Potential Sectors for Greater Employment Generation in the MENA Region: The Case of Tunisia and Egypt

Chahir Zaki

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Bringing Rigour and Evidence to Economic Policy Making in Africa

Potential Sectors for Greater Employment Generation in the MENA Region: The Case of Tunisia and Egypt

By

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List of abbreviations and acronyms

COVID-19	Corona Virus Disease 2019
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
MENA	Middle East and North Africa
RCA	Revealed Competitiveness Advantage
RNE	Tunisian Business Register (Répertoire National des Entreprises)
WITS	World Integrated Trade Solution

Abstract

Egypt and Tunisia share several similar characteristics, given that they are highly dependent on services, have a relatively diversified manufacturing sector, and did relatively well at the macroeconomic level. Yet, while their economies grew thanks to stabilization policies, employment outcomes did not cope with such growth, referring to the so-called jobless growth. Thus, the objective of this paper is twofold: first, it presents the structural problems of Egypt and Tunisia related to growth and employment and explains why growth has been jobless; second, analyse which sectors can generate more jobs. The main findings show that the manufacturing sector has a great potential to generate more jobs. Yet, deep reforms to make the industrial sector more competitive are needed. This includes improving the skills of blue collars, enhancing the quality of institutions (especially economic ones), and increasing foreign direct investments in the manufacturing sector.

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1. Introduction

Several emerging economies experienced high economic growth rates and a slight diversification of their exports structure. Yet, the competitiveness of their manufacturing sector remained modest and was not able to generate enough jobs. This holds on both Egypt and Tunisia (Assad and Marouani, 2021). Indeed, macroeconomic management has focused for decades on price stability, controlling fiscal deficits, reducing the role of the State and achieving high economic growth (Haq and Zaki, 2015 and Zaki, 2020). Yet, less attention was attributed to job creation and improving labour outcomes.

The cases of Egypt and Tunisia are interesting for several reasons. First, they share several similar characteristics given that they are highly dependent on services, have a relatively diversified manufacturing sector, and did relatively well at the macroeconomic level. Second, while their economy grew thanks to stabilization policies, employment outcomes did not cope with such growth, referring to the so-called jobless growth (Caballero & Hammour, 1998). Third, these two countries concluded several trade agreements with the European, African, and Arab countries, yet their exports structure did not significantly change over time.

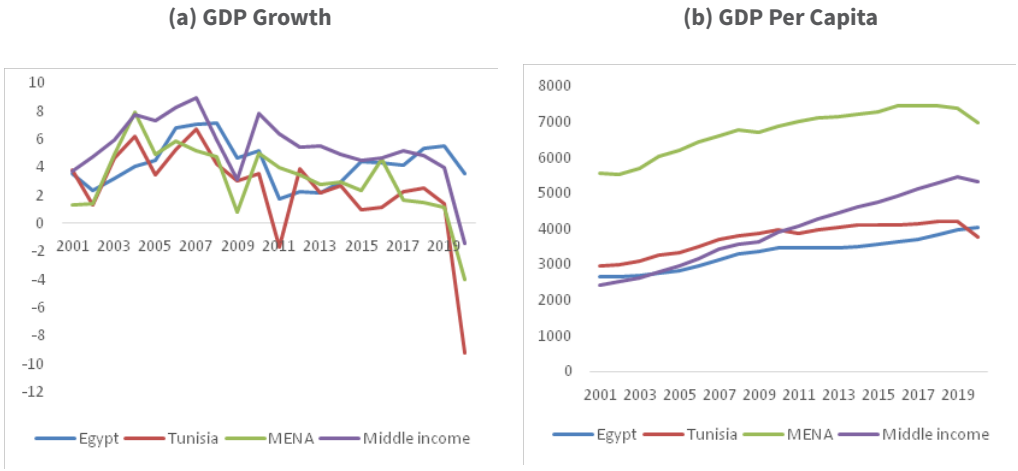
Against this background and given the widespread recognition of the need to integrate macroeconomic management and employment objectives, the objective of this paper is twofold. First, it presents the structural problems of Egypt and Tunisia related to growth and employment and explains why growth has been jobless. Second, it attempts to analyse which sectors can generate more jobs. Relying on an input/output model for the case of Egypt (Ayouty, 2022) and a productivity decomposition exercise for the case of Tunisia (Amara et al., 2022), the main findings show that the manufacturing sector has a great potential to generate more jobs. Yet, deep reforms to make the industrial sector more competitive are needed. This includes improving the skills of blue collars, enhancing the quality of institutions (especially economic ones), and increasing foreign direct investments in the manufacturing sector.

The rest of this paper is organized as follows. Section 2 provides some potential explanations why Egypt's and Tunisia's economies failed to generate enough jobs. Section 3 explains the potential sectors that can generate more jobs; while Section 4 concludes and provides some policy recommendations.

2. Why Egypt's and Tunisia's economies failed to generate jobs?

Egypt and Tunisia implemented several stabilization reforms programmes to curb the internal and external macroeconomic imbalances. This led to an average growth rate of 4.3% and 3% between 2001 and 2019 with a maximum of 7.2% in 2008 and 6.7% in 2007 in Egypt and Tunisia, respectively, as it is shown in Figure 1a. Yet, despite that, GDP per capita remained rather stable and below that of both middle-income and the Middle East and North Africa (MENA) countries (Figure 1b). Hence, while economic growth improved (but was volatile because of some external factors such as the financial crisis in 2008 or COVID-19 in 2020) or internal factors (political turmoil in 2011), the countries' development was modest.

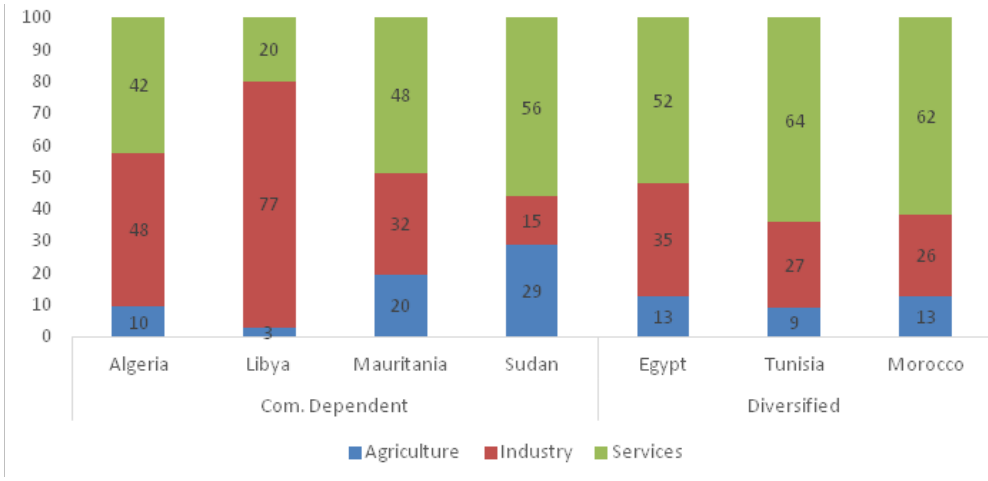
Figure 1: Growth and development overview



Source: Author's own elaboration using the World Development Indicators.

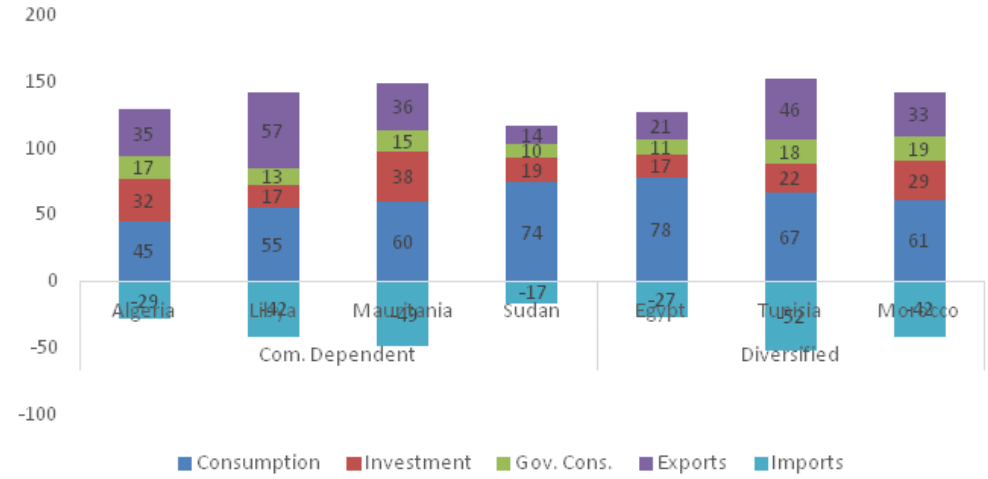
As per the structure of the two countries' GDP, Figure 2 shows that they heavily rely on services (at the supply level) and consumption (at the demand level), compared to other North African countries that are commodity-dependent. Yet, while GDP growth is mainly driven by private consumption, other GDP components differ across our countries of interest. In fact, Tunisia has a higher share of exports and imports to GDP (46% and 52%, respectively) compared to Egypt with a rather similar share of investment to GDP (17% in Egypt and 22% in Tunisia) as it is shown in Figure 3.

Figure 2: Gross domestic product composition – by sector (% of total)



Note: Figures are averaged over the period 2001-2019.
Source: World Development Indicators online data set.

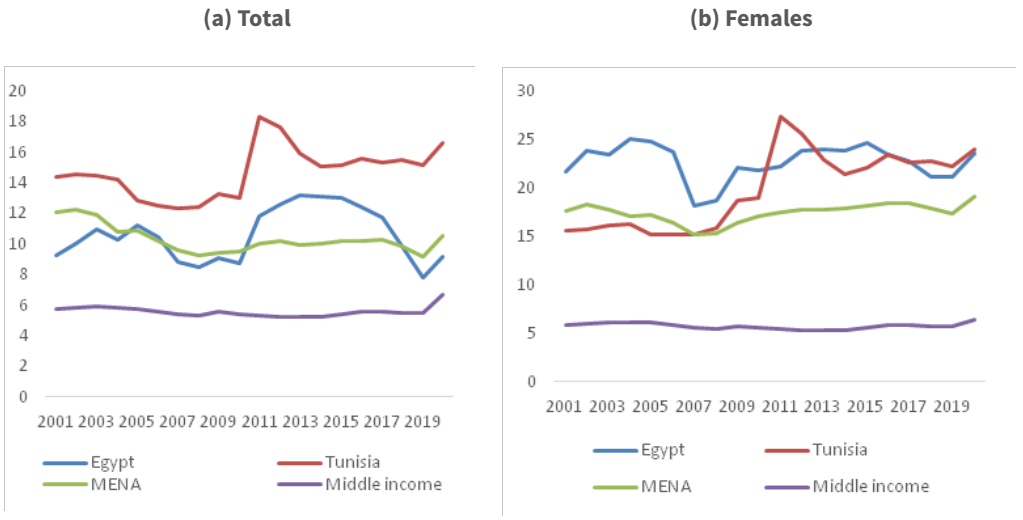
Figure 3: Gross domestic product composition – by demand component (% of total)



Note: Given that imports are negative, the Y-axis exceeds 100%. Yet, the sum of different GDP components add-up to 100%. Figures are averaged over the period 2001-2019.
Source: World Development Indicators online data set.

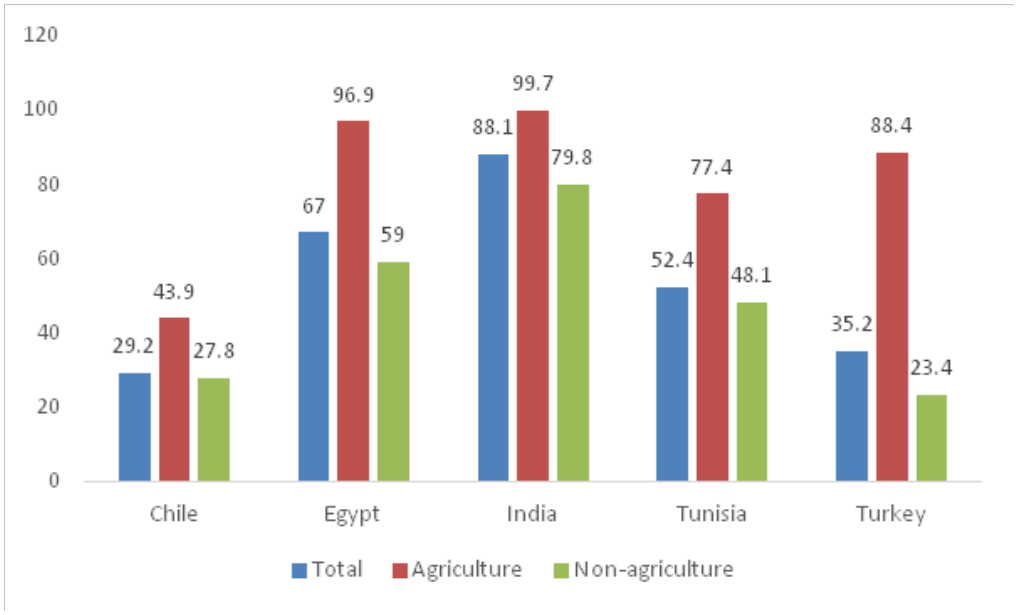
As it was mentioned before, despite a good performance at the macroeconomic level, labour outcomes did not significantly improve over time and the economy failed to generate enough jobs. This is confirmed by Figure 4 that shows that unemployment remained higher than that of both MENA and middle-income countries, especially for women. Moreover, as it is shown in Figure 5, the share of informal employment in total employment is higher in Egypt and Tunisia (in both agriculture and non-agriculture sector), even when compared to other emerging markets (with the exception of India where informal employment is particularly high).

Figure 4: Evolution of unemployment



Source: Author's own elaboration using the World Development Indicators.

Figure 5: Proportion of informal employment in total employment by sector (%)

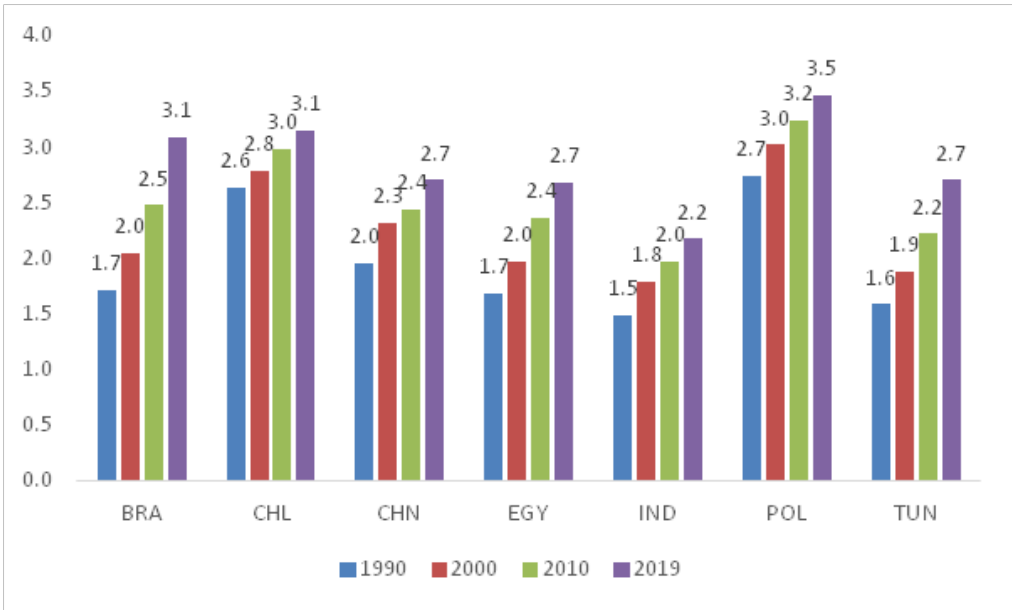


Note: Figures are averaged over the period 2010-2019.
Source: Author's own elaboration using the International Labour Office data set.

In order to examine this disconnection between the macroeconomic performance and the labour market outcomes, it is important to examine the structural characteristics of the two economies.

The first reason behind this disconnection pertains to the skill mismatch between the education system and the labour market needs. There exists a serious mismatch between the skills young people bring with them when they leave the education system and those that are sought after in the labour markets despite the improvement experienced in their human capital. Indeed, Figure 6 shows that the index of human capital (that calculated based on the years of schooling and return to education (from the Penn World Tables) has almost doubled in Egypt and Tunisia, reaching similar levels of other emerging market (such as Brazil, China, and India). Yet, despite that, the labour market did not experience similar developments, pointing out the mismatch between education and labour market in both Egypt (ElHamidi, 2009) and Tunisia (David & Nordman, 2014).

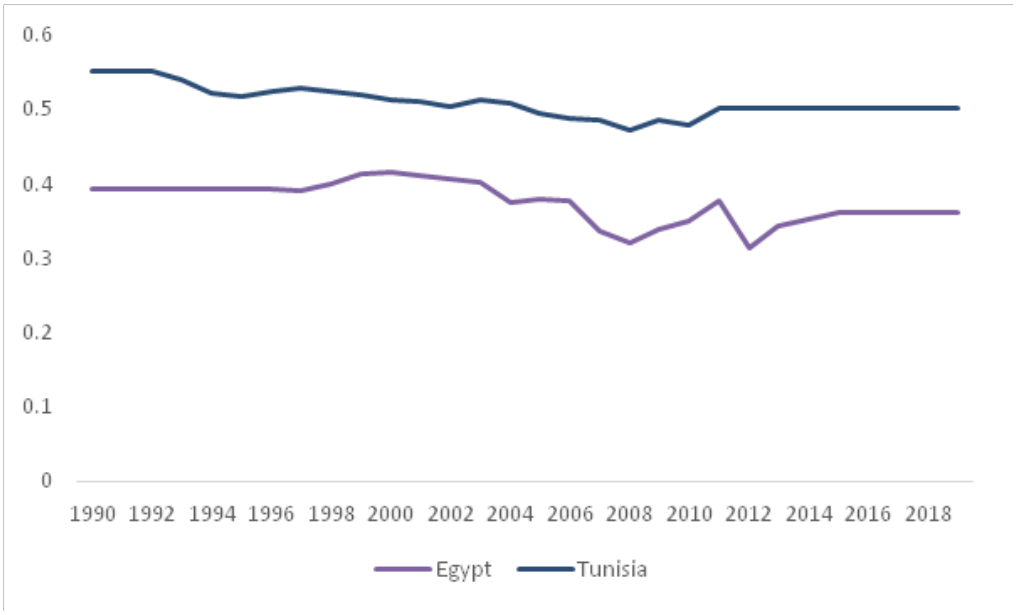
Figure 6: Index of human capital per person



Note: Based on years of schooling and returns to education.
Source: Author's own elaboration using Penn World Tables.

Second, these economies became more capital-intensive with a declining share of labour compensation to GDP, as it is shown in Figure 7, especially in Egypt where the share of labour compensation declined from 40% in 1990 to 36% in 2019. A similar trend has been observed in Tunisia, given that this share decreased from 55% to 50% over the same period. This confirms the fact that the two economies become more capital-intensive and failed to generate enough jobs.

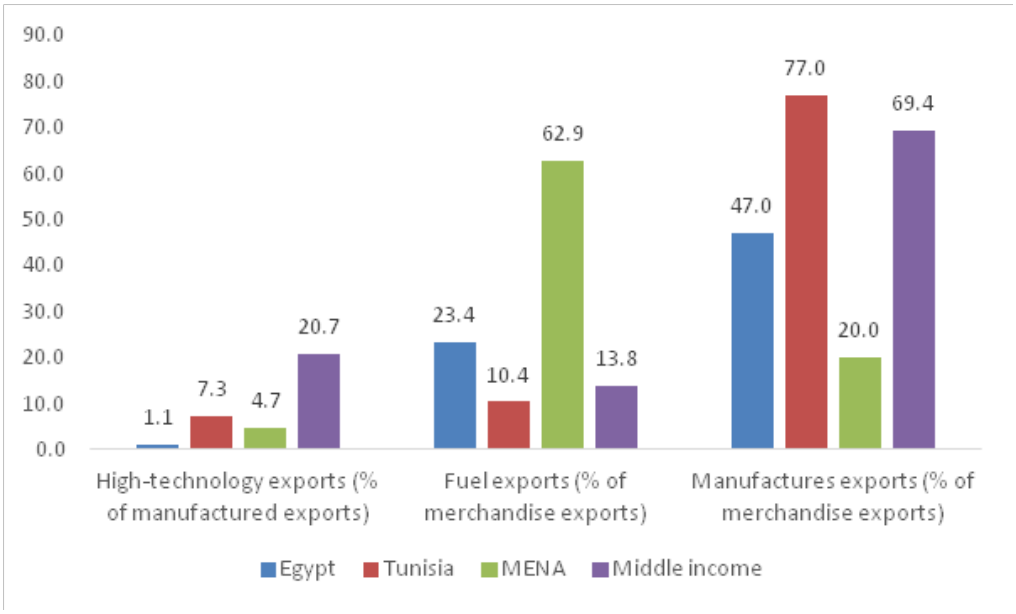
Figure 7: Evolution of share of labour compensation in GDP



Source: Author's own elaboration using Penn World Tables.

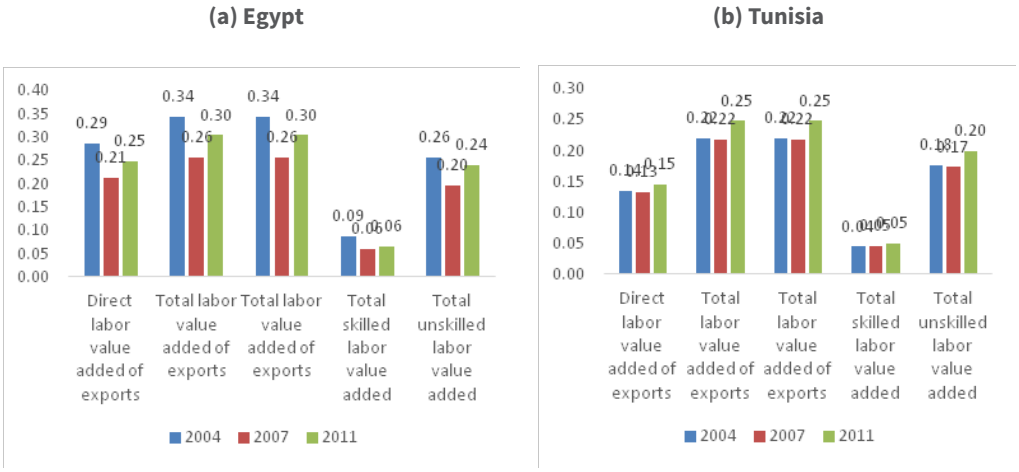
Third, one of the reasons that explain this increase in capital intensity is the specialization of these countries in capital-intensive products. Indeed, Figure 8 shows that 23.4% of Egypt's merchandise exports are concentrated in fuel that is chiefly capital-intensive. Moreover, the two countries' shares of manufactures exports are, respectively, 47% and 77%, but in sectors that are mainly capital-intensive such as textile in Tunisia and textile and chemicals in Egypt. Yet, while the share of high-technology exports increased in Tunisia, it remained modest in Egypt (7.3% and 1.1% respectively) and both were performing below middle-income countries (20.7%). This also led to limited labour value-added in exports, as it is shown in Figure 9, they either decreased or remained almost stable between 2004 and 2011 (mainly unskilled labour).

Figure 8: Exports structure



Note: Figures are averaged over the period 2010-2020
Source: Author's own elaboration using the World Development Indicators.

Figure 9: Exports and labour value-added

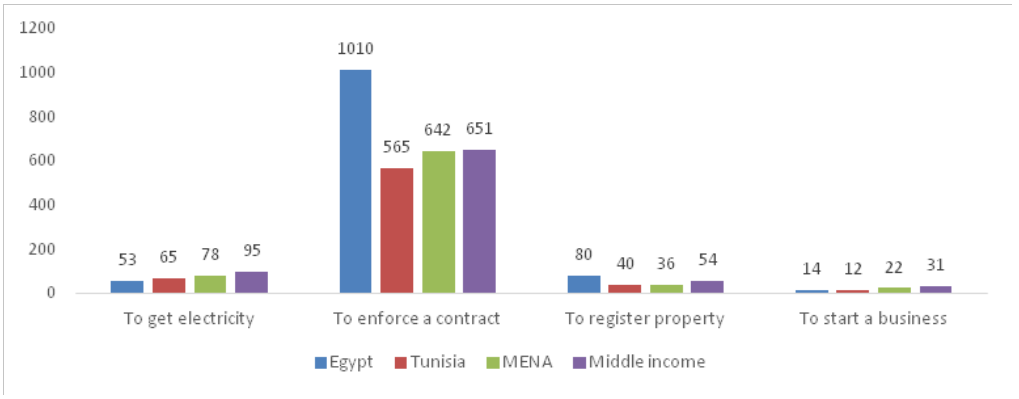


Notes: Figures are expressed as share of goods and services to total exports.
Source: Author's own elaboration using WITS data set.

The fourth reason behind this performance can be explained by the quality of economic institutions. Figure 10 shows that the time to enforce contract and that to register property are much higher in Egypt than in Tunisia. Moreover, markets are relatively concentrated in the two countries. Thus, with bad institutions, Karam and Zaki (2019) argue that deficient institutions increase the likelihood of specialization

into traditional products (oil and other products) that are less sensitive to contract enforcement or property rights. Hence, exports remained low, especially when compared to other economies, and chiefly concentrated in the same set of traditional products.

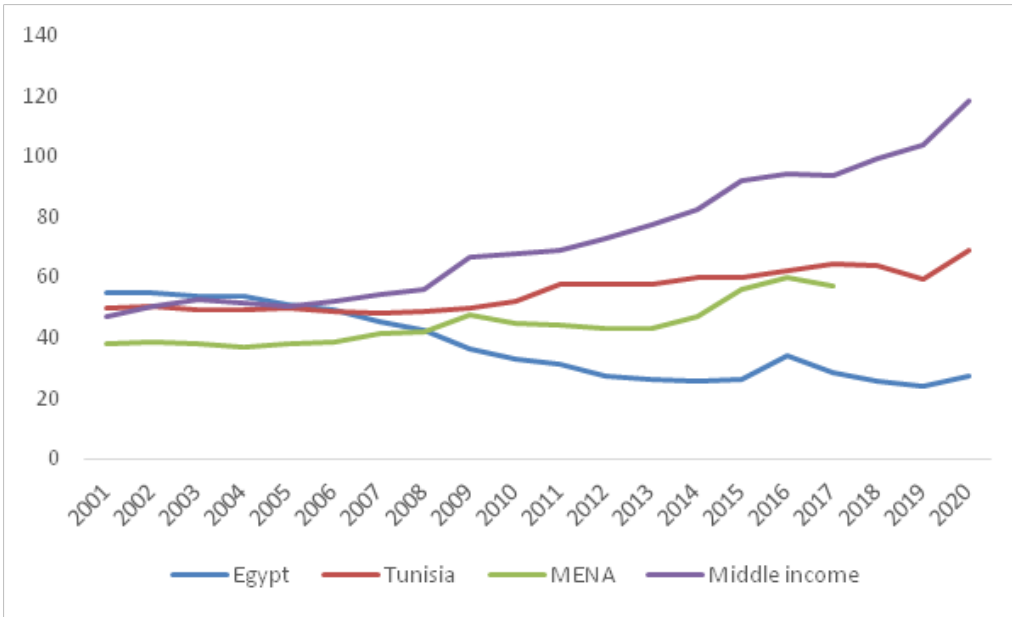
Figure 10: Quality of economic institutions



Note: Figures are averaged over the period 2001-2019
Source: Author's own elaboration using the World Development Indicators.

Fifth, with an investment climate that does not provide enough incentives, the private sector cannot compete and expand. This is also accentuated by the small of credit allocated to the private sector that either decreased in Egypt or remained almost constant in Tunisia compared to other middle-income countries.

Figure 11: Domestic credit to private sector by banks (% of GDP)



Source: Author's own elaboration using the World Development Indicators.

In a nutshell, all these factors explain why productivity did not increase in Egypt and Tunisia. In fact, Krugman (1997) argue that “productivity isn’t everything, but, in the long run, it is almost everything”. Moreover, Cusolito and Maloney (2018) argue that raising global productivity growth is the pivotal element of an integrated strategy to generate jobs — and good jobs —and reduce poverty. Thus, while the specialization nature and the institutional setting of Egypt and Tunisia failed to diversify the economy into sectors that are labour-intensive, it is crucial to examine which sectors can generate more jobs.

3. Which sectors can generate more jobs?

Methodology

In order to identify which sectors can change the trends and patterns aforementioned, Ayouty (2022) and Amara et al. (2022) adopt two different approaches.

For Egypt, Ayouty (2022), based on Egypt's 2016–2017 Input-Output, input-output analysis is used to compute employment and output multipliers for all industries (agricultural, extraction and mining, manufacturing, and services). While the output multiplier measures the total output from all domestic industries required to produce one additional unit of output of a certain industry; it is the combined direct and indirect effects of a change in final demand for the industry. Similarly, the employment multiplier is obtained as a measure of how employment would directly and indirectly increase throughout the economy as a result of an increase in the final demand for industry 'j' by one unit. To undertake a spatial analysis to evaluate whether total and youth employment are spatially-dependent, the Moran's index is used. Such dependence would imply that local employment effects carry over to "neighbouring" regions.

In Tunisia, Amara et al. (2022) combine macro and micro level analysis to identify the main sectors and firms that present the greatest potential to increase employment. At the macro level, they examine the structural change that took place by analysing the sectoral contribution to employment and value-added. In addition, employment to output elasticities for major sectors—agriculture, industry, and services—are calculated. The micro or firm-level analysis goes into more details of the process of reallocation by using microdata from the Tunisian Business Register (Répertoire National des Entreprises - RNE) covering the last two decades. Finally, both static and dynamic productivity growth decompositions (MacMillan et al., 2014) are implemented in order to identify the sources of growth (market share reallocation or between-firm) and improved firm performance or within-firm, overall and by sector).

Main findings

First, in Egypt, the manufacturing sector has the highest employment multipliers (ranging from 4.30 to 1.90 in value), followed by the services sector (ranging from 2.66 to 1.44), and primary industries have employment multiplier values of 1.37-1.45 (see Table 1). This shows to what extent more attention has to be attributed to the manufacturing sector, especially in labour-intensive sub-sectors.

Table 1: Egypt's industries ranked by employment multiplier, and corresponding output multiplier and employment effects statistic, 2016-2017

Industry (Isic Revision 4 Code)	Employment Multiplier	Output Multiplier	Employment Effects Statistic
Agriculture, forestry and fishing (01-03)			
Crop and animal production, fishing and aquaculture (01 & 03)	1.45	1.56	0.20
Industry (Extraction and Mining) (06-09)			
Extraction of crude petroleum (06)	1.43	1.08	0.04
Mining of metal ores (07-09)	1.37	1.40	0.17
Industry (Manufacturing) (10-33)			
Food products (10)	4.27	2.11	0.18
Basic metals (24)	2.42	1.78	0.10
Motor vehicles and other transport equipment (29 & 30)	2.31	2.17	0.14
Paper products (17)	2.11	2.00	0.18
Non-metallic mineral products (23)	2.03	1.92	0.18
Beverages (11)	2.02	1.70	0.16
Wearing apparel (14)	2.01	1.49	0.15
Coke and refined petroleum (19)	1.91	1.69	0.07
Chemical and chemical products (20)	1.86	1.73	0.15
Textiles (13)	1.83	2.16	0.35
Rubber and plastic products (22)	1.82	1.94	0.16
Fabricated metal products except machinery (25)	1.76	1.68	0.10
Electrical equipment (27)	1.75	2.10	0.18
Computer and electronic and optical products (26)	1.67	2.17	0.19
Machinery and equipment (28)	1.64	2.05	0.24
Pharmaceuticals (21)	1.51	1.88	0.22
Wood and cork except furniture (16)	1.46	1.11	0.03
Tobacco products (12)	1.42	1.57	0.21
Printing and reproduction (18)	1.26	1.09	0.05
Furniture (31)	1.18	1.34	0.23
Other manufacturing and repair of equipment (32 & 33)	1.01	1.03	0.11
Services (35-97)			
Real estate (68)	2.66	1.23	0.43
Hotels and restaurants (55 & 56)	1.66	1.57	0.15
Administrative & support services (77-82)	1.57	1.53	0.14
Communication (58-63)	1.47	1.44	0.25
Construction (41-43)	1.44	1.55	0.17
Membership organization services (94-96)	1.23	1.33	0.19

continued next page

Table 1 Continued

Industry (Isic Revision 4 Code)	Employment Multiplier	Output Multiplier	Employment Effects Statistic
Services (35-97)			
Wholesale and retail and repair of motor vehicles (45-47)	1.19	1.20	0.11
Electricity and gas (35)	1.16	1.75	0.42
Professional services (69-75)	1.16	1.28	0.17
Water and sewerage (36-38)	1.15	1.62	0.56
Transport and storage (49-53)	1.13	1.38	0.25
Health and social services (86-88)	1.11	1.46	0.50
Public administration and defense (84)	1.10	1.31	0.24
Arts and entertainment (90-93)	1.08	1.22	0.56
Financial services (64-66)	1.07	1.14	0.33
Education (85)	1.02	1.10	0.75
Domestic services (97)	1.00	1.00	0.57

Source: Ayouty (2022) based on Egypt's 2016–2017 input-output tables.

To examine the trade and social dimensions of job creation, the author classifies the sectors based on three criteria, namely: whether the industry has a high output multiplier value of 1.70 or more, a high female employment intensity of 10% or more, and a high competitiveness with a revealed competitiveness advantage (RCA) of 1 or more. Table 2 shows that both food products and apparel have a high employment output multiplier, are women-intensive and characterized by a comparative advantage. Basic metals, motor vehicles and other transport equipment, paper products, and non-metallic mineral products can generate jobs and have a comparative advantage but are not female-intensive. Thus, from a gender perspective, they are not likely to generate enough jobs.

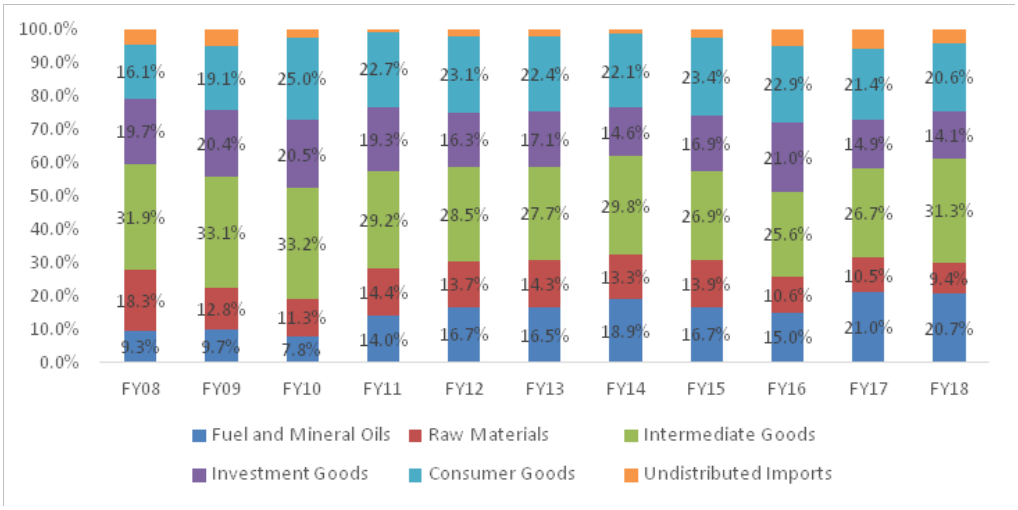
Table 2: Sectors classification and jobs creation

High output multiplier High female employment intensity High RCA	High output multiplier High RCA	High output multiplier
- Food products - Wearing apparel	- Basic metals - Motor vehicles and other transport equipment - Paper products - Non-metallic mineral products - Beverages	- Coke and refined petroleum products - Agriculture - Extraction of crude petroleum, and mining of metal ores

Source: Author's elaboration based on Ayouty (2022).

At the regional level, total employment is clustered in the regions of Greater Cairo, the Delta, Alexandria, Suez Canal, and Northern Upper Egypt, in the respective order. Lower total employment is clustered in the regions of Asyout and Southern Upper Egypt. Thus, potential for clusters development: the high multiplier industries and the upstream industries along their value chains are, to a large extent, located in neighbouring governorates, or in geographically close ones. This would imply that they could become vertically integrated across regions, thereby strengthening domestic supply chains. From a value chain perspective, the use of input-output analysis allows for tracking linkages between industries, hence identifying the upstream industries feeding production of a given industry. Thus, Ayouty (2022) argues that the high multiplier and the upstream industries along their value chains are located in neighbouring governorates, which increases the likelihood of their vertical integration and thus to develop domestic value chains. For example, while food products are mainly located in Giza, Cairo, Alexandria, Kalyoubia, and Suez, its main upstream industries (located in) are: crop and animal production (Dakahlia, Beheira, Gharbia, and Suez); food products (same locations); coke and refined petroleum (Alexandria, Asyout, Cairo, Kalyoubia, and Suez); machinery and equipment (Giza, Menoufia, Cairo, and Kalyoubia). Yet, it is important to note that Egypt's production and exports relies heavily on imported inputs, given that around 70% of Egypt's imports are concentrated in investment goods, raw materials and intermediate inputs (see Figure 12). Thus, more efforts are needed to increase the reliance of different industries on domestic inputs.

Figure 12: Egypt's imports (by sectors)

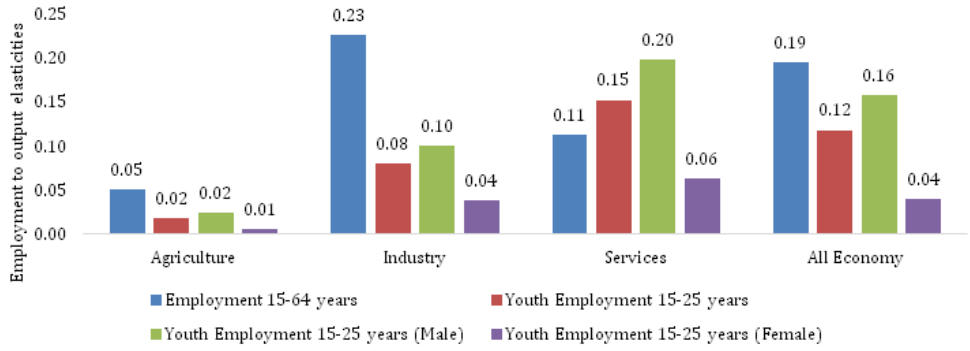


Source: Central Bank of Egypt.
https://www.cbe.org.eg/en/EconomicResearch/Statistics/Pages/TimeSeries.aspx

When the skill dimension is taken into consideration, the bulk of total and youth employment thus tends towards lower skills, indicating that supply-side labour skills may be constraining greater employment: on average for all governorates, almost 62% of youth employment owes to craft and related trades workers, professionals, skilled agricultural forestry and fishery workers, plant and machine operators, and assemblers.

As for Tunisia, globally, an increase of 1% in value-added is accompanied by a lower increase of 0.19% in employment for the population aged 15-64 years (see Figure 13). The same increase in the output only generates an increase of 0.11% in employment for young people aged 15-25 years with a significant gap between the two sexes (0.16% for males against only an increase of 0.04% for females). At the sectoral level, similar to Egypt, the manufacturing sector is the one that is likely to generate most of the jobs. Furthermore, the services sector generates fewer jobs in relation to its contribution to the growth of total value-added.

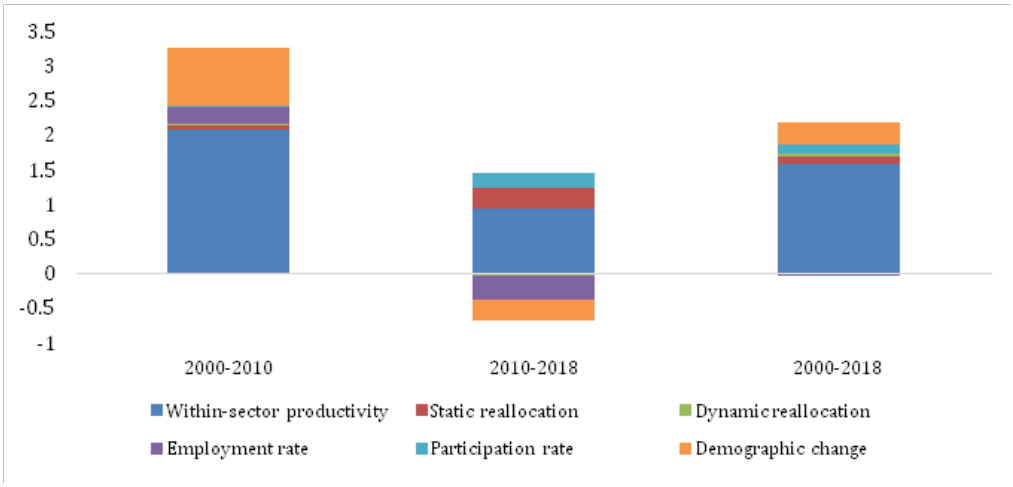
Figure 13: Employment elasticities by sector



Source: Amara et al. (2022).

The static decomposition by period (2000–2010 and 2011–2020) shows that: while the average annual growth rates of aggregate productivity before and after 2011 are very close, those of the within part are quite different. Indeed, over the decade before the revolution (2000–2010), the growth in per capita value-added was driven by increased productivity (67%) and by demographic change (26%). The contributions of employment and participation rates remain relatively low, at around 7% and 1%, respectively. The period after 2011 is characterized by low growth in value-added per capita (0.76% per year), explained by the negative contribution of employment (-47%) and demographic change (-40%). This result implies that growth over the period 2011–2018 was not accompanied by sufficient job creation.

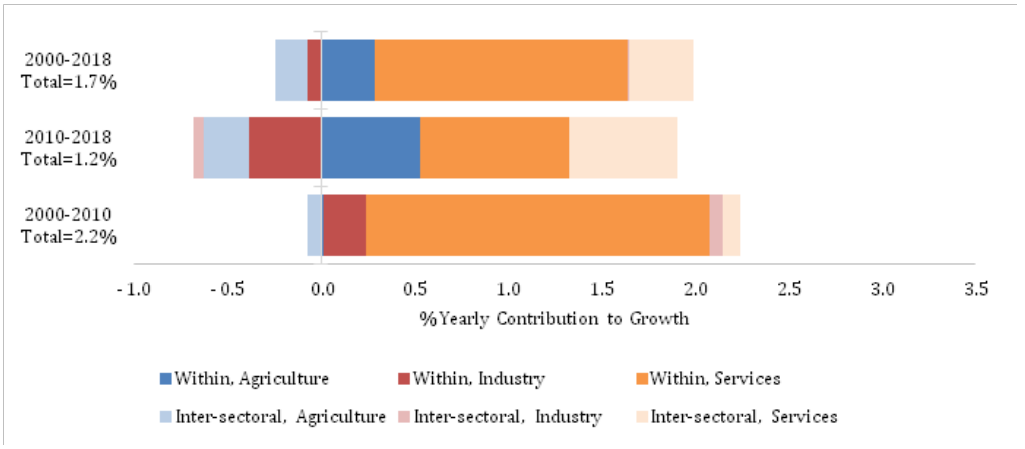
Figure 14: Decomposition of growth in per capita value-added



Source: Amara et al. (2022).

At the sectoral level, growth in Tunisia's GDP per capita between 2000 and 2018 was mainly due to productivity growth within sectors (representing 90% of the total productivity). This contribution comes mainly from the services sector and the agriculture sector, with a slightly negative contribution of the industry sector. The overall effect of inter-sectoral structure shifts of capital and labour (reallocation) represents only 10% of the total change in productivity. Moreover, at a more detailed level, the pre-revolution period 2000–2010 displays a general increase in the contribution of the within-firm component to aggregate productivity in: chemical industries (2.47%), ceramic and glass building (2.00%), mechanical and electrical (1.24%), and agro-food (1.03%). As per the post-revolution (2011–2020), the negative annual growth of the within-firm component suggests deterioration in the allocative efficiency for all sectors (with the exception of textile and clothing sector).

Figure 15: Productivity change decomposition: Annual contribution to per capita value-added growth by major sector



Source: Amara et al. (2022).

The dynamic decomposition shows that Tunisia experienced positive labour productivity growth during the two periods of 2006–2010 and 2016–2019 (5.4% and 0.7%, respectively); while both sub-periods of 2000–2005 and 2011–2015 (the 5-years period following the 2011 revolution) experienced negative labour productivity growth. The agro-food sector shows positive growth in labour productivity over all sub-periods with a downward trend. Labour productivity in the three sectors of chemical, ceramic and glass, and mechanical and electrical shows negative growth rates in the first sub-period after the revolution. The textile and clothing sector had a recovery in productivity after the revolution, starting from a rate of 0.3% during 2011–2015 to 2.2% for the period between 2016 and 2019. Finally, the services sector generates more jobs for youth, while the manufacturing sector generates more jobs for the whole population. Thus, improving the links between services and manufacturing (smart manufacturing, information technology, and digital processes) can be beneficial for the job creation.

4. Conclusion and the way forward

Given the widespread recognition of the need to integrate macroeconomic management and employment objectives, the objective of this paper is twofold. First, it presents the structural problems of Egypt and Tunisia related to growth and employment, and explains why growth has been jobless. Second, it attempts to analyse which sectors can generate more jobs. Relying on an input/output model for the case of Egypt (Ayouty, 2022) and a productivity decomposition exercise for the case of Tunisia (Amara et al., 2022). The main findings show that the manufacturing sector has a great potential to generate more jobs in Egypt and Tunisia, especially in a context where both of the countries experienced an early de-industrialization and a heavy reliance on services.

From a policy perspective, while these two economies focused more on stabilization policies, deeper reforms are needed in order to make the industrial sector more competitive. Such policies can be classified into four main groups.

First, at the institutional level, as it was highlighted by Karam and Zaki (2019), enhancing the quality of institutions (especially economic ones) is a must in order to change the specialization pattern of Egypt and Tunisia. In fact, deficient institutions increase the likelihood of specialization into traditional products (oil and other products) that are less sensitive to contract enforcement or property rights. Hence, to increase exports and change their structure, improving the investment climate (measured by time to start a business, time to enforce contracts, property rights, and effectiveness of competition laws) is a must.

Second, at the external level, most of the FDI in Egypt and Tunisia was chiefly allocated either in primary or extractive industries with a limited value-added, that are capital-intensive and that are associated to a limited technological transfer as well as job creation. Increasing foreign direct investments in the manufacturing sector is needed. Moreover, the modernization and industrialization of agricultural sector as well as the industrialization of rural areas and the support of employment intensive technologies remain necessary for decent and productive jobs creation. Moreover, increasing FDI in the manufacturing sector will help small and medium enterprises (that are able to generate jobs in the short term) integrate into global and domestic value chains through clusters (Dovis & Zaki, 2020), as it was highlighted by Ayouty (2022) in the Egyptian case.

Third, at the human capital level, improving the skills of blue collars is a must, given that the manufacturing sector heavily relies on them but they lack the appropriate skills (Aboushady & Zaki, 2021). This is particularly needed in a context of fiercer

competition in international markets that increases the demand for skilled workers (referring to the so-called skill bias technological change) relative to unskilled ones. Moreover, this is even more important with the manufacturing sector that becomes more intensive in high-technology (Amara et al., 2022). Thus, it is important to take serious steps towards enhancing the quality of vocational training aiming at improving the skills of blue-collar workers.

Fourth, one of the reasons that affect the competitiveness of the manufacturing sector is the protection and regulation of services, given the 'servicification' of this sector. Indeed, the cost and quality of the inputs (including services inputs) affect the performance of firms. Thus, service trade liberalization increases the competitiveness of local service sectors, and therefore helps attract foreign firms in Egypt and Tunisia and increase technological spillovers (Karam & Zaki, 2020).

Finally, more efforts are needed to develop a clear industrial and exports strategy in Egypt and Tunisia. This will require more coordination between industrial priorities and trade policy developments. To increase this coordination, a new export strategy is needed where supply-related factors that take into account the country's competitiveness must be combined with demand-related factors (measured by global import growth rates).

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To strengthen local capacity for conducting independent, rigorous inquiry into the problems facing the management of economies in sub-Saharan Africa.

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