure that training programmes stimulate young people's entrepreneurship.

Government policies can focus on improving financial mediation and on mobilising domestic savings to support investment. SMEs, which dominate the economies of these countries, have to rely on alternative forms of financing, such as private equity (notably capital-risk funds) and microfinance, as bank loans are difficult to access. Governments can also provide better adapted financial solutions, such as asset-backed lending or credit guarantee schemes. In addition, capacity-building initiatives can modernise production and improve quality standards (AfDB/OECD/UNDP, 2017).

Notes

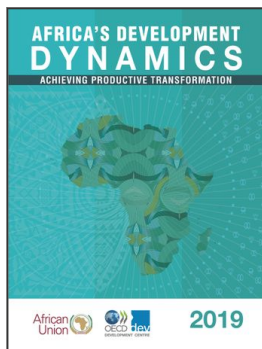
1. The average monthly revenue per inhabitant between 2010 and 2016 in North Africa was USD 253 compared to USD 2 604.1 for OECD countries and USD 104.9 for SSA (World Bank, 2019a).
2. High index numbers show poor performance in the business climate category.
3. Centre des techniques et matériaux de construction (CETEMCO), Centre d'études et de recherches des industries métallurgiques, mécaniques, électriques et électroniques (CERIMME), and Centre technique des industries des équipements de véhicules (CETIEV).
4. This government decision was made in the context of the 11th Development Plan of the National Strategy for the Support of the Agri-food Industry.
5. Examples of certain brands that can be promoted in North Africa include argan oil in Morocco, dried figs in Algeria, and sun-dried tomatoes in Tunisia.
6. This refers to the EU-Africa Partnership, the Pan-Arab Free Trade Area Agreement, the Agadir Agreement and bilateral agreements.
7. This action plan is based on five points: the financing of foreign trade and investment in the Maghreb; the harmonisation of payment systems and technical platforms; the harmonisation of regulations governing banking and financial supervision; a strengthening of co-operation and co-ordination between financial institutions; the exchange of information on regulation and the financial sector (AfDB, 2010).

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