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MIDDLE EAST AND CENTRAL ASIA DEPARTMENT

North Africa: Connecting Continents, Creating Opportunities

Prepared by Brett Rayner, Charalambos Tsangarides, Tsendsuren Batsuuri, Hannah Brown, Rana Fayez, Nadia Mounir, Dirk Muir, Gian Plebani, Sahra Sakha, and Veronique Salins.

2026

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North Africa stands at a pivotal crossroads—geographically and economically—between Europe's industrial demand and Africa's demographic dynamism. In today's rapidly shifting global landscape, North Africa has a timely opportunity to position itself as a strategic connector of continents. Geopolitical shifts and ongoing diversification efforts are creating new momentum to deepen economic linkages between North Africa, Europe, and sub-Saharan Africa, build greater resilience, and foster shared growth across all three regions.

Current trade and investment patterns reveal both opportunities and challenges. North Africa's trade remains heavily Europe focused, with 63 percent of exports destined for Europe and only 4 percent to sub-Saharan Africa. Participation in global value chains is limited, centered on raw materials and primary goods. Foreign direct investment (FDI) inflows are modest—less than 1 percent of global FDI—underscoring substantial untapped potential. At the same time, recent US tariff increases introduce new risks, whereas the African Continental Free Trade Area (AfCFTA) presents a strategic opportunity to deepen intra-African trade and broaden the region's economic partnerships.

Empirical analysis demonstrates that deeper regional linkages can generate substantial economic gains. Gravity model estimates suggest North Africa's trade could increase by up to 50 percent, GDP by about 2 percent, and FDI by roughly 40 percent, with meaningful benefits for both sub-Saharan Africa and Europe through greater supply chain participation and investment. Complementing this, Global Integrated Monetary and Fiscal Model (GIMF) simulations project medium-term gains of around 2 percent in GDP and 5 percent in exports for North Africa, along with significant spillovers for sub-Saharan Africa and Europe. When combined with improvements in logistics and the business environment, these gains could nearly triple. Energy is a central pillar for trilateral integration. Europe's accelerating clean energy transition and rising AI-driven electricity demand, combined with sub-Saharan Africa's urgent need for reliable power, position North Africa's abundant traditional and renewable resources as a strategic asset. By leveraging its energy strengths, North Africa can help support Europe's transition, alleviate Africa's electricity gaps, and foster technology transfer and AI adoption across the three regions.

Realizing this vision will require a coordinated reform agenda: upgrading logistics and infrastructure, accelerating digital transformation, streamlining trade facilitation and regulations, and promoting financial inclusion. Strong regional coordination—within North Africa and with European and sub-Saharan partners—will be essential to translate ambition into action and unlock the full potential of trilateral integration.

Acronyms and Abbreviations

AfCFTA	African Continental Free Trade Area
FDI	foreign direct investment
GIMF	Global Integrated Monetary and Fiscal Model
GVC	global value chain
IRENA	International Renewable Energy Agency
OLG	overlapping generations

CHAPTER 1: INTRODUCTION—CONNECTING CONTINENTS, CREATING OPPORTUNITIES

North Africa stands at a crossroads—geographically and economically—because it deepens ties with both Europe and sub-Saharan Africa. Positioned between Europe and sub-Saharan Africa, the region has long maintained strong economic links with the European Union, grounded in historical trade routes and investment flows. Yet, as Africa's demographic and economic dynamism accelerates, North Africa is increasingly engaging with its southern neighbors, recognizing the potential for stronger commercial and financial connections. This unique orientation presents a rare opportunity for North Africa to improve its development prospects by increasing bilateral and trilateral economic linkages with Europe and sub-Saharan Africa, diversifying economic partnerships and enhancing resilience and shared growth across all three regions.

Amid a shifting global economic landscape characterized by increasing fragmentation, geopolitical realignments, and growing protectionism, regional links have gained renewed importance. Global supply chains are being reconfigured in response to recent shocks, including the COVID-19 pandemic, the war in Ukraine, and trade tensions among major economies, including recent US tariff actions. These disruptions have prompted firms and policymakers to seek more resilient and geographically proximate alternatives.

- For Europe, this has translated into renewed interest in nearshoring manufacturing and sourcing capabilities—an area where North African countries are well positioned to capitalize. North Africa combines cost-effective human capital with strong industrial capabilities and expertise, making it an attractive base for European firms seeking both affordability and reliability in regional supply chains. Furthermore, existing frameworks, such as the EU–Mediterranean partnership and bilateral association agreements with the EU, already offer North African countries preferential access to European markets. Recent institutional developments—such as the EU's appointment of a dedicated Commissioner for the Mediterranean and increased funding through the Neighborhood, Development and International Cooperation Instrument—further reinforce the potential for greater linkages.

- For Africa, the ongoing implementation of the African Continental Free Trade Area (AfCFTA) opens new avenues for intra-African trade, investment, and regional value chain development. With its trade infrastructure and institutional capacity, North Africa is well placed to serve as a gateway to the continent's fast-growing consumer and industrial markets. By fostering closer economic ties, North African countries can create a more cohesive and competitive regional market. This would allow for greater economies of scale, improved specialization, and more efficient resource allocation.

Together, North Africa, Europe, and sub-Saharan Africa—representing about 27 percent of the world economy—can boost resilience and growth. North Africa can build on relationships with Europe and sub-Saharan Africa to serve as a dynamic conduit that channels capital, technology, and expertise from Europe into the growing markets of sub-Saharan Africa—while also enabling African goods, services, and resources to reach European markets more efficiently. For instance, European firms looking to diversify supply chains could invest in North African manufacturing hubs that source raw materials or intermediate goods from sub-Saharan Africa, creating vertically integrated value chains that span all three regions. Similarly, joint infrastructure projects—such as cross-regional railways, energy corridors, or digital connectivity platforms—could unlock

economies of scale and improve logistical efficiency across the continents. Financial triangulation, including regional development initiatives, could further support investment flows and risk-sharing mechanisms. By fostering this triangular model of cooperation, stakeholders can generate shared value, reduce asymmetries, and promote a more inclusive and resilient regional growth architecture.

North Africa has a unique opportunity to leverage its energy potential to fuel industrialization, technology transfer, and progress in artificial intelligence. The region possesses substantial traditional energy reserves and vast renewable energy potential, including solar, wind, and emerging interest in green hydrogen. Europe's accelerating energy transition, the increase in its energy needs generated by artificial intelligence, and the urgent imperative to bolster energy security by diversifying energy supplies have created a significant opportunity for North Africa to increase its exports of both traditional fuels and renewable energy. Simultaneously, North Africa can play a pivotal role in addressing sub-Saharan Africa's energy deficit by exporting electricity, investing in cross-border infrastructure, and sharing technical expertise. As a regional hub for energy and energy-related manufacturing, North Africa can support value chain development, while also channeling international finance and fostering trilateral partnerships to accelerate access, technology transfer and the rise of artificial intelligence, and long-term energy security.

The remainder of the paper is structured as follows. Chapter 2 presents the current state of trade and investment between North Africa, Europe, and sub-Saharan Africa, also highlighting potential impediments and opportunities for stronger economic connections. Chapter 3 uses gravity models to quantify the potential gains for the three regions from deeper trade and investment linkages, showing how reductions in trade barriers—particularly nontariff barriers (NTBs)—and complementary reforms such as improved trade infrastructure, human capital, and regulatory environment can significantly boost trade, investment, and participation in global value chains (GVCs). Chapter 4 complements this analysis by using the Global Integrated Monetary and Fiscal (GIMF) model to simulate the broader macroeconomic effects of regional linkages—particularly through nearshoring, trade liberalization, and policy reforms. It illustrates how trade liberalization, improved trade logistics, and a better business environment can translate into higher growth, exports, and human capital development, while also highlighting the structural differences that shape outcomes across countries. Chapter 5 highlights how North Africa can leverage its comparative advantage in the energy sector to catalyze economic diversification and promote technology transfer and human capital development. Chapter 6 concludes, emphasizing that North Africa has a unique opportunity to enhance economic resilience and growth prospects through stronger economic connections with Europe and sub-Saharan Africa, which will require a concerted effort to pursue active policy reforms.

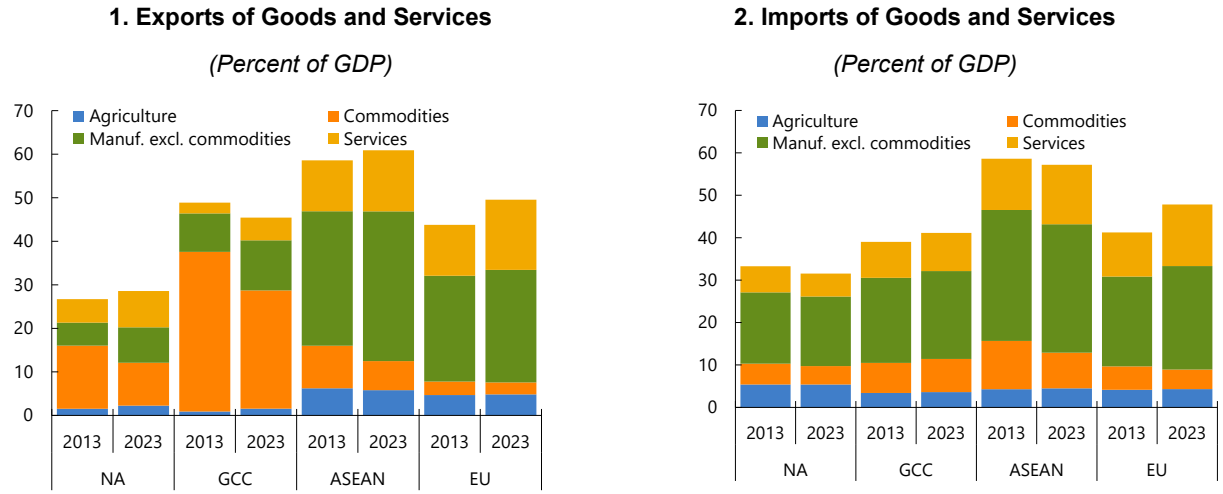
CHAPTER 2: THE STATE OF ECONOMIC LINKAGES—OPPORTUNITIES AND RISKS

This chapter presents the current state of trade and investment between North Africa, Europe, and sub-Saharan Africa, highlighting potential impediments and opportunities for stronger economic connections. Trade remains heavily Europe focused, with 63 percent of North Africa's exports destined for Europe and only 4 percent to sub-Saharan Africa. Participation in GVCs is limited, centered on raw materials and primary goods. Foreign direct investment (FDI) inflows are modest—less than 1 percent of global FDI—reflecting untapped potential. Recent US tariff increases pose new risks, whereas the AfCFTA presents a strategic opportunity to deepen intra-African trade and diversify partnerships. To seize emerging opportunities and mitigate risks, North Africa will need to implement deep structural reforms to improve the business environment, reduce trade barriers, and improve infrastructure and logistics, while also leveraging its abundant human capital to boost its overall competitiveness.

A. Limited Trade Links—with Europe Predominant

North Africa's trade openness remains modest. Over the past decade, North Africa's trade openness—measured as the sum of goods and services exports and imports relative to GDP—has remained stagnant. Exports account for an average of 28.5 percent of GDP, whereas imports represent 31.5 percent, little changed since 2013 (Figure 1). Although hydrocarbons dominate the region's exports, there has been some diversification. Non–commodity exports now represent 8.1 percent of GDP, up from 5.3 percent in 2013, while services exports have increased from 5.4 to 8.3 percent over the same period.

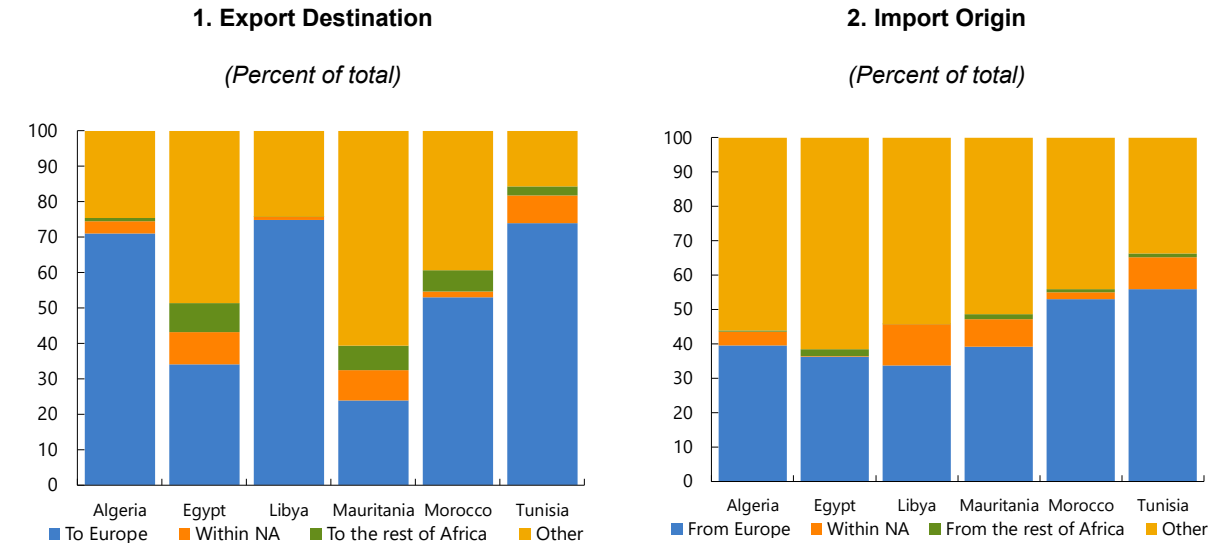
Figure 1. Limited Trade Links



Sources: Harvard University; Atlas of Economic Complexity; IMF WEO; and IMF staff calculations.
Note: NA = North Africa; GCC = Gulf Cooperation Council; ASEAN = Association of Southeast Asian Nations; EU = European Union.

Europe is North Africa's main trading partner by far, whereas trade between North Africa and sub-Saharan Africa remains limited. In 2023, Europe accounted for 63 percent of North Africa's exports and 43 percent of its imports (Figure 2). The export share is even higher at about 70 percent for the hydrocarbon exporters, Algeria and Libya, and for Tunisia. Europe is also an important trading partner of sub-Saharan Africa, accounting for 27 percent of exports and 22 percent of imports. In clear contrast, trade between North Africa and sub-Saharan Africa is negligible, representing only 3.6 percent of exports and just 1.1 percent of imports.

Figure 2. Europe Is North Africa's Main Trading Partner



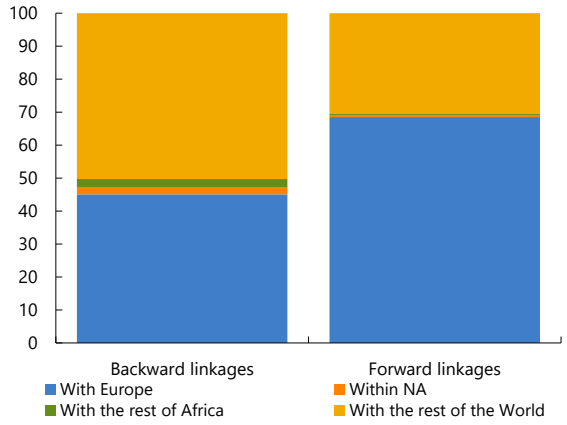
Sources: ITC; and IMF WEO; and IMF staff calculations.
Note: NA = North Africa.

North Africa's integration into GVCs is underdeveloped and remains anchored to Europe with the rest of Africa playing a limited role (Figure 3).[1] Notably, the region's forward linkages—supplying raw materials or primary goods—overshadow its backward linkages, which are essential for developing higher-value manufacturing (Figure 4). For example, while the manufacturing sectors in Morocco and Tunisia show greater backward linkages by incorporating substantial value-added inputs from the EU, the overall profile remains dominated by commodity and commodity-intensive production (Figure 5). Backward linkages with sub-Saharan Africa could also be further developed. In particular, there appears to be potential to integrate raw materials and intermediate manufactured goods as inputs into North Africa's emerging manufacturing industry (for example, automotive, renewables, Box 1 and Figure 6).

[1] A country/region's "backward linkages" capture its use of foreign value added in its exports. "Forward linkages" capture the use of its own value added in foreign countries' exports.

Figure 3. Value Chains Are Anchored to Europe

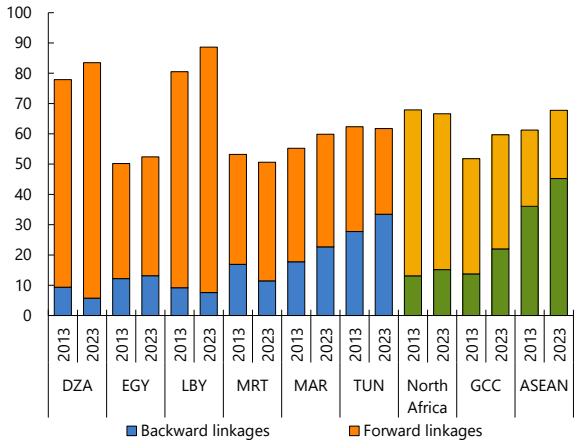
(Percent of total)



Sources: EORA; and IMF staff calculations.
Note: NA = North Africa.

Figure 4. Backward Linkages Are Underdeveloped

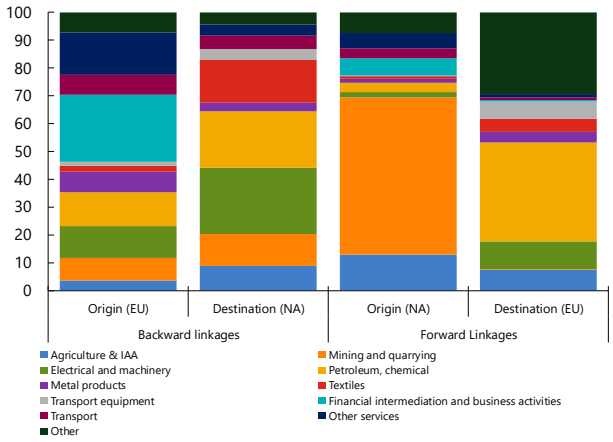
(Percent of countries' gross exports)



Sources: EORA; and IMF staff calculations.
Note: DZA = Algeria; EGY = Egypt; LBY = Libya; MRT = Mauritania; MAR = Morocco; TUN = Tunisia; GCC = Gulf Cooperation Council; ASEAN = Association of Southeast Asian Nations.

Figure 5. Commodities Dominate Value Chains—Backward and Forward Linkages with the EU by Sector

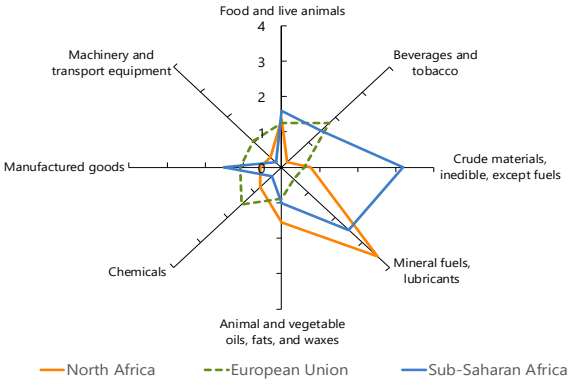
(Percent of total)



Sources: EORA; and IMF staff calculations.
Note: NA = North Africa; EU = European Union.

Figure 6. North Africa and Sub-Saharan Africa Share Comparative Advantages in Primary Goods

(Revealed comparative advantages [Index])

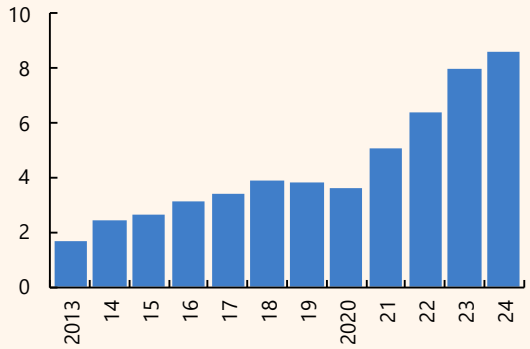


Sources: WITS; and IMF staff calculations

Box 1. Morocco's Automotive Industry—A Model of Technology Transfer and Value Chain Integration

Over the past two decades, Morocco has transformed itself into a regional automotive manufacturing hub, offering a compelling example of how strategic policy, infrastructure investment, and international partnerships can drive technological transfer and industrial upgrading. As a result, automotive exports—primarily destined for Europe—have surged, reaching approximately US$8.4 billion in 2023, up from US$1.7 billion in 2013. This transformation reflects a coordinated approach across several key policy areas.

Box Figure 1.1. Morocco's Growing Auto Exports
(*US$ million*)



Source: ITC Trade Map.

- ***Strategic planning.*** The Industrial Acceleration Plan, launched in 2014 and renewed in 2021, aimed to position Morocco as an export-oriented industrial platform, with a focus on job creation and sectoral competitiveness.
- ***Infrastructure development.*** The Tanger Med Port, inaugurated in 2007, has been central to Morocco's logistics and export strategy. The creation of the adjacent Tanger Automotive City in 2014—an integrated free zone and logistics hub—followed by port expansion in 2019, transformed the complex into Africa's largest port, with the capacity to handle 9 million containers and export 1 million vehicles annually.
- ***Trade liberalization.*** Morocco established several free zones—including Tanger Automotive City, Kenitra Atlantic Free Zone, and Nouaceur Zone—offering tax incentives, infrastructure, and streamlined customs procedures.
- ***Foreign direct investment and technology transfer.*** These zones have attracted significant foreign direct investment, drawing major automakers such as Renault and Stellantis, as well as global suppliers like Valeo and Bosch. These firms have not only brought capital but also transferred critical technologies, production processes, and quality control systems. For example, Renault's Tangier plant—one of the largest in Africa—operates with zero carbon emissions and has become a benchmark for sustainable manufacturing in emerging markets.
- ***Human capital development.*** Technology transfer has been reinforced through targeted human capital development. The Moroccan government, in partnership with the industry, established sector-specific vocational training centers, such as the Institut de Formation aux Métiers de l'Industrie Automobile (IFMIA). These centers offer curricula codesigned with manufacturers, ensuring that graduates are equipped with the technical skills required for modern automotive production, including robotics, logistics, and quality assurance.

Looking ahead, the African Continental Free Trade Area presents a strategic opportunity for Morocco to stronger regional linkages. Sub-Saharan Africa is a source of raw materials critical to automotive production—such as copper, rubber, and cobalt[1]—but these are often exported unprocessed to Asia or Europe. However, as industrial capacity in Sub-Saharan Africa expands, the African Continental Free Trade Area could support a shift toward regional sourcing. Moroccan equipment manufacturers investing in component industries across the continent could accelerate the development of a more integrated African automotive value chain.

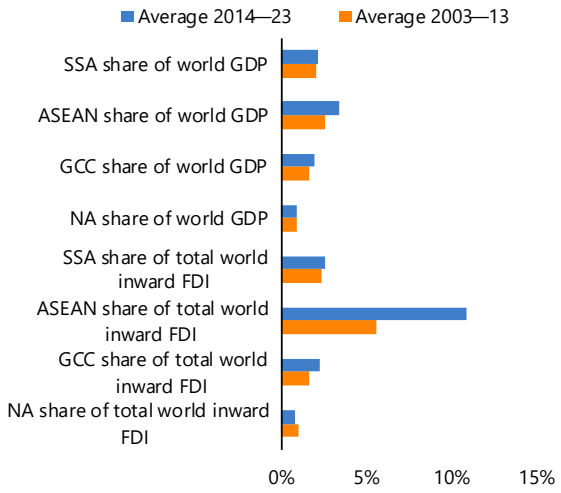
[1] Ivory Coast and Nigeria, for instance, are rubber exporters, while the Democratic Republic of the Congo is a major producer of cobalt and copper.

B. Investment Flows—Untapped Potential

Reflecting North Africa's limited trade linkages, FDI inflows are also modest. Over the past decade, North Africa has attracted less than 1 percent of global FDI, even lower than North Africa's share of world GDP. After the decline witnessed in the wake of the 2008 Global Financial Crisis—and further exacerbated during the Arab Uprisings—the region has struggled to recover its FDI inflows (Figure 7). This trend stands in stark contrast to other regions, particularly in Asia, which have successfully captured an increasing slice of global FDI. Similarly, sub-Saharan Africa has outperformed North Africa in attracting FDI, especially in recent years, averaging 3.1 percent of total world FDI inflows from 2019 to 2023, above the region's share of world GDP.

Figure 7. North Africa's Limited FDI Inflows

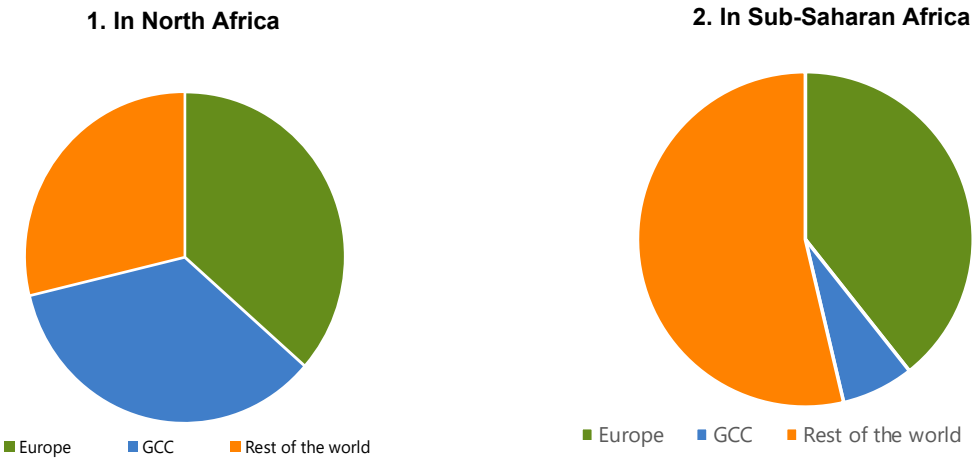
1. Share of Total World FDI and World GDP



Sources: UNCTAD; WEO October 2024 Database; and IMF staff calculations.
Note: FDI = foreign direct investment; NA = North Africa; SSA = Sub-Saharan Africa; ASEAN = Association of Southeast Asian Nations; GCC = Gulf Cooperation Council.

Europe continues to lead as the principal source of FDI in North Africa and in sub-Saharan Africa (Figure 8). France, Italy, and the United Kingdom drive investments in North Africa across diversified sectors such as manufacturing, services, oil and gas, and increasingly, renewable energy. Although historical patterns show a concentration in oil and gas, recent years reveal a diversification toward renewable energy sectors (driven by events like COP27 in Egypt), as well as increased activity in manufacturing, services, and real estate (Figure 9, panel 1). France and the United Kingdom also drive investments in sub-Saharan Africa, with China and India coming in as significant investors as well. Investments have mostly been concentrated in oil and gas and metals, but recent years have seen a diversification toward services, real estate, and renewable energy (Figure 9, panel 2).

Figure 8. Most FDI Comes from Europe—Announced Inward FDI by Source (2003–24)

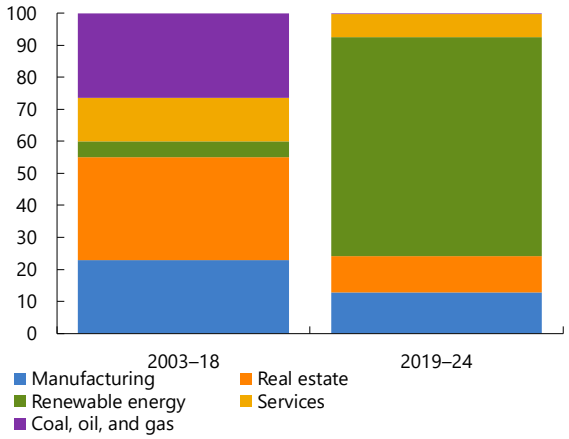


Sources: FT fDi Markets; and IMF staff calculations.
Note: GCC = Gulf Cooperation Council.

Figure 9. Greenfield Investment Growing—Announced Inward Capital Expenditure by Sector

1. North Africa

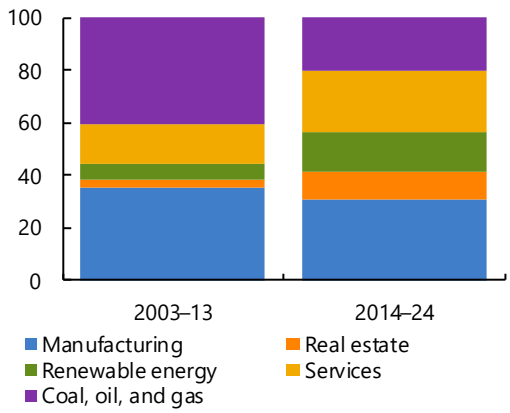
(Percent of total)



Sources: FT fDi Markets; and IMF staff calculations.

2. Sub-Saharan Africa

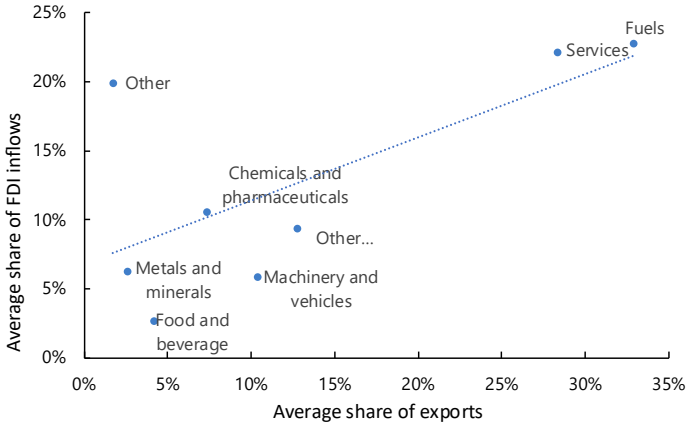
(Percent of total)



Sources: FT fDi Markets; and IMF staff calculations.

There is a strong synergy between export sectors and FDI inflows in North Africa. Excluding the recent spike in renewable investments—which have not yet translated into significant electricity export gains—the data reveal that sectors with robust export performance also attract the highest share of FDI (Figure 10). Indeed, investments in chemical and pharmaceutical sectors, transport industries, and services have risen over the past decade, reinforcing export diversification strategies.

Figure 10. North Africa: Sectoral Average Share of Exports and FDI Inflows



Sources: FT fDi Markets; Harvard University; Atlas of Economic Complexity; and IMF WEO; and IMF staff calculations.

C. Landscape of Regional Cooperation—Momentum Building

North African countries participate in several regional and international agreements. These agreements cover trade and, in some instances, investments. The region has also undertaken some infrastructure projects to enhance connectivity:

- ***Europe–North Africa cooperation.*** The Euro-Mediterranean Partnership (EUROMED), launched in 1995, includes North African countries alongside 28 EU member states. Association Agreements signed over the past decades have stimulated trade liberalization. Recently, Europe launched the Neighborhood, Development and International Cooperation Instrument providing 70.5 billion euros in development assistance to support trade, infrastructure, and intra-regional cooperation. Yet, as the EU forges deeper partnerships with other trading blocs, comparative market access for North Africa has diminished, stalling negotiations such as the Deep and Comprehensive Free Trade Agreements (DCFTAs).

- ***Intra-African cooperation.*** With all North African countries now part of the AfCFTA, the potential exists to progressively liberalize trade across the continent. In particular, members have committed to progressively reduce tariffs on 90 percent of goods over a period of 5 to 10 years depending on their level of development. To address NTBs, an online portal available to all traders has been developed, to serve as reporting and monitoring tool as well as a dispute resolution mechanism. Although too early to gauge its full impact, AfCFTA, launched in 2021, promises to boost North Africa's links with sub-Saharan markets—provided logistical and infrastructural challenges are addressed.

- ***Trilateral cooperation.*** The G20 Compact with Africa (CwA), launched in 2017 under Germany's G20 presidency, aims to promote private investment in Africa—particularly in infrastructure—by improving macroeconomic stability, the business environment, and financing frameworks. Thirteen African countries currently participate in the initiative, including Egypt, Morocco, and Tunisia.

D. Toward Stronger Economic Linkages—Challenges Remain

Despite expanding regional cooperation, trade barriers remain. Average North African import tariffs stand at 7.4 percent—markedly higher than those in many ASEAN, Gulf Cooperation Council (GCC), and EU economies and slightly higher than in sub-Saharan Africa (Figure 11). Algeria and Tunisia, with tariffs exceeding 9 percent, also have pervasive nontariff measures. These measures—which include sanitary and phytosanitary regulations, technical standards, and various price or quantity controls—are equivalent to an additional tariff of roughly 15 percent on average (Figures 12 and 13). Trade barriers are also significant within North Africa. Although most countries in North Africa participate in regional free trade agreements such as the Agadir Agreement and the Arab Maghreb Union, which have brought bilateral tariffs close to zero, NTBs remain high. This is particularly evident in the limited trade flows within the region (Figure 14).

Figure 11. Import Tariffs Are High

(Weighted average, 2021–23 average or latest available)

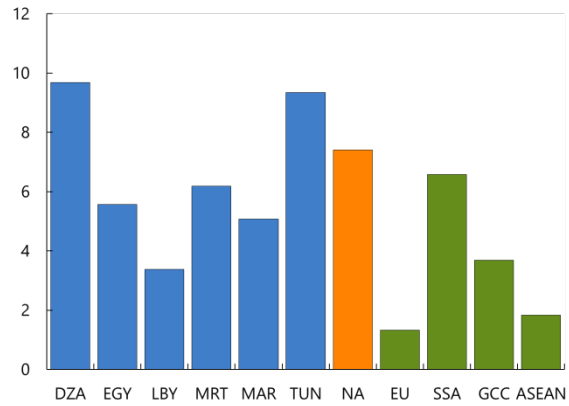
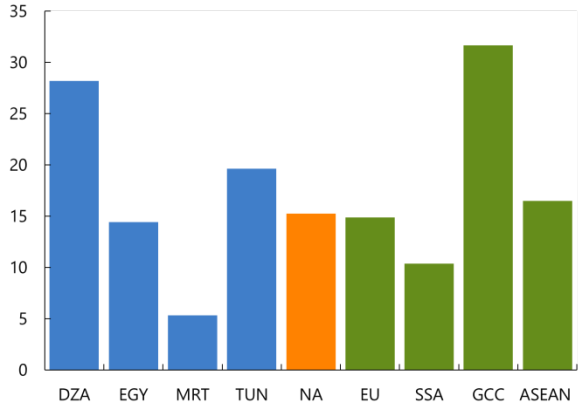


Figure 12. Nontariff Measures Are Even Higher

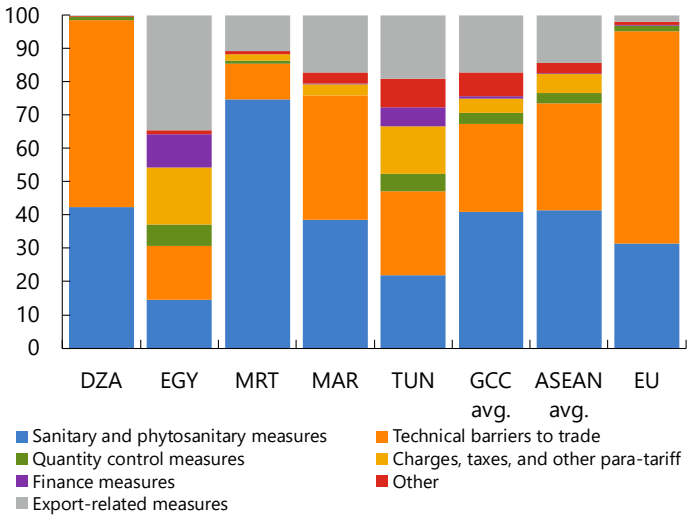
(Weighted average, 2022–23 average)



Sources: UNCTAD; and IMF staff calculations.
Note: DZA = Algeria; EGY = Egypt; LBY = Libya; MRT = Mauritania; MAR = Morocco; TUN = Tunisia; NA = North Africa; EU = European Union; SSA = Sub-Saharan Africa; GCC = Gulf Cooperation Council; ASEAN = Association of Southeast Asian Nations.

Figure 13. Nontariff Measures Are Widespread

(Number of types of measures as percent of the total)



Sources: UNCTAD TRAINS; and IMF staff calculations.
Note: DZA = Algeria; EGY = Egypt; MRT = Mauritania; MAR = Morocco; TUN = Tunisia; GCC = Gulf Cooperation Council; ASEAN = Association of Southeast Asian Nations; EU = European Union.

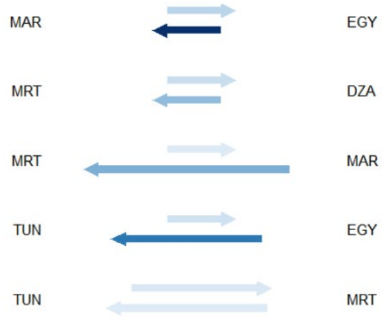
Figure 14. Bilateral Trade Flows within the Region Are Limited despite the Low Tariffs

1. Tariff and Trade Flows within North Africa

(Arrow length = tariff rate [0-9%]; arrow color = trade volume [$0-$600 million])

2. Tariff and Trade Flows within North Africa, Continued

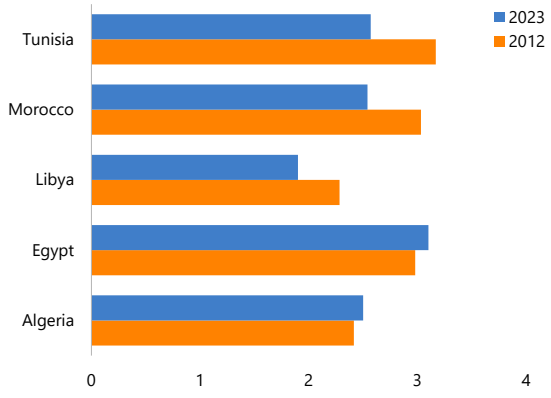
(Arrow length = tariff rate [0-15%]; arrow color = trade volume [$0-$750 million])



Sources: UNCTAD TRAINS; and IMF staff calculations.
Note: DZA = Algeria; MAR = Morocco; TUN = Tunisia; EGY = Egypt; MRT = Mauritania.

Underdeveloped infrastructure and trade logistics may also be a hindrance to stronger regional linkages. Most North African countries have experienced a decline in their overall Logistics Performance Index scores over the past decade. With Morocco, Libya, and Tunisia showing noticeable deterioration across metrics, the ability to move goods efficiently is compromised (Figure 15). Poor road conditions, high transport and logistics costs, and fragmented rail and highway networks are common challenges across the region (Kireyev and others 2019).

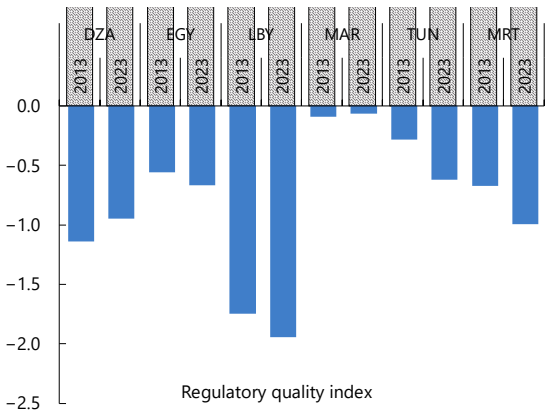
Figure 15. Logistics Are Underdeveloped*



Source: World Bank Overall Logistics Performance Index.

*Higher values correspond to better outcomes. Latest data available for Morocco and Tunisia are from 2018.

Figure 16. Regulatory Quality Is Mixed*



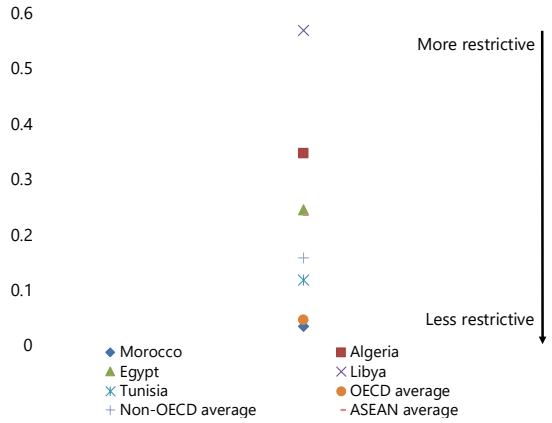
Source: World Bank, Worldwide Governance Indicators.
Note: DZA = Algeria; EGY = Egypt; LBY = Libya; MAR = Morocco; TUN = Tunisia; MRT = Mauritania.

*Higher values correspond to better outcomes.

North African countries also lack a supportive environment for investment. Key drivers of FDI—such as an enabling regulatory environment—face challenges, as evidenced by deteriorating scores in Worldwide Governance Indicators (Figure 16). This stagnation suggests that, despite the post-Arab Uprisings reforms, the policy environment still struggles to meet investor expectations. In addition, North African countries tend to be more restrictive when it comes to FDI than their peers (Figure 17). Foreign equity limits drive the index for all countries except Tunisia, where restrictions also apply to the screening and approval procedures for inward FDI.

Figure 17. Barriers to FDI Remain

(OECD FDI Restrictiveness Index)

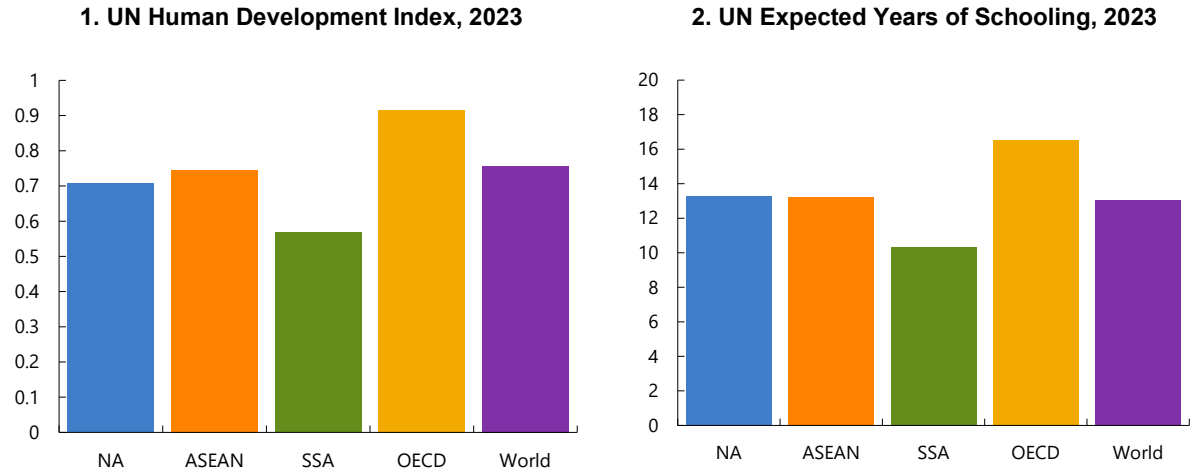


Sources: OECD, FDI Restrictiveness Index; and IMF staff calculations. Note: FDI = foreign direct investment; OECD = Organization for Economic Cooperation and Development; ASEAN = Association of Southeast Asian Nations.

Meanwhile, recent shifts in US trade policy add a new layer of uncertainty to the global trade environment. For North Africa, the imposition of (or potential for) higher tariffs on a range of imports would have potential negative effects on growth, exchange rate pressures, and reduced investments. However, it also intersects with ongoing efforts to deepen economic linkages with Europe and sub-Saharan Africa, and to position the region as a strategic connector in GVCs, which presents the region with opportunities amid the uncertainty (Box 2).

Although challenges to stronger linkages remain, North Africa can also leverage key strengths. A particular strength is its human capital, offering an advantage for better European connections with Africa (Figure 18, panel 1). Similarly, expected years of schooling in North Africa are above ASEAN, sub-Saharan Africa, and the world average (Figure 18, panel 2), a potential indicator of the skilled population in the region.

Figure 18. Human Capital Is a Strength



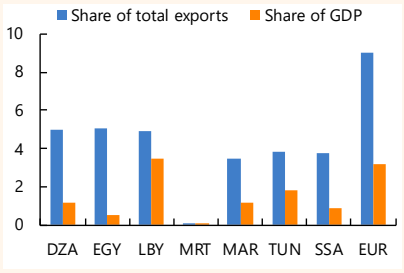
Sources: United Nations; and IMF staff calculations.
Note: NA = North Africa; ASEAN = Association of Southeast Asian Nations; SSA = Sub-Saharan Africa; OECD = Organization for Economic Cooperation and Development.

Box 2. The Potential Impact of US Tariffs on North Africa and Trilateral Trade

Recent shifts in US trade policy, including the imposition of (or potential for) higher tariffs on a range of imports, have added a new layer of uncertainty to the global trade environment. For North Africa, these developments intersect with ongoing efforts to deepen economic linkages with Europe and sub-Saharan Africa, and to position the region as a strategic connector in global value chains. This box assesses the potential impact of US tariffs on North Africa and explores how evolving trade dynamics with Europe and sub-Saharan Africa could shape the region's economic trajectory. **Although Africa's direct trade exposure to the United States is limited, the indirect effects of the US policy shift could be significant.**

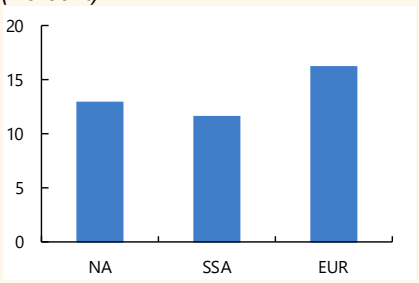
- ***Direct effects.*** The United States accounts for a small share of North African exports (Box Figure 2.1), with hydrocarbons, fertilizers, and textiles being the main products affected. Thus, the direct impact of US tariffs on North African exports is likely to be modest. Similarly, sub-Saharan exports to the United States are limited. Europe is more directly exposed to US tariffs, with a higher share of its exports going to the United States.
- ***Indirect effects.*** Tariffs and trade tensions may reduce global demand and supply, including for North African final and intermediate goods, while increased uncertainty may weigh on investments. In contrast, North Africa could benefit from trade diversion if European firms nearshore production to take advantage of lower production costs or to circumvent the higher tariffs on European goods, especially in sectors like automotive, electronics, and textiles. North Africa's proximity to Europe and improving infrastructure position it as an attractive alternative for European firms seeking to mitigate tariff risks and supply chain vulnerabilities.

Box Figure 2.1. Exports to the United States, 2024
(Percent)



Sources: IMF DOTS; and IMF WEO.
Note: DZA = Algeria; EGY = Egypt; LBY = Libya; MRT = Mauritania; MAR = Morocco; TUN = Tunisia; SSA = Sub-Saharan Africa; EUR = Europe.

Box Figure 2.2. Average US Tariff Rates
(Percent)



Source: IMF staff calculations.
Note: NA = North Africa; SSA = Sub-Saharan Africa; EUR = Europe.

A model-based assessment of the potential economic impact of permanently higher US tariffs highlights both challenges and opportunities for North Africa, following the analysis in the World Economic Outlook.[1] The scenario shows that tariffs could do the following:

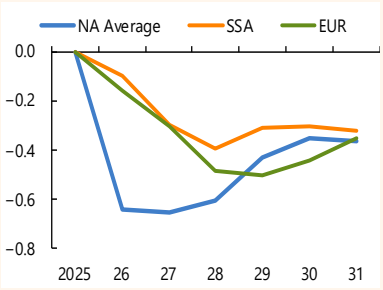
- ***Reduce global demand and disrupt supply.*** Consistent with the global impact in the World Economic Outlook scenario, North Africa's GDP also declines by around half a percent through the medium term (Box Figure 2.3, panel 1).
- ***Create exchange rate pressures.*** The dollar appreciation associated with the higher tariffs (as US demand for imports declines) would create corresponding real exchange rate depreciation pressures in North African countries. However, depreciation would be less than in Europe or sub-Saharan Africa, given the managed exchange rates in the region (Box Figure 2.3, panel 2). This also means that the exchange rate absorbs less of the initial shock in North Africa, resulting in larger GDP losses than in countries with more flexible exchange rates.
- ***Reduce investments.*** The temporary reduction in productivity limits firms' profitability and expected returns and lowers domestic investment in North Africa by almost 3 percent. Foreign investment in North Africa from Europe also declines, but is more resilient, falling by only 1.5 percent (Box Figure 2.3, panel 3). The relative resilience of European FDI in North Africa reflects the increased competitiveness of European final goods exports as a result of euro depreciation and supply chain links with North African intermediate goods.

Box 2. (*Concluded*)

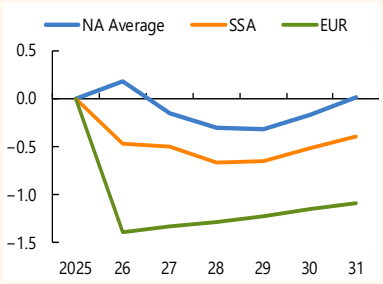
Box Figure 2.3. Model-Based Results of Permanently Higher US Tariff

(Percent deviation from baseline)

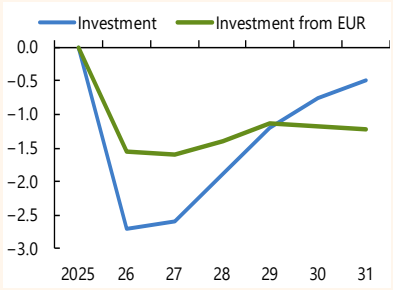
1. Real GDP



2. Real Effective Exchange Rate



3. Real Investment: North Africa Average



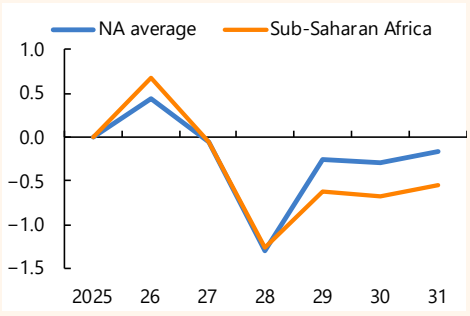
Source: IMF staff calculations.

Note: NA = North Africa; SSA = Sub-Saharan Africa; EUR = Europe.

Create opportunities for stronger regional supply chains. North Africa's linkages to European supply chains would initially expand as European final goods exports become more competitive with euro depreciation and as trade is diverted from regions facing higher tariffs (Box Figure 2.4). Over time, however, weaker global productivity and softer European demand would then weigh on these supply chain linkages. By 2029, the net impact on North Africa's value chain exports would be broadly neutral. At the same time, Europe's rising demand for imports from sub-Saharan Africa would create additional opportunities to strengthen supply chains of all three regions (Box Figure 2.5).

Box Figure 2.4. Real GVC Tradable Exports to Europe

(Percent deviation from the baseline)

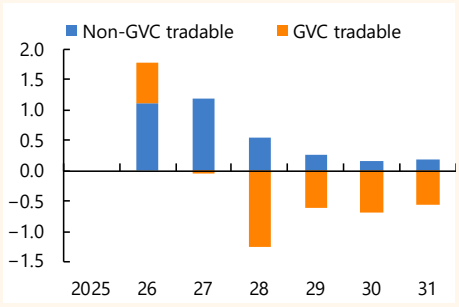


Source: IMF staff calculations.

Note: GVC = global value chain; NA = North Africa.

Box Figure 2.5. Europe's Imports from Sub-Saharan Africa

(Percent deviation from the baseline)



Source: IMF staff calculations.

Note: GVC = global value chain.

[1]For details of the scenario, see World Economic Outlook October 2025, Chapter 1, Box 1.2. Specifically, this box draws on the IMF's Global Integrated Monetary and Fiscal Model, using the North Africa-focused version of the model to simulate a risk scenario with permanently higher US tariffs—set at the highest of either the reciprocal tariffs announced in April 2025 or those announced in June or July, with no retaliation. These tariffs temporarily disrupt global supply chains and reduce productivity in trade-intensive sectors by 1 percent in 2026–27 before returning to baseline in 2028. The Global Integrated Monetary and Fiscal model is an annual, multiregional, micro-founded dynamic stochastic general equilibrium (DSGE) model of the global economy. See Chapter 4, Box 3, and Annex 1 for a detailed description of the model.

Through reforms, North Africa can mitigate risks and seize the opportunity to position itself as a dynamic connector between Europe and sub-Saharan Africa. In particular, North Africa can

- ***accelerate regional integration by reducing intra-regional trade barriers and investing in cross-border infrastructure, in line with AfCFTA and EU partnership frameworks;***
- ***diversify export markets and strengthen trilateral supply chains between North Africa, Europe, and sub-Saharan Africa to reduce vulnerability to external shocks; and***
- ***upgrade trade logistics and the business environment to strengthen competitiveness and attract investment and support value chain development.***

CHAPTER 3: UNLOCKING THE GAINS FROM STRONGER LINKAGES—GRAVITY MODELS

This chapter uses gravity models to quantify the potential gains from deeper trade and investment linkages, showing how reductions in trade barriers and complementary reforms, such as improved trade infrastructure, human capital, and regulatory environment, can significantly boost trade, investment, and participation in GVCs. The combined effect of a 20 percent reduction in trade barriers—especially NTBs—between North Africa, Europe, and sub-Saharan Africa, could increase North African trade by 25 percent, value chain participation by 13 percent, and GDP by 2 percent. For sub-Saharan Africa, it could boost trade by 15 percent, value chain participation by 12 percent, and GDP by 0.7 percent. Meanwhile, Europe would benefit from more resilient and higher growth in neighboring regions and could further increase its value chain participation by 4 percent. Leveraging human capital and improving the business environment and infrastructure would help to attract investment and technology, develop GVCs, and further boost economic prosperity and resilience across the three regions. By implementing complementary structural reforms, North and sub-Saharan Africa could boost trade by up to 58 percent, value chain participation by up to 27 percent, GDP by up to 2.5 percent, and FDI by up to 15 percent.

A. Empirical Strategy—Quantifying the Effect of Reforms

The empirical analysis leverages structural gravity models to quantify the economic effects of active policy reforms. The first model accounts for indirect general equilibrium effects of trade and economic growth.[2] The explanatory variables include the standard gravity variables such as geographical distance, common language, colonial ties, shared religion, and a common border. The second model uses the same structural gravity model to quantify the direct effect of lower trade barriers and an improved business environment on countries' backward participation in value chains, while the third looks at the impact on FDI, also incorporating an FDI restrictiveness measure.[3] Country fixed effects and control variables such as log GDP, GDP per capita, manufacturing value added, and geographical position are also included.[4] The gravity models rely on historical trade patterns to estimate the direct effects of reforms and provide granular insights into the specific trade, FDI, and backward linkage responses.

The effects of trade liberalization are assessed in two stages. In the first stage, North African countries and the European Union lower tariffs and NTBs by 20 percent.[5] In a second stage, North Africa connects with both

[2] The methodology follows Yotov (2022b) general equilibrium analysis based on a structural gravity model. Please see a detailed discussion of the assumptions and limitations of gravity models in Yotov (2022a) and IMF (2024).

[3] The OECD FDI Restrictiveness Index is widely used in the literature to determine foreign direct investment (FDI) flows. See Kalinova, Palerm, and Thomsen (2010).

[4] The gravity models for trade and value chain participation follow the IMF REO April 2024, the IMF Departmental Paper 2023, and the World Bank 2023 methodology.

[5] Globally, members of Regional Trade Agreements (RTAs) have about 20 percent lower trade barriers than nonmembers. We therefore model a 20 percent reduction of average tariff and nontariff barriers (NTBs) between the three regions.

sub-Saharan Africa and the EU to achieve a similar reduction of trade barriers between all three regions. Assessing trade liberalization in two stages allows an analysis of the effects of regional agreements.

Beyond trade liberalization, the empirical analysis also investigates the impact of broader policy reforms. In modeling active policy scenarios, the analysis incorporates measures of trade infrastructure and logistics, human capital development, and improvements in the business environment such as regulatory quality, financial development, and FDI restrictiveness. These additional reforms are assessed for their capacity to raise trade, attract investment and technology, foster greater participation in GVCs, and ultimately boost economic prosperity and resilience.

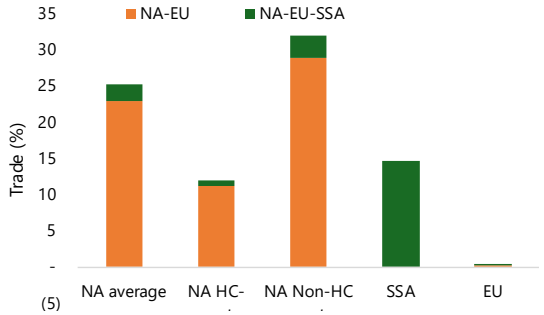
B. Trade Liberalization—A Key to Higher Growth and Value Added

Strengthening the links between North Africa and the EU has major potential to boost trade and economic welfare in the region. For example, the analysis shows that a 20 percent reduction of average trade barriers with the EU could boost North Africa's trade by 23 percent and GDP by 2 percent, on average (Figure 19). Countries with relatively high tariffs and NTBs such as Tunisia and Morocco would benefit most with an increase in trade by 41 and 47 percent, respectively, translating into a potential boost to GDP of 3.5 and 2.6 percent, respectively. Given that the EU is a significantly larger trading partner, the effect on its overall economy would be more modest, with a 0.4 percent increase in trade and 0.1 percent in GDP.

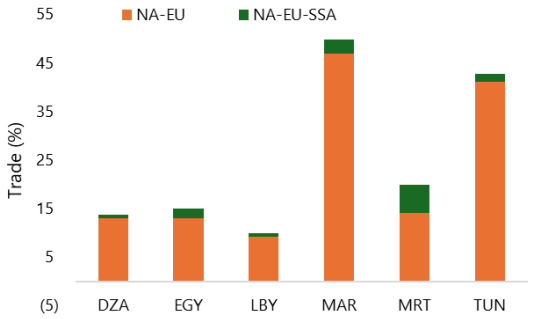
Connecting all three regions creates even more potential to boost economic growth and resilience. Reducing barriers across the three regions by 20 percent on average would see an even greater economic impact, leading to an increase in trade by more than 25 percent and GDP by 2.2 percent for North African countries on average. The countries with the highest current trade barriers and largest export sectors stand to benefit most (for example, Tunisia, Morocco, and Libya). Sub-Saharan Africa would also benefit from an increase in trade of 15 percent and GDP of 0.7 percent. Mauritania would benefit most from additional trade liberalization with sub-Saharan Africa as a result of its geographic proximity. Meanwhile, Europe would benefit from a deeper regional supply chain integration as well as greater resilience and growth in neighboring regions. On top of greater linkages with Europe and sub-Saharan Africa, North Africa could benefit even further by reducing intra-regional trade barriers (Box 3).

Figure 19. Lower Trade Barriers Increase Trade and GDP

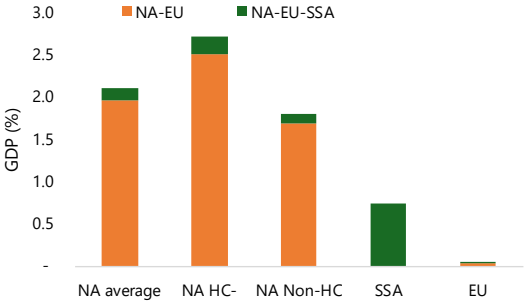
1. Reduction of Tariff and NTB—Contribution of Trade Increase



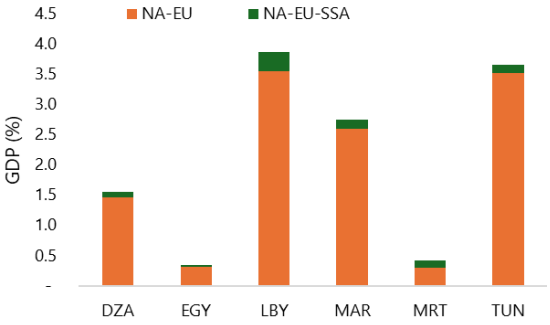
2. North Africa: Reduction of Tariff and NTB—Contribution of Trade Increase



3. Reduction of Tariff and NTB Contribution to GDP Increase



4. North Africa: Reduction of Tariff and NTB Contribution to GDP Increase



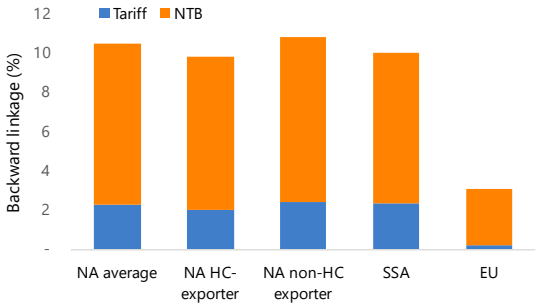
Source: IMF staff calculations.
Note: HC-exporter = hydrocarbon exporter; NTB = nontariff barrier; NA = North Africa; EU = European Union; SSA = Sub-Saharan Africa; DZA = Algeria; EGY = Egypt; LBY = Libya; MAR = Morocco; MRT = Mauritania; TUN = Tunisia.

Trade liberalization can also help develop trilateral supply chains. A reduction in trade barriers would have a significantly positive effect on supply chains in the three regions. Specifically, every 1 percent reduction in tariffs could increase backward participation by 1.2 percent.[6] Even more importantly, every 1 percent reduction in NTBs would increase backward participation by 4.3 percent (Annex 3.2). This suggests that North Africa could increase backward participation by 13 percent if trade barriers are brought in line with those in other regional trade agreements (Figure 20). Reducing trade barriers not only lowers the price of final goods but also improves access to intermediate goods and technology, reducing the costs of manufacturing and thereby helping North Africa to move up the value chain (Kowalski and others 2015). For hydrocarbon-producing countries (that is, Algeria and Libya), trade liberalization also represents an opportunity to diversify exports. Sub-Saharan Africa would see a similar benefit with a 12 percent increase to its supply chain integration by reducing tariffs and NTBs. Europe—already a supply chain leader—would see additional linkages of around 4 percent. For all regions, reducing NTBs has a greater impact on supply chains than tariff barriers.

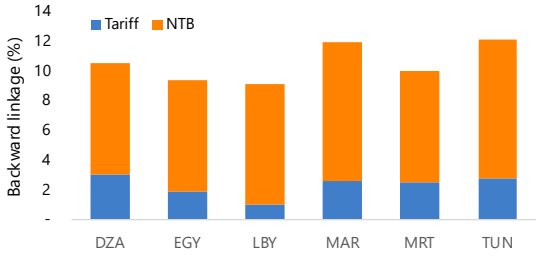
[6] Backward participation measures backward linkages as a percent of countries' gross exports (see Chapter 2 or Aslam and others 2017 for more details).

Figure 20. Lower Trade Barriers Strengthen Trilateral Supply Chains

1. Effect of Reducing Trade Barriers on Backward Participation



2. North Africa: Effect of Reducing Trade Barriers on Backward Participation



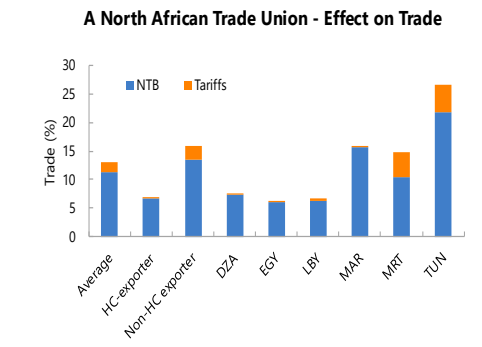
Source: IMF staff calculations.
Note: HC-exporter = hydrocarbon exporter; NTB = nontariff barrier; NA = North Africa; SSA = Sub-Saharan Africa; EU = European Union; DZA = Algeria; EGY = Egypt; LBY = Libya; MAR = Morocco; MRT = Mauritania; TUN = Tunisia.

Box 3. A North African Trade Union?

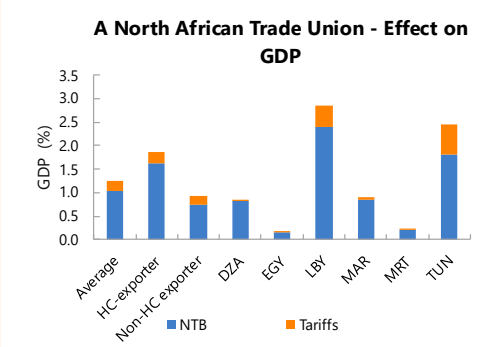
Reducing tariff and nontariff barriers between North African countries would boost market access and growth. Although reducing both tariff and nontariff barriers would accelerate trade and growth in the region, a reduction of nontariff barriers is especially important. Specifically, a reduction of tariffs and nontariff barriers between North African countries could increase their exports by 13 percent and GDP by 1.2 percent, on average, with most of the gains driven by the reduction of relatively high nontariff barriers. Reducing tariffs alone would have a much lower effect of up to 5 percent on trade and 0.5 percent on GDP. The positive effect of trade liberalization would be strongest for countries with the highest trade barriers and largest exports to the region (for example, Tunisia). For North African countries, the trade union would contribute about one-third to the overall gains of the trilateral linkages described in this chapter.

Box Figure 3.1

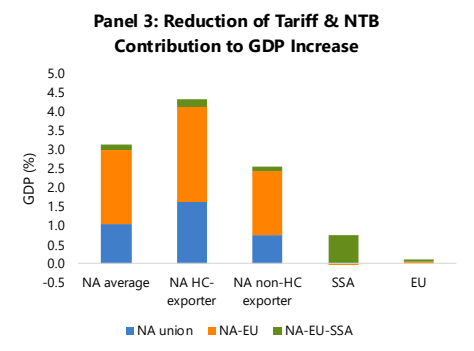
1. A North African Trade Union—Effect on Trade



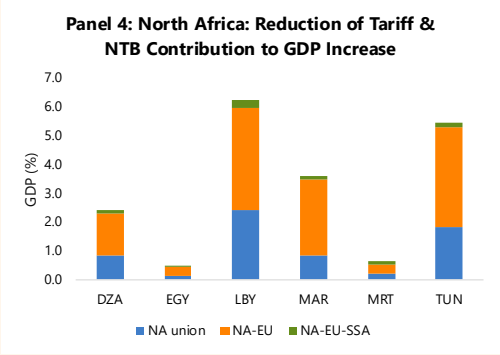
2. A North African Trade Union—Effect on GDP



3. Reduction of Tariff and NTB Contribution to GDP Increase



4. North Africa: Reduction of Tariff and NTB Contribution to GDP Increase



Source: IMF staff calculations.
Note: HC-exporter = hydrocarbon exporter; NTB = nontariff barrier; NA = North Africa; SSA = Sub-Saharan Africa; EU = European Union; DZA = Algeria; EGY = Egypt; LBY = Libya; MAR = Morocco; MRT = Mauritania; TUN = Tunisia.

C. Additional Reforms to Maximize the Benefits of Stronger Linkages

The significant benefits of trade liberalization can be further enhanced through structural reforms to the trade and business environment. In particular, improved trade infrastructure, human capital development, enhanced regulatory quality, openness to FDI, and deeper financial markets can help to boost trade, strengthen supply chains, attract investments, and accelerate economic growth:[7,8]

- ***Improving trade infrastructure.*** Efficient trade logistics are essential for supporting exports, attracting investment, and fostering economic growth. Improving its logistics performance by around 15 percent on average, North Africa could see its trade increase by 46 percent, which could translate into a 2 percent boost to GDP (Figure 21). It could also see the number of inward FDI projects increase by 9 percent on average. The quality of the logistics infrastructure, along with efficient shipping and customs processes, is important for the countries with more diversified export bases (for example, Egypt, Morocco, and Tunisia). However, reforms would also translate into a large boost to GDP (3.5 percent, on average) for hydrocarbon exporters. Sub-Saharan Africa, with a large gap in trade infrastructure, could experience a significant boost to trade with increases of 58 percent, GDP by 2.5 percent, and the number of FDI projects by 31 percent (Figure 21). While trade infrastructure investments yield substantial long-term returns, they often entail high upfront costs and extended payback periods. In this context, increased direct foreign investment can play a catalytic role in mobilizing the necessary financing and accelerating implementation. In modern supply chains, where goods often cross borders multiple times, logistics performance becomes the key driver of value chain integration. The results suggest that North Africa and sub-Saharan Africa could increase backward linkages by 27 percent, on average, when improving their trade logistics (Figure 22).

- ***Leveraging human capital.*** While North Africa possesses comparatively strong human capital, additional investment in this area could generate substantial benefits—particularly as human capital plays a key role in maximizing the gains from economic linkages. Specifically, increasing human capital by about 10 percent on average in North Africa could increase GDP by 1.5 percent, with all countries seeing increased trade and investment (Figure 21). Sub-Saharan Africa would see similar gains from a 13 percent increase in human capital on average. For sub-Saharan Africa, developing human capital has the largest impact on FDI, boosting it by 15 percent (Figure 21). Furthermore, human capital investment supports the development of GVCs, with backward linkages increasing by 14 and 22 percent in North and sub-Saharan Africa (Figure 22). Human capital can be strengthened through targeted investments in technical and vocational education and training, which enhance workforce skills and support inclusive, productivity-driven growth.[9]

[7] The papers, such as ElGanainy and others 2023, Caporale, Sova, and Sova (2022), and Gakpa and others (2025), highlight the relevance of these variables.

[8] The five indices used as policy variables are (1) World Bank's Logistics Performance Index, (2) World Bank's World Governance Index: regulatory quality index, (3) IMF's Financial Development Index, (4) Penn Table's Human Capital Index or expected years of schooling from the UNESCO UNDP, and (5) the OECD's FDI Restrictiveness Index. We reduce North Africa's and sub-Saharan Africa's gap with developed economies in these indices by 25 percent. For the EU, we assume a 2 percent improvement in the member countries' respective index levels.

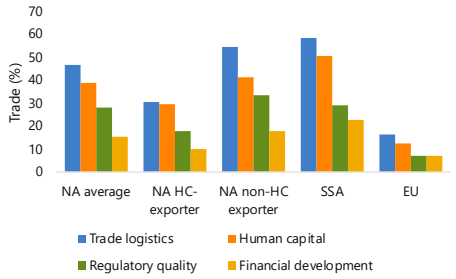
[9] See World Bank report from Levin and others (2023) for more details.

- ***Strengthening the business environment and financial development.*** Closing North Africa's gap in regulatory quality could boost its trade by 28 percent and GDP by 1.2 percent (Figure 21). In fact, regulatory quality is the single most powerful lever to attract investment in North Africa, boosting FDI projects by 15 percent. Similarly, further enhancing financial development could increase trade by 15 percent and GDP by 0.6 percent. Closing these gaps could have an even greater effect in sub-Saharan Africa, boosting trade by 22 to 30 percent and lifting growth between 1.1 and 1.8 percent (Figure 21).

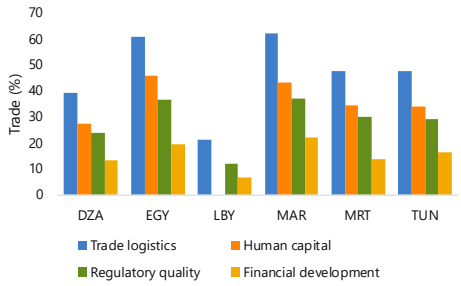
- ***Enhancing attractiveness to FDI:*** Reducing restrictions on equity participation, approval requirements, personnel mobility, and operational activities is a powerful lever to draw in new foreign investors. In North Africa, easing these barriers would increase the number of projects by around 7 percent, while in sub-Saharan Africa the gain would reach 4 percent (Figure 21). The potential is particularly strong in Algeria, Egypt, and Libya, where targeted liberalization across these dimensions could unlock significant new investment opportunities.

Figure 21. Reforms to the Trade and Business Environment Amplify Benefits of Linkages and Boost Investments

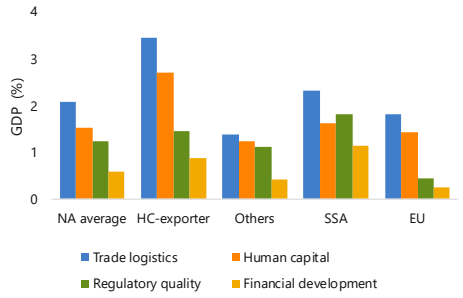
1. Improving the Trade Environment—Effect on Trade



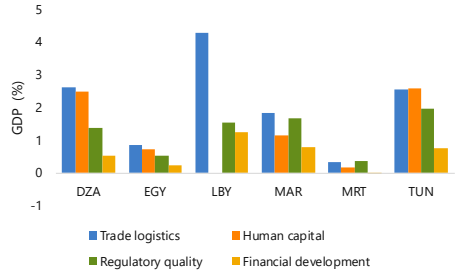
2. North Africa: Improving the Trade Environment—Effect on Trade



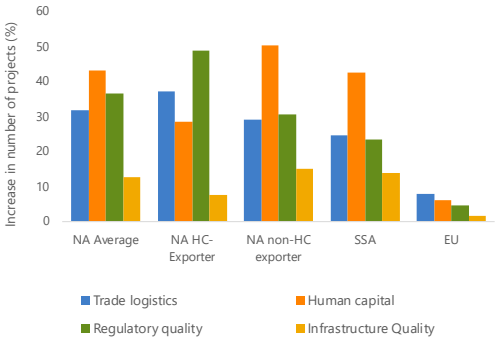
3. Improving the Trade Environment—Effect on GDP



4. North Africa: Improving the Trade Environment—Effect on GDP



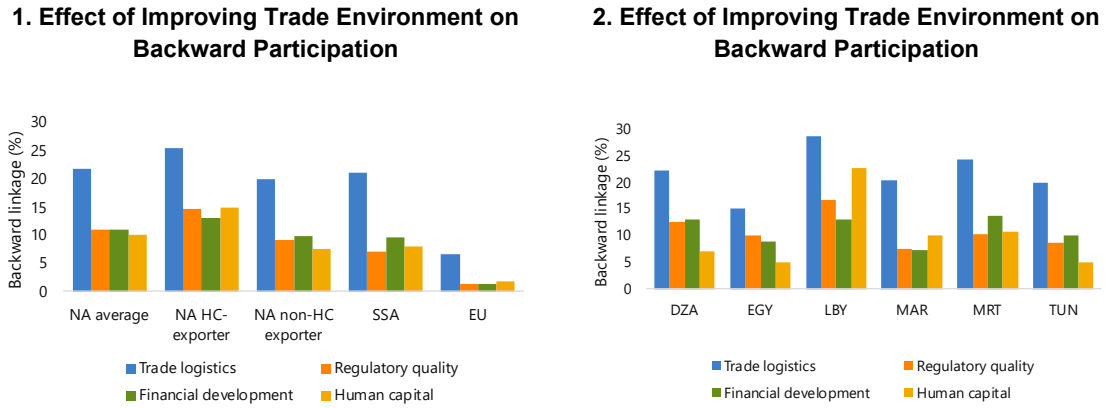
5. Improving the Investment Environment—Effect on FDI



6. Improving the Investment Environment—Effect on FDI

Source: IMF staff calculations.
Note: FDI = foreign direct investment; HC-exporter = hydrocarbon exporter; NA = North Africa; SSA = Sub-Saharan Africa; EU = European Union; DZA = Algeria; EGY = Egypt; LBY = Libya; MAR = Morocco; MRT = Mauritania; TUN = Tunisia.
*LBY: The human capital development index and the Infrastructure Index are not reported for Libya.

Figure 22. Better Trade Infrastructure and Human Capital Enhance Supply Chains



Source: IMF staff calculations.
Note: HC-exporter = hydrocarbon exporter; NA = North Africa; SSA = Sub-Saharan Africa; EU = European Union; DZA = Algeria; EGY = Egypt; LBY = Libya; MAR = Morocco; MRT = Mauritania; TUN = Tunisia.
*LBY: The human capital development index is not reported for Libya.

D. Conclusions and Policy Recommendations

Trade liberalization across North Africa, the European Union, and sub-Saharan Africa can serve as a powerful engine for economic growth and diversification. Reducing tariffs and, more importantly, NTBs have the potential to significantly boost exports and GDP in North Africa and sub-Saharan Africa, as it facilitates deeper participation in GVCs. Through deeper integration in value chains, firms can source cheaper inputs, specialize, profit from knowledge transfer, and increase productivity.[10]

Structural improvements in trade infrastructure, human capital, regulatory quality, financial market development, and FDI openness can further enhance the benefits of stronger linkages. Upgrading logistics performance, improving the regulatory environment, and investing in human capital are shown to create substantial gains in both trade and growth. Together, these reforms not only support the creation of more efficient trilateral supply chains but also foster an environment that encourages innovation, diversifies outputs, and attracts higher-value investment. Ultimately, a coordinated and integrated policy agenda would enable North Africa to emerge as a strategic economic connector between Europe and sub-Saharan Africa, paving the way for sustainable growth and long-term prosperity across the regions.

A comprehensive assessment of North Africa's potential gains as a connector between Europe and sub-Saharan Africa requires both granular empirical evidence and broader macroeconomic scenario analysis. The gravity model results presented in this chapter quantify the potential expansion of trade and the gains from reducing barriers and advancing structural reforms. To complement this, the following chapter uses a dynamic general equilibrium framework to simulate how deeper linkages and evolving global trends—such as supply chain restructuring and nearshoring—translate into medium-term growth, investment, and fiscal outcomes. Taken together, these two approaches provide a more comprehensive picture: the gravity analysis identifies the scale of trade opportunity, while the macro-simulation work shows how these opportunities shape the region's economic trajectory. This integrated perspective reinforces North Africa's potential to position itself as a strategic bridge between Europe and sub-Saharan Africa.

[10] See IMF Departmental Paper (ElGanainy and others 2023).

Annex 3.1. Structural Trade Gravity Models

VARIABLES	(1) Trade	(2) Trade	(3) Trade	(4) Trade	(5) Trade	(6) Trade	(7) Trade	(8) Trade	(9) Trade	(10) Trade	(11) Trade
Bilateral tariffs		−0.0506***		−0.0439***	−0.0467***	−0.0538***	−0.0565***	−0.0670***	−0.0659***	−0.0639***	−0.0621***
		(0.0114)		(0.0101)	(0.0108)	(0.0103)	(0.0107)	(0.0147)	(0.0140)	(0.0139)	(0.0139)
Tariff and NTB			−0.0383***								
			(0.00963)								
Logistics performance exporter				0.668***							
				(0.111)							
Regulatory quality exporter					0.235***						
					(0.0565)						
Financial development exporter						0.394*					
						(0.213)					
Human capital exporter							0.00910				
							(0.0858)				
Logistics performance importer								0.516***			
								(0.159)			
Regulatory quality importer									0.0672		
									(0.0818)		
Financial development importer										0.203	
										(0.323)	
Human capital importer											0.209**
											(0.100)
Log distance	−0.816***	−0.694***	−0.819***	−0.712***	−0.719***	−0.712***	−0.714***	−0.678***	−0.688***	−0.684***	−0.678***
	(0.0340)	(0.0377)	(0.0405)	(0.0472)	(0.0463)	(0.0457)	(0.0442)	(0.0533)	(0.0520)	(0.0520)	(0.0506)
Common border	0.453***	0.592***	0.442***	0.562***	0.553***	0.543***	0.525***	0.653***	0.628***	0.650***	0.664***
	(0.0927)	(0.121)	(0.0979)	(0.142)	(0.146)	(0.140)	(0.138)	(0.207)	(0.207)	(0.202)	(0.194)
Common language	0.113	0.139*	0.153**	0.154*	0.105	0.112	0.119	−0.0463	−0.0846	−0.0871	−0.0690
	(0.0751)	(0.0783)	(0.0715)	(0.0907)	(0.0866)	(0.0857)	(0.0862)	(0.145)	(0.134)	(0.133)	(0.139)
Colonial ties since 1945	0.190	0.198	0.0162	0.0606	0.0631	0.0828	0.0702	0.0392	0.0455	0.0395	−0.0155
	(0.206)	(0.177)	(0.198)	(0.181)	(0.174)	(0.173)	(0.175)	(0.215)	(0.215)	(0.216)	(0.225)
Common religion	0.243**	−0.0374	0.297***	0.0811	0.119	0.0971	0.0412	0.269**	0.256**	0.290***	0.272**
	(0.0975)	(0.113)	(0.0796)	(0.0952)	(0.0966)	(0.0965)	(0.0996)	(0.110)	(0.114)	(0.112)	(0.114)
Log GDP importer			0.822***	0.715***	0.802***	0.792***	0.819***				
			(0.0169)	(0.0266)	(0.0206)	(0.0287)	(0.0223)				
GDP per capita importer			−0.00569***	−0.00983***	−0.00830***	−0.00385**	−0.00162				
			(0.00117)	(0.00152)	(0.00167)	(0.00161)	(0.00149)				
Manufacturing value-added importer			−8.20e−05	0.00918**	0.00821**	0.00453	0.00599				
			(0.00254)	(0.00389)	(0.00390)	(0.00343)	(0.00403)				
Log GDP exporter								0.732***	0.814***	0.804***	0.802***
								(0.0413)	(0.0284)	(0.0418)	(0.0309)
GDP per capita exporter								−0.00103	0.00360	0.00445*	0.00203
								(0.00293)	(0.00266)	(0.00264)	(0.00231)
Manufacturing value-added exporter								0.00957*	0.00602	0.00372	0.00859
								(0.00527)	(0.00478)	(0.00444)	(0.00527)
Constant	16.15***	15.57***	3.949***	2.620***	2.811***	3.169***	2.932***	3.090***	3.255***	3.375***	2.752***
	(0.294)	(0.330)	(0.505)	(0.476)	(0.501)	(0.551)	(0.465)	(0.676)	(0.681)	(0.757)	(0.613)
Regional control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Importer FE	Yes	Yes	No	No	No	No	No	Yes	Yes	Yes	Yes
Exporter FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No
Pseudo-R^2	0.93	0.93	0.91	0.91	0.90	0.90	0.90	0.89	0.87	0.87	0.87
Observations	30,800	21,173	26,775	16,970	18,962	19,122	17,045	16,793	18,697	18,706	16,661

Note: NTB = nontariff barrier; FE: fixed effects.

Robust standard errors in parentheses.

***p < 0.01, **p < 0.05, *p < 0.1.

Annex 3.2. Structural Trade Gravity Models—Backward Participation

VARIABLES	(1) Backward participation	(2) Backward participation	(3) Backward participation	(4) Backward participation	(5) Backward participation	(6) Backward participation	(7) Backward participation	(8) Backward participation
Bilateral tariffs		−0.0116**			−0.00685	−0.00683	−0.00787*	−0.00745
		(0.00513)			(0.00480)	(0.00473)	(0.00475)	(0.00469)
NTB			−0.0431***					
			(0.00777)					
Bilateral tariffs and NTB				−0.0447***				
				(0.00751)				
Logistic performance					0.661***			
					(0.0973)			
Regulatory quality						0.236***		
						(0.0512)		
Financial development							0.821***	
							(0.179)	
Human capital								0.463***
								(0.0692)
Distance	−0.847***	−0.845***	−0.879***	−0.876***	−0.871***	−0.884***	−0.883***	−0.877***
	(0.0273)	(0.0311)	(0.0285)	(0.0285)	(0.0326)	(0.0330)	(0.0322)	(0.0338)
Common border	0.518***	0.640***	0.570***	0.571***	0.691***	0.666***	0.675***	0.643***
	(0.0814)	(0.0970)	(0.0867)	(0.0867)	(0.108)	(0.105)	(0.104)	(0.107)
Common language	0.163***	0.148**	−0.00497	−0.00524	−0.0191	−0.0644	−0.0600	−0.0522
	(0.0603)	(0.0651)	(0.0704)	(0.0703)	(0.0796)	(0.0749)	(0.0730)	(0.0754)
Colonial ties after 1945	0.886***	0.884***	0.851***	0.858***	0.909***	0.897***	0.838***	0.901***
	(0.146)	(0.151)	(0.122)	(0.121)	(0.125)	(0.123)	(0.125)	(0.125)
Common religion	0.0247	0.0203	0.0178	0.0259	0.0913	0.0854	0.0942	0.166*
	(0.0785)	(0.0864)	(0.0777)	(0.0772)	(0.0887)	(0.0865)	(0.0854)	(0.0854)
LN GDP			0.787***	0.783***	0.660***	0.794***	0.710***	0.815***
			(0.0146)	(0.0146)	(0.0225)	(0.0171)	(0.0210)	(0.0171)
Manufacturing value-added			0.00418	0.00448*	0.0116***	0.00775**	0.00287	0.00976**
			(0.00269)	(0.00269)	(0.00361)	(0.00373)	(0.00308)	(0.00395)
GDP per capita			0.00112	0.000747	−0.00562***	−0.000161	−0.00137	0.00258**
			(0.000963)	(0.000953)	(0.00148)	(0.00151)	(0.00136)	(0.00128)
Constant	3.474***	3.695***	−6.984***	−6.852***	−8.312***	−7.883***	−6.787***	−8.815***
	(0.240)	(0.277)	(0.385)	(0.387)	(0.429)	(0.435)	(0.445)	(0.481)
Regional dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Counterparty FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Origin country FE	Yes	Yes	No	No	No	No	No	No
Pseudo-R^2	0.28	0.28	0.22	0.22	0.21	0.22	0.22	0.21
Observations	22,152	16,375	19,500	19,500	13,290	14,550	14,657	13,456

Note: NTB = nontariff barrier; FE: fixed effects.

Robust standard errors in parentheses.

***$p < 0.01$, **$p < 0.05$, *$p < 0.1$.

Annex 3.3. FDI Gravity Models

VARIABLES	(1) FDI projects	(2) FDI projects	(3) FDI projects	(4) FDI projects	(6) FDI projects
FDI restrictiveness destination	−2.620***	−2.501***	−1.987***	−2.845***	−2.516***
	(0.568)	(0.575)	(0.600)	(0.583)	(0.579)
Logistics performance destination		0.276**			
		(0.117)			
Regulatory quality destination			0.378***		
			(0.108)		
Human capital destination				0.104**	
				(0.0468)	
Infrastructure destination					0.220***
					(0.0843)
Lagged FDI (-1 year)	0.00146***	0.00138***	0.00140***	0.00142***	0.00137***
	(0.000285)	(0.000274)	(0.000263)	(0.000301)	(0.000263)
GDP growth destination	0.0124***	0.0122***	0.0164***	0.0119***	0.0129***
	(0.00364)	(0.00361)	(0.00365)	(0.00368)	(0.00359)
LN GDP destination	0.0587	−0.0341	−0.00663	−0.0759	−0.0727
	(0.188)	(0.183)	(0.181)	(0.171)	(0.187)
GDP per capita destination	0.00954**	0.0113***	0.0106***	0.0148***	0.0121***
	(0.00373)	(0.00374)	(0.00374)	(0.00388)	(0.00378)
Political stability destination	0.159**	0.174**	0.121*	0.107	0.190**
	(0.0749)	(0.0731)	(0.0686)	(0.0724)	(0.0739)
Constant	1.903	2.806	2.832	2.896	3.795
	(3.905)	(3.842)	(3.785)	(3.711)	(3.885)
Source-destination FE	YES	YES	YES	YES	YES
Source-year FE	YES	YES	YES	YES	YES
Destination FE	YES	YES	YES	YES	YES
Dyad clusterd SE	YES	YES	YES	YES	YES
Pseudo-R^2	0.842	0.8569	0.8423	0.8422	0.8428
Observations	4,514	4,360	4,514	4,514	4,360

Note: FDI = foreign direct investment; FE: fixed effects; SE: standard errors.

Variables for logistic performance and infrastructure are linearly interpolated.

Robust standard errors in parentheses.

***$p < 0.01$, **$p < 0.05$, *$p < 0.1$.

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CHAPTER 4: UNLOCKING THE GAINS FROM STRONGER LINKAGES—DYNAMIC GENERAL EQUILIBRIUM MODEL

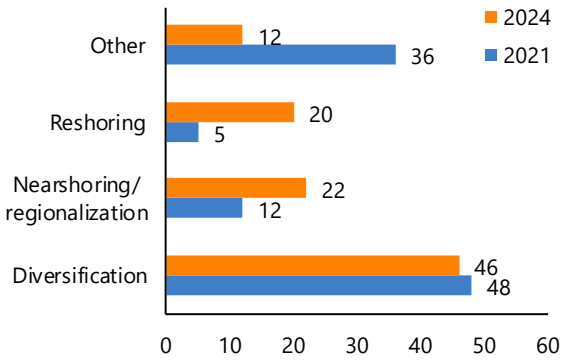
The global reorganization of supply chains is reshaping trade and investment patterns, offering North Africa a unique opportunity to strengthen its regional linkages and integrate more deeply into global industrial networks. Closer ties with neighboring Europe and sub-Saharan Africa could boost trade, attract foreign investment, and accelerate the transfer of knowledge and job creation. This chapter complements the empirical analysis of the previous chapter by using the GIMF model to simulate the broader macroeconomic effects of stronger regional linkages—particularly through nearshoring, trade liberalization, and domestic policy reforms. Model simulations suggest that North Africa could experience medium-term gains in real GDP and exports of around 2 and 5 percent, respectively, driven by nearshoring trends and efforts to position itself as a production hub. When combined with improved trade logistics and a better business environment, these gains could nearly triple, translating into significantly higher growth, exports, and human capital development.

A. Global Trends in Supply Chain Restructuring

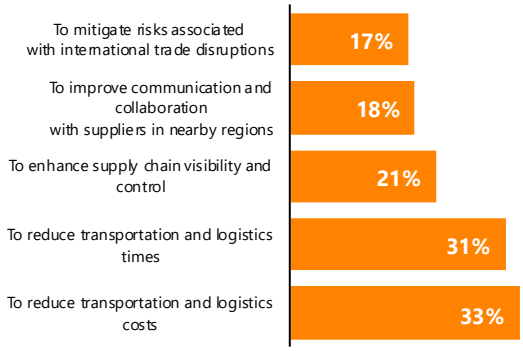
In recent years, global supply chains have faced mounting pressures, prompting firms to rethink their supply chain strategies. Several shocks—including the COVID-19 pandemic, the war in Ukraine, and attacks on Red Sea shipping routes—have exposed vulnerabilities in global trade networks. In response, firms have increasingly prioritized resilience, with a growing number turning to nearshoring to reduce transportation times, lower logistics costs, and mitigate geopolitical risks (Figure 23):

Figure 23. Prioritizing Supply Chain Resilience and Nearshoring

1. Firms' Supply Chain Reconfiguration Approaches
(Percentage of respondents)



2. Top Motivations for Nearshoring Supply Chains
(Respondents ranked their top two motivations)



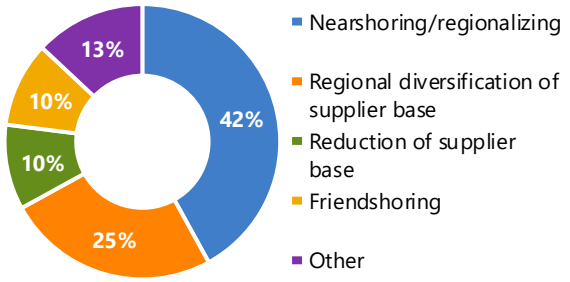
Sources: Economist Impact (2025, 2023)

- According to the Economist Impact's *Trade in Transition 2025 Global Report*, 42 percent of global businesses are turning to nearshoring and reshoring strategies, up from just 17 percent in 2021, reflecting a significant shift toward regionalization and risk mitigation.[11]

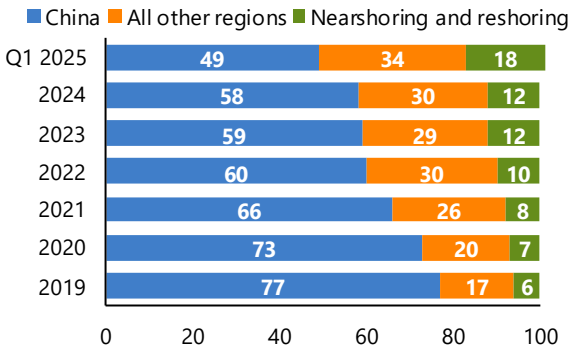
- Business sentiment surveys show that two-thirds of European firms plan to restructure their supply chains over the next five years, with over 40 percent favoring nearshoring and 25 percent aiming for regional supplier diversification (Figure 24, panel 1).[12] The *QIMA Sourcing Survey* indicates that half of EU-based companies expect to increase nearshoring and reshoring activity in 2025, driven by ongoing geopolitical risks, which is gradually starting to show in Q1 sourcing data (Figure 24, panel 2).[13]

Figure 24. European Firms Particularly Focused on Nearshoring

1. Primary Approach to Supply Chain Restructuring
(Share of survey respondents)



2. Europe's Sourcing by Region
(Percent 1/)



Sources: INVERTO (2023); and QIMA (2025), based on inspection and audits data.
Note: 1/—measured in terms of inspection and audit requests from EU-based businesses.

B. Opportunities for North Africa—Supply Chains and Investment

The ongoing restructuring of global supply chains presents a strategic opportunity for North Africa to integrate more deeply into European industrial networks and to strengthen its economic ties with sub-Saharan Africa. The region's geographic proximity to Europe, cost-effective labor force, and improving infrastructure provide a solid foundation for attracting nearshoring investments. At the same time, expanding trade and investment linkages with sub-Saharan Africa, particularly through sourcing intermediate inputs and raw materials, could enhance regional complementarities and position both regions as a joint production and export platform.

North Africa's integration with European value chains varies widely across countries. While some North African countries have already made progress in integrating into European value chains, the depth and nature of this integration vary significantly (Figure 25, panel 1):

[11] The Economist Impact Trade in Transition (2025) survey includes responses from 3,500 senior executives across six industries and all major global regions, including North America, Europe, Asia Pacific, the Middle East, Africa, and South America.
[12] The INVERTO Nearshoring Study 2023 draws on a survey of 94 companies, mostly based in Europe, from five different industries.
[13] The QIMA (2025) Global Sourcing Survey includes responses from about 650 businesses across major regions, while the QIMA database is based on a broader data pool that includes inspections and audits from 30,000 firms worldwide.

- Morocco and Tunisia, for example, have developed diversified industrial bases, particularly in sectors like automotive, textiles, agribusiness, and electronics (Figure 25, panel 2). Their participation in European value chains is balanced, incorporating both backward (importing European inputs) and forward (supplying European industries) linkages.

- In contrast, Egypt's integration with Europe is largely forward oriented, reflecting its role as an exporter of raw materials, particularly basic chemicals, pharmaceuticals, fresh produce, and horticultural products.

- Although data are limited, Algeria and Mauritania likely mirror traditional commodity-export models, with Algeria specializing in oil and gas and Mauritania in minerals, metals, and fisheries.

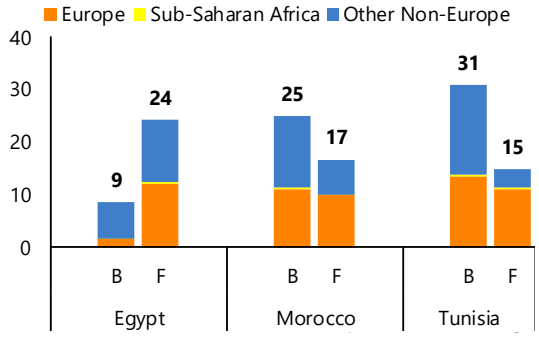
North Africa's linkages with sub-Saharan Africa are more limited but show potential. The latest available data on GVC participation show that North African countries maintain modest but growing forward and backward linkages with sub-Saharan Africa. Egypt, Morocco, and Tunisia all exhibit some degree of backward integration with sub-Saharan Africa, particularly in sectors such as agribusiness, chemicals, and textiles, suggesting that sub-Saharan Africa is already a source of intermediate inputs for North African production (Figure 25, panel 3). These linkages remain far smaller than those with Europe, but they highlight untapped potential for regional supply chain development and diversification.

European nearshoring and potential links with sub-Saharan Africa could also make North Africa an increasingly attractive destination for greenfield FDI in strategic sectors. The region's potential is particularly strong in industries such as renewable energy, electronics, chemicals, and business services. According to FDI intelligence, between 2022 and 2023, more than US$82 billion in Europe's greenfield FDI was pledged in manufacturing projects across 15 nearshoring destinations in North Africa and Central and Eastern Europe, representing 62 percent increase from prepandemic levels.[14] North Africa accounted for close to one-third of this total, with Egypt and Morocco among the top beneficiaries. These pledges represent about 7 percent of Europe's total greenfield FDI in 2023, underscoring the region's growing appeal as a nearshoring hub. In terms of sectors, Egypt attracted nearly US$12 billion in announced investments in chemicals and metals, while Morocco received about US$7 billion in electronic components, largely directed to electric vehicle battery production (Figure 26). Although nearshoring to sub-Saharan Africa was limited (around US$3 billion with about half to metals), its expanding industrial base and rich resources suggest potential for deeper future linkages, particularly if regional ties with North Africa continue to strengthen.

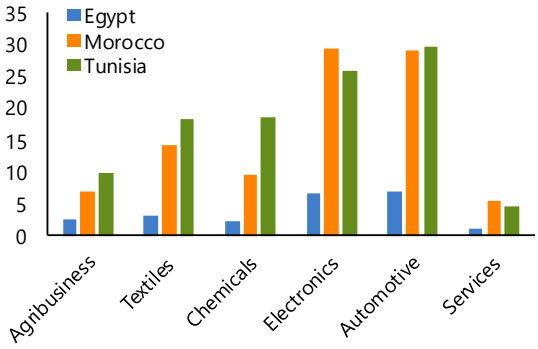
[14] To be classified as a nearshoring destination in the study, these 15 countries needed to have at least 25 percent of their greenfield FDI in manufacturing since 2010 and have attracted at least five FDI manufacturing projects in 2023. See https://www.fdiintelligence.com/content/7944b519-4da7-56d7-b1b5-c0fdbe0e10fd.

Figure 25. North Africa's Integration into Europe's and Sub-Saharan Africa's Supply Chains[1]

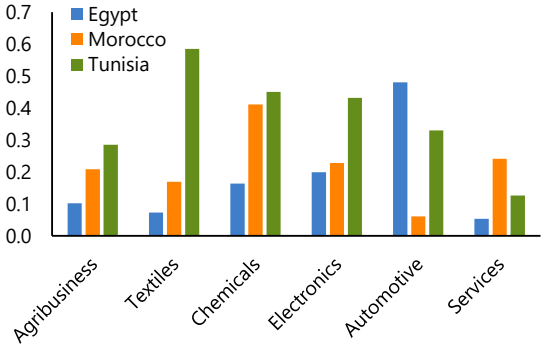
1. Forward and Backward GVC Participation
(Percent)



2. Backward Integration into Europe's Value Chain by Main Activity
(Percent)



3. Backward Integration into Sub-Saharan Africa's Value Chain by Main Activity
(Percent)



Sources: OECD TiVA Database; and IMF staff calculations.

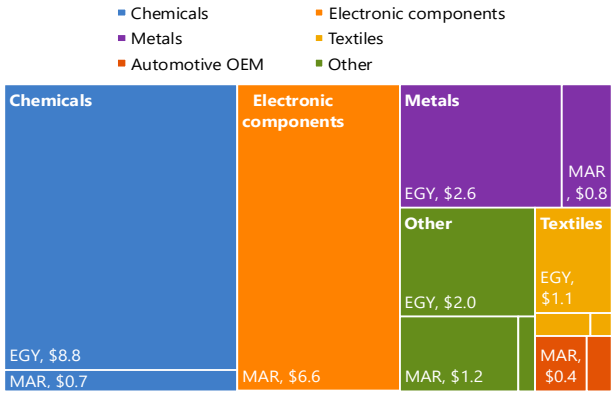
Note: GVC = global value chain.

[1] Backward GVC participation (B) is defined following Martins Guilhoto, Webb, and Yamano (2022) as the share of foreign value added in a country's gross exports and forward GVC participation (F) as the share of domestic value added embodied in destination countries' gross exports. Both are measured as percentage of total gross exports. By activity, backward integration into Europe's value chain is defined as the share of Europe's value added in a country's gross exports of that activity.

Deeper integration into supply chains offers North Africa a path to economic diversification and sustainable growth. By contributing to higher value–added segments of the supply chain, North Africa can reduce its dependence on commodity exports and enhance economic resilience. In addition, FDI and supply chain participation can facilitate technological innovation and knowledge transfer, upskilling the North African labor force through on-the-job training and vocational and technical education systems.

Figure 26. Global Manufacturing FDI by Top Five Sectors in North African Nearshoring Countries, 2022–23

(US$ billions)



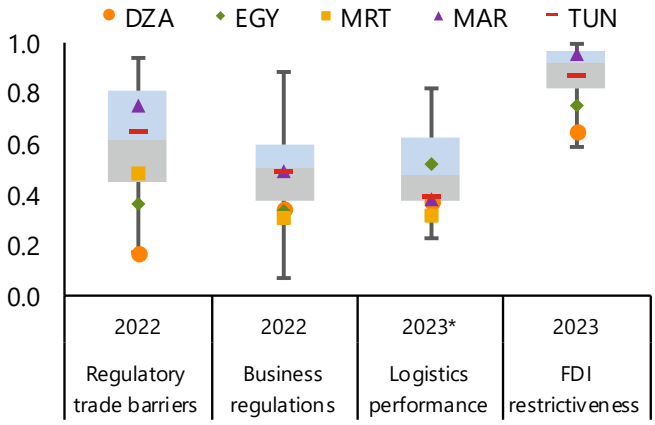
Source: Financial Times (2025).
Note: OEM = original equipment manufacturers.

C. Unlocking the Potential Gains of Economic Linkages

By tackling structural impediments to deeper integration, North Africa can seize the opportunities presented by global supply chain restructuring. North Africa faces a number of structural barriers—such as regulatory trade restrictions, weak business regulations, underdeveloped logistics, and restrictive FDI policies—that can constrain its participation in GVCs. These structural gaps vary across countries but remain sizable relative to global best performers (Figure 27). Identifying these reform gaps is essential for guiding policy priorities.

Figure 27. Structural Reform Gaps

(Relative to the best global performer in each reform indicator)



Sources: Fraser Institute; World Bank; OECD FDI Restrictiveness Index (OECD; Kalinova et al., 2010); and IMF staff calculations.

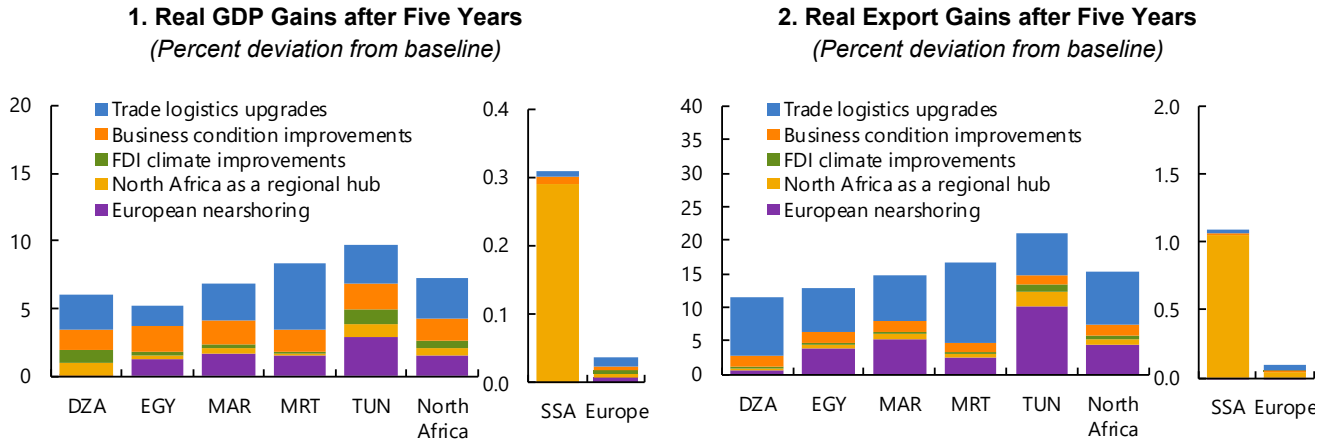
Note: Each policy indicator is normalized between 0 and 1 (frontier) based on the global sample. In the graph, the horizontal bar represents median values of the global sample. The box denotes the 25th and 75th percentiles, and the range denotes the minimum and maximum values with a few outliers excluded. DZA = Algeria; EGY = Egypt; MRT = Mauritania; MAR = Morocco; TUN = Tunisia.

*Data for 2023 or latest available.

Potential macroeconomic gains are assessed using a version of the IMF's GIMF. The analysis explores the implications of Europe's increased preference for nearshoring and the complementary impacts of internal reforms in North African economies, including trade liberalization, investment climate improvements, and logistics upgrades. The model also reflects the growing importance of sub-Saharan Africa as a supplier of raw materials and intermediate inputs and a potential partner in regional production networks.

Model simulations suggest that North Africa could experience medium-term gains in real GDP and exports of around 2 and 5 percent, respectively, driven by European nearshoring trends and efforts to position itself as a production hub. When combined with improved trade logistics and a better business environment, these gains could nearly triple, translating into significantly higher growth, exports, and human capital development. The potential combined gains from nearshoring and comprehensive reforms are sizable, with real GDP in North Africa increasing by about 7.3 percent in the medium term, and exports increasing by about 16 percent (Figure 28).[15] The primary channels for the short- to medium-term dynamics of the GIMF-based analysis are outlined in Box 4, with further discussion of the reforms.

Figure 28. Potential Gains from Integration and Reforms Are Significant



Source: Authors' calculations.
Note: "North Africa" is the simple average of DZA, EGY, MAR, MRT, and TUN. DZA = Algeria; EGY = Egypt; MAR = Morocco; MRT = Mauritania; TUN = Tunisia; SSA = Sub-Saharan Africa.

[15] While the Global Integrated Monetary and Fiscal Model (GIMF) simulations in this chapter and the gravity model estimates in Chapter 3 are based on different methodologies, shock designs, and outcome metrics, they offer complementary insights into the potential gains from regional integration and reform. GDP gains from stronger trade linkages (referring to nearshoring and trade liberalization layers [in this chapter] vs. reduction of tariff barrier and NTB [in Chapter 3]) are broadly consistent across both approaches—around 2 percent—despite differences in time horizon and model structure. Trade effects are more difficult to compare directly, as the gravity model captures total trade flows (exports and imports), whereas GIMF focuses on export dynamics. For domestic policy reforms, the shocks modeled in each chapter differ in detail but are similar in spirit—particularly in areas like trade logistics and business environment reforms (regulatory governance in Chapter 3). The GIMF simulations show somewhat more pronounced GDP gains from these reforms, partly due to the model's ability to capture productivity-driven consumption and investment dynamics (5.2 percent vs. 3.5 percent).

Box 4. Main Features of the Global Integrated Monetary and Fiscal Model (GIMF)[1]

The analysis uses a version of GIMF that includes global value chain (GVC) dynamics. GIMF is an annual, multiregional dynamic stochastic general equilibrium model of the global economy with GVCs with 10 regions including the five North Africa countries, the European Union, the United States, China, sub-Saharan Africa, and the rest of the world. The model is particularly well suited for this exercise because of four key features that shape the simulation results.

- **First, production is broken down by type of goods, into tradable goods (both GVC and non-GVC sectors) and nontradable goods.** Nontradable goods and non-GVC tradable goods are produced with capital and labor. GVC tradable goods are produced using a macro approximation of GVCs, being produced using other GVC tradable goods in addition to capital and labor. This roundabout production can amplify the results from shocks that have their greatest impact on trade (Basu 1995). Nontradable goods and imported and domestically produced GVC and non-GVC tradable goods are combined to produce final consumption and investment goods.
- **Second, bilateral trade between all regions is tracked for the GVC and non-GVC tradable, consumption, and investment goods, allowing for more granular analysis.** These goods can all face trade costs, which include tariffs, nontariff barriers (NTBs), and transportation costs. Removing these barriers should be beneficial to trade, but particularly for the GVC tradable sector, since removing barriers encourages more demand from other regions' GVC sectors, which in turn will demand more GVC goods from the region that is reducing its trade costs.
- **Third, dynamics of the analysis presented later rely heavily on the share of liquidity-constrained households versus saving households.** Saving households hold all the assets in the economy (government and corporate debt, international bonds) and formulate their actions based on their entire future income stream. By contrast, liquidity-constrained households only consume from current labor income and any transfers they receive from their governments (which are low in North Africa). Shocks that increase labor income or assets permanently impact all households and increase consumption in the long term. But short-term increases in labor income and assets only see a notable increase in liquidity-constrained households' consumption. Saving households smooth out temporary gains over their expected lifetimes. Therefore, the larger the share of liquidity-constrained households in the face of temporary shocks, the greater the short-term volatility of the economy. Mauritania has the highest calibrated share of liquidity-constrained households at 80 percent, while Morocco, the lowest at 40 percent. The average calibrated share for advanced economies (including Europe) is only 25 percent.
- **Fourth, North Africa's managed exchange rate regimes yield different short-term dynamics than those of the floating exchange rate regime results usually associated with GIMF.** North African countries manage their currencies against a basket of the US dollar and euro, while keeping an eye on inflation. Relative to a model with floating exchange rate regimes, there is greater focus on stability of the exchange rate, which leads to a slower rate of adjustment in real effective exchange rates (and therefore slower adjustment of exports and imports) to shocks.

[1] Please see Annex 4.1 for more details on GIMF's structure and its calibration for North Africa.

Sources: Anderson and others (2013) and Carton and Muir (forthcoming).

European nearshoring presents an opportunity for North Africa. This scenario assumes that Europe doubles its demand for GVC tradable goods from North Africa. Given that North Africa currently supplies less than 3 percent of Europe's GVC-related imports, the simulated shock remains modest in scale but illustrative of potential trends. Real GDP gains range from 0.1 (Algeria) to 2.9 percent (Tunisia) after five years, with an average increase of 1.5 percent across North Africa, while exports increase from 0.5 (Algeria) to 10 percent (Tunisia). These outcomes reflect both the size of GVC tradable goods exports to Europe—smallest in Algeria and highest in Tunisia and Morocco—and overall exports to Europe, where Tunisia has the closest links of the North African countries. The European nearshoring preference shock acts as a positive terms-of-trade shock for North African countries by raising the relative price of their exports. This boosts real income, leading to higher consumption and investment, often contributing more to short-to-medium-term GDP gains than the export

increase itself. This is complemented by cheaper imports, as a result of an appreciation of real effective exchange rates (REERs) in the face of stronger European demand.

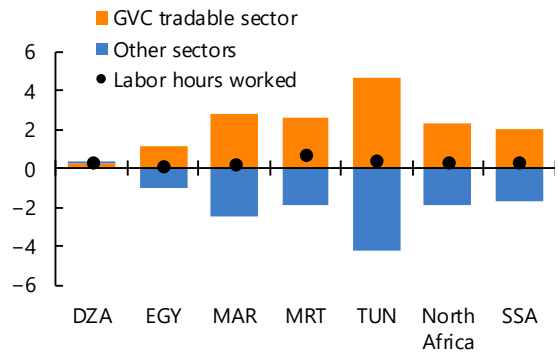
Stronger interregional linkages could amplify the benefits of European nearshoring, helping to promote North Africa as a regional production hub. This scenario captures the potential gains from deeper integration between North Africa, Europe, and sub-Saharan Africa, with sub-Saharan Africa's growing industrial base offering complementary inputs to North Africa's production network. Stronger ties between North Africa and sub-Saharan Africa could help build more resilient and diversified regional value chains, particularly in sectors like agribusiness, chemicals, and textiles, where stronger linkages are emerging. Under this scenario, North African countries (i) eliminate all NTBs in the GVC tradable goods sector—a proxy for reforming regulations and removing red tape; (ii) abolish tariffs on GVC tradable and investment goods imports from Europe (also key for their roles in expanding GVCs); (iii) remove all tariffs on trade within North Africa; and (iv) deepen ties with sub-Saharan Africa by eliminating tariffs on GVC tradable and investment goods imports and allocating around one-third of the increase in North Africa's imports from European nearshoring to sub-Saharan African sources. Real GDP and export gains range from 0.2 to 0.9 percent and 0.3 to 2.2 percent, respectively, after five years. The relatively low bilateral tariffs among North African countries mean that most of the gains stem from the reduction in NTBs within the GVC tradable goods sector, a sector that remains limited in scale across the region. Sub-Saharan Africa also benefits, with real GDP increasing by 0.3 percent after five years, driven by higher exports to North Africa, which also stimulates domestic investment (effect from higher production) and consumption (through higher wealth from stronger trading firms).

To unlock even larger benefits, North African countries can address deeper structural constraints limiting GVC expansion in the region. These include the following:

- **Investment climate improvements.** By improving the investment climate for both domestic and foreign firms, including improved business and FDI-related regulations,[16] real GDP could increase by 1.8 to 3 percent and exports by 1.6 to 2.5 percent after five years, reflecting the large existing gaps in business and FDI regulations across the region. The reforms to FDI-related regulations increase productivity in tradables and GVC tradable goods sectors, while business regulatory reforms increase labor productivity more broadly. Both reforms reduce marginal costs of production—boosting exports and lowering domestic prices, thereby increasing household purchasing power. Higher productivity also increases labor demand, thereby increasing labor income and consumption.

Figure 29. Gains in Hours Worked after Five Years

(Percent deviation from baseline)



Source: Authors' calculations.
Note: The bars are the contributions to growth for the dots. North Africa is a simple average of DZA, EGY, MAR, MRT, and TUN. DZA = Algeria; EGY = Egypt; MAR = Morocco; MRT = Mauritania; TUN = Tunisia; SSA = Sub-Saharan Africa.

- **Upgrades to trade logistics.** Substantial improvements in trade logistics (guided by Munim and Schramm 2018) across North Africa—moving up by one quartile in the global distribution of logistics

[16] Budina and others (2023) define major business regulation reforms as two standard deviations of annual changes in the relevant indicator across the whole sample. Ahn and others (2016) define FDI-friendly environment as in the 25th percentile.

performance—could place Egypt on par with Poland, Algeria, Morocco, and Tunisia on par with Turkey and Mauritania closer to Egypt currently. Real GDP gains could range from 1.5 to 5 percent across the region and exports could rise by 6.2 to 12 percent. Better trade logistics reduce transportation costs, encouraging exports and increasing consumer demand because of lower prices for imported goods. These upgrades also benefit trading partners, with exports from Europe and sub-Saharan Africa to North Africa increasing by 1 and 0.6 percent, respectively, relative to the case without logistic upgrades.

Economic linkages and complementary reforms could accelerate job creation and upskilling in North Africa and sub-Saharan Africa. The full package of reforms leads to a rise in labor hours worked, reflecting the net impact of increased trade along GVCs, driven by stronger European demand, tariff reductions, and productivity gains. While the overall five-year gain in hours worked is modest—under 1 percent—labor in the GVC tradable sector increases significantly, reflecting a reallocation of labor from the non-GVC tradable sector and to a lesser degree from the nontradable sector (Figure 29). Tunisia, Mauritania, and Morocco show the largest increases after five years in labor hours worked in the GVC tradable sector (2.7 to 4.7 percent) as a result of stronger GVC and European ties. Egypt follows with a 1.1 percent rise, whereas Algeria sees only a slight change (0.3 percent), reflecting its currently limited integration into GVCs. Because of sub-Saharan Africa's increased ties with North Africa, they see a 0.3 percent increase in hours worked after five years. There is a similar reallocation of labor as in North Africa. Given the large increases in the GVC sector labor hours, it is possible that the GDP impact could be even larger, as the model may not capture additional features of employment in the GVC sector, for example, higher-skilled labor that is more productive, which may receive more than the real wage that is common across all sectors in the model.

D. Conclusions and Policy Recommendations

The abovementioned analysis underscores that unlocking the region's full economic potential requires a comprehensive reform agenda. This includes deeper trade liberalization, a stronger investment climate, and significant improvements in logistics and infrastructure:

- **Reduce intra- and interregional trade barriers to foster industrial linkages.** A key priority is the removal of tariffs, nontariff measures, and inefficient customs procedures that hinder cross-border value chain formation within North Africa and with Europe. Expanding these efforts to include sub-Saharan Africa would further strengthen regional integration and unlock complementary sourcing and market opportunities. Eliminating barriers to trade in intermediate goods, investing in cross-border infrastructure and digital connectivity, and harmonizing technical standards and customs processes would lay the foundation for regional industrial clusters. High-potential sectors—such as automotive, electronics, and agribusiness—are well aligned with European and sub-Saharan African market demand and regulatory frameworks and stand to gain substantially from such linkages.

- **Address structural bottlenecks to support GVC expansion.** Creating a more predictable and business-friendly environment is essential to attract both domestic and foreign investment. This includes streamlining government regulations, reducing bureaucratic inefficiencies, and ensuring transparent and fair enforcement. At the same time, enhancing the quality and reliability of trade logistics—such as transport infrastructure, border management, and supply chain services—is vital for enabling participation in GVCs.

A coordinated approach could meaningfully raise output, increase exports, and generate significant opportunities for employment and human capital development. The ongoing restructuring of global supply chains offers a timely opening for North African countries to align their policies and position themselves as a competitive, resilient hub. By focusing on shared priorities—such as trade facilitation, infrastructure investment, and regulatory convergence—North Africa can not only deepen regional ties with Europe and sub-Saharan Africa but also strengthen its global attractiveness as a nearshoring destination.

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Annex 4.1. A Brief Summary of Global Integrated Monetary and Fiscal Model's (GIMF's) Structure and Calibration[17]

GIMF is an annual, multiregional, micro-founded dynamic stochastic general equilibrium (DSGE) model of the global economy. In this chapter, GIMF comprises 10 regions: 5 North African countries—Algeria, Egypt, Mauritania, Morocco, and Tunisia—sub-Saharan Africa; the European Union; China; the United States; and the rest of the world.[18] Alongside the standard elements of GIMF, this is a tradable sector related to global value chains (GVCs) referred to hereafter as "the GVC tradable sector."

Consumption dynamics are driven by finitely lived and liquidity-constrained (LIQ) households. LIQ households receive only labor income and lump-sum transfers from the government and are subject to consumption and labor income taxes. The finitely lived or overlapping generations (OLG) households follow the OLG model of Blanchard (1985), Buiter (1988), Weil (1987), and Yaari (1965). OLG households hold assets (can save) based on a planning horizon of 20 years and face a consumption–leisure choice, determining their consumption demand and their supply of labor. In their budget constraint, OLG households hold financial assets, including government and corporate bonds, and net foreign assets, in addition to earning labor income and receiving government transfers. OLG households treat government bonds as wealth because there is a chance that the associated tax liabilities will fall due beyond their expected lifetimes, making the model non-Ricardian and endogenizing the long-term determination of the real global interest rate to equilibrate global savings and investment. The real exchange rate serves to adjust each country's saving position (its current account and associated stock of net foreign assets) relative to the global pool. LIQ households cannot save, consuming all their posttax income each period, amplifying GIMF's non-Ricardian properties in the short term. Short-term dynamics are also affected by habit persistence in consumption for OLG households and labor supply for all households (as OLG households determine labor supply, which LIQ households then duplicate).

Private investment relies on the Bernanke, Gertler, and Gilchrist (1999) financial accelerator. Investment cumulates in the private capital stocks for the different types of firms (defined later). Capital stocks are chosen by firms to maximize their profits (expenses less dividends and wages paid to households), subject to corporate income taxation (paid to the government), with a standard inverse relationship between the capital-to-output ratio and the cost of capital, subject to real adjustment costs. Firms need to finance their investment, but their retained earnings are insufficient to provide full financing, so they must borrow from financial intermediaries. If earnings fall below the minimum required to make the contracted interest payments, the financial intermediaries take over the firm's capital stock, less any auditing and bankruptcy costs, and redistribute it back to their depositors (households). Because firms are costly for investors to monitor and break up, they can be perceived as riskier as financial conditions (or the economy, more generally) worsen, leading to endogenously determined corporate risk premiums.

[17] See Kumhof and others (2010) for further details on the structure and general calibration of the model; Anderson and others (2013) for the standard version of GIMF; and Carton and Muir (2025) for the GVC extension.

[18] The country composition for the aggregated regions is defined as follows: "sub-Saharan Africa" comprises all of Africa except for Algeria, Djibouti, Egypt, Libya, Mauritania, Morocco, Sudan, and Tunisia; "European Union" comprises the 27 European Union members; and "rest of the world" is all other countries not mentioned in the text or this footnote.

Firms produce intermediate goods that are tradable and part of GVCs, non-GVC tradable, or nontradable. Non-GVC tradables and nontradables are produced using a bundle of labor and capital services. GVC tradables are produced using a roundabout production function (as in Basu 1995), which includes not only a capital-labor bundle but a GVC tradable goods bundle (a combination of domestically produced and imported GVC tradables).

Intermediate goods–producing firms operate in monopolistically competitive markets. Their goods' prices contain a markup over marginal cost. Firms are managed in accordance with the preferences of their owners, OLG households, meaning they too face finite planning horizons.

Nontradables are only used as an input to produce domestic final goods. Non-GVC tradables can either be used as input to produce domestic final goods or exported to use as an input to produce foreign final goods. GVC goods can be either used as an input to produce more GVC tradables domestically or domestic final goods or exported to be used as an input to produce foreign GVC tradables or foreign final goods.

Final goods are designated for both public and private consumption and investment. They are an inelastic combination of nontradables and a bundle of GVC and non-GVC tradables. Production of final goods also benefits from the existence of a public infrastructure stock, which can add to the productivity of the sector, provided it is useful. For example, investing in maritime facilities on a domestic lake in a landlocked country would not augment productivity, whereas road and rail links to its neighboring countries would.

Distributors operate in monopolistically competitive markets. They supply consumption and investment goods, combining domestically produced and imported final goods in differing portions subject to either a consumption or investment price markup. These meet the separate private and public demands for consumption and investment goods.

The nominal side of the economy depends on implicit Phillips curves and monetary policy. The core price is the consumer price index, while relative prices mimic the structure of the national expenditure accounts. There is also wage inflation, which is a key driver of consumer price index inflation. All price dynamics are subject to nominal adjustment costs in the short term. In the short term, the nominal side of the economy is linked to the real side through monetary policy, which is usually an inflation forecast–targeting regime that uses an interest rate reaction function reliant on expected inflation.

As interest rate effects work their way through the transmission mechanism, inflation moves back to its target level within several years. Monetary policy helps shape the economy's dynamics over the first 5 to 10 years but has no implications on the long-term outcomes in the real economy.

Trade is tracked bilaterally between all regions. Trade flows react to demand, supply, and pricing (that is, the terms of trade and bilateral real exchange rates) conditions. There are flows for final consumption and investment goods and GVC and non-GVC tradable goods. Import prices are sticky in terms of local market conditions (local currency pricing).

Trade can be restricted by transportation costs, and the use of tariffs and NTBs. Tariffs are charged by the importing region on its consumers, and the government collects the revenues. The exporting regions bear the costs of tariffs indirectly because of reduced demand for their goods and consequently charge a lower price to re-equilibrate the supply and demand conditions for those goods. NTBs, by contrast, while also imposed by the importing region, are imposed directly on the exporting region, which must directly bear the related

deadweight loss (iceberg costs) of the NTBs. Transportation costs are much like NTBs in the sense that a reduction in a region's transportation costs lowers the deadweight losses it faces from those costs.

There is a role for government policy in GIMF, both monetary (partially discussed earlier) and fiscal. Monetary policy is conducted using an interest rate reaction function to maintain an inflation target with the ability to also target secondary objectives such as the output gap or a fixed nominal exchange rate. The default setup of GIMF for China is an inflation forecast–targeting regime.

Fiscal policy has access to an extensive set of fiscal instruments. They include public consumption, public investment, general lump-sum transfers to households, lump-sum transfers targeted only to LIQ or OLG households, tariffs, and taxes on consumption and labor and corporate income. The fiscal authority targets a deficit-to-GDP ratio (which is consistent with a debt-to-GDP target), which can be achieved by exogenously adjusting one or more fiscal policy instruments. The default setup uses general lump-sum transfers. Moreover, in the short term, the fiscal authority employs an automatic stabilizer, by using a measure of the output gap to countercyclically vary the level of general lump-sum transfers to smooth real GDP fluctuations through household consumption.

Each region's economy is calibrated using the GLORIA database. The GLORIA multiregional input-output (MRIO) database for 2023 (Lenzen and others 2017), drawing on its national accounts and fiscal ratios as of 2023. The calibration represents a steady state for each region, where every region has converged to a global real growth rate of 2 percent and global real interest rate of 2.5 percent. Some adjustments are necessary to reconcile the global data with a well-defined steady state. Annex Table 4.1.1 presents the calibration of the national expenditure accounts for the North African countries and Sub-Saharan Africa as a single region, as well as the United States as a point of comparison.

Annex Table 4.1.1. North Africa's Steady-State Calibration

(*Percent share of nominal GDP, unless otherwise stated*)

	Algeria	Egypt	Morocco	Mauritania	Tunisia	Sub-Saharan Africa	United States
Share of global GDP (percent, US$)	0.21	0.41	0.14	0.01	0.05	1.82	25.2
Domestic demand							
Household consumption	48.3	76.4	51.1	41.1	62.1	63.6	65.7
Liquidity constrained (percent of households)	*60*	*60*	*50*	*80*	*50*	*60*	*25*
Private investment	29.1	12.9	19.4	38.8	15.0	19.6	16.8
Trade							
Aggregate exports	26.3	18.1	33.5	88.1	45.2	27.1	10.6
Consumption	*0.5*	*6.1*	*17.2*	*9.2*	*22.5*	*3.7*	*3.4*
Investment	*2.8*	*1.8*	*2.2*	*33.9*	*4.6*	*5.1*	*1.5*
Non-GVC tradable	*0.6*	*3.2*	*5.5*	*13.9*	*5.1*	*11.7*	*2.3*
GVC tradable	*22.5*	*7.0*	*8.7*	*31.1*	*13.1*	*6.6*	*3.3*
Exports to Europe	11.5	7.0	19.7	11.9	33.7	4.3	2.2
Aggregate imports	26.3	18.1	33.5	88.1	45.2	27.1	10.6
Consumption	*9.0*	*3.8*	*7.2*	*13.3*	*14.7*	*7.3*	*2.5*
Investment	*5.8*	*1.5*	*4.3*	*37.5*	*2.9*	*8.0*	*1.1*
Non-GVC tradable	*2.2*	*3.8*	*6.6*	*6.7*	*7.9*	*4.2*	*1.6*
GVC tradable	*9.4*	*9.0*	*15.5*	*30.5*	*19.7*	*7.7*	*5.4*
Imports from Europe	10.3	7.2	17.6	16.6	24.8	6.2	1.8

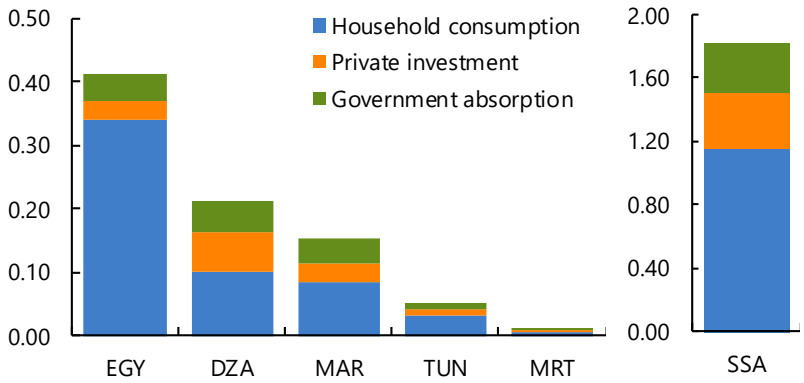
Sources: GLORIA MRIO database; and authors' calculations.
Note: Table includes the United States for comparison with the African regions. GVC = global value chain.

It is assumed that all regions have net foreign asset positions of zero. This implies that in the baseline calibration, the current account is zero, achieved by having exports equal to imports. The import-to-GDP ratio is usually more reflective of the 2023 data from the GLORIA MRIO database, and exports are adjusted accordingly.

North African countries vary significantly in terms of economic size and trade openness. Egypt is the largest economy in the region, accounting for 0.4 percent of global GDP—nearly double the size of Algeria and significantly larger than Morocco, Tunisia, and especially Mauritania (Annex Figure 4.1.1). In terms-of-trade openness, Tunisia has an export-to-GDP ratio of 45.3 percent, followed by Mauritania (42 percent), Morocco (37 percent), Egypt (21 percent), and Algeria (26.8 percent).[19]

Annex Figure 4.1.1. GDP Components, 2023

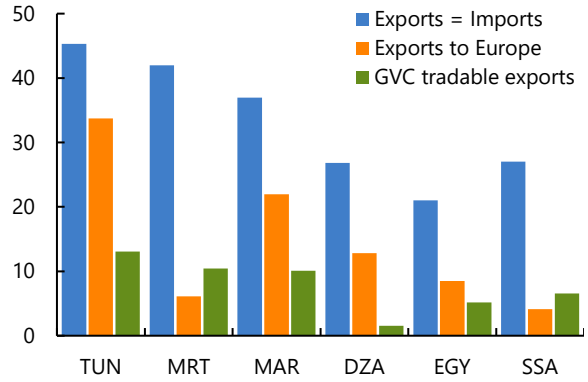
(Percent of nominal global GDP)



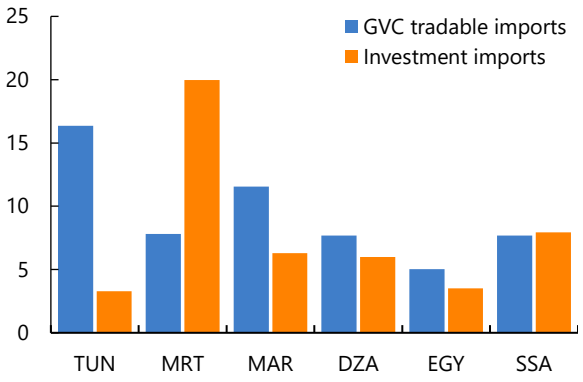
Sources: GLORIA MRIO database; and authors' calculations.
Note: EGY = Egypt; DZA = Algeria; MAR = Morocco; TUN = Tunisia; MRT = Mauritania; SSA = Sub-Saharan Africa.

Annex Figure 4.1.2. Trade Openness, 2023

1. Export Indicators
(Percent of nominal GDP)



2. Import Indicators
(Percent of nominal GDP)



Sources: GLORIA MRIO database; and authors' calculations.
Note: TUN = Tunisia; MRT = Mauritania; MAR = Morocco; DZA = Algeria; EGY = Egypt; SSA = Sub-Saharan Africa.

The degree of integration with Europe and participation in GVCs also varies across North Africa. Focusing specifically on exports to Europe (Annex Figure 4.1.2, left panel, green bars), Tunisia leads, with these exports representing 33.7 percent of its GDP, followed by Morocco, Algeria, Egypt, and Mauritania. When it comes to GVC tradable goods exports (purple bars) to Europe, Tunisia ranks first at 13.1 percent of GDP, followed by Mauritania, Morocco, Egypt, and Algeria. On the import side (Annex Figure 4.1.2, right panel, purple

[19] There are significant discrepancies in Mauritania's export and import-to-GDP ratios between the GLORIA MRIO database and the IMF Staff Report for Mauritania. Accordingly, these ratios have been adjusted based on the data from the Staff Report that is consistent with those of the Mauritanian authorities.

bars), Tunisia again leads in GVC tradable goods imports, at 16.7 percent of GDP, followed by Morocco, Mauritania, Algeria, and Egypt. Mauritania imports the highest share of investment goods (teal bars) relative to GDP (20 percent), far ahead of Morocco, Algeria, Egypt, and Tunisia.

Many of the elasticities in GIMF are calibrated the same across regions. This includes elasticities for trade and the combination of various goods to produce final goods. However, each region has a unique set of related bias parameters, which, given the elasticities, are computed using the calibration of key steady-state ratios based on the GLORIA database.

- ***For consumption***, the intertemporal elasticity of substitution is common across regions at 0.5. The share of liquidity-constrained households varies based on the level of financial market development, and it is set at 25 percent for the United States, EU, and China and at 50 percent for the rest of the world. Regions with high shares of LIQ households have more volatility in GDP because they are less able to smooth their consumption under temporary shocks or implement gradual adjustments under permanent shocks.
- ***For the GVC sector***, the most important elasticities are related to trade and combining imports and domestically produced goods to produce GVC and non-GVC tradable and final goods (Annex Table 4.1.2). Demands for goods in the GVC sector are assumed to be relatively inelastic at 0.8, compared with other elasticities of demand for and trade in final consumption and investment goods and non-GVC tradable goods, which are elastic at 1.5. The elasticities are lower in the GVC sector as it is assumed that there are integrated cross-region, cross-sector chains of goods flows that are more difficult to reconfigure in the long term. Different regions and goods play specific roles within a GVC compared with non-GVC tradable sector. Setting these elasticities less than one to capture the idea of strongly held integration across sectors or countries will be a central model property, time and again in the following simulations.

Annex Table 4.1.2. Calibration of Key Production and Trade Elasticities

Elasticity between =>	*Capital-labor/GVC*	*Domestic/imported*	*Different regions*
Consumption	-	1.5	1.5
Investment	-	1.5	1.5
Non-GVC tradables	-	1.5	1.5
GVC tradables	0.5	0.8*	0.8

Source: Authors' assumptions.
Note: GVC = global value chain.
*Elasticity between domestic and imported goods when using GVC tradable goods in the production of final goods or of other GVC tradable goods.

- ***Final goods*** are a combination of nontradable and all tradable goods, with an elasticity of 0.5. All tradable goods are also a bundle of non-GVC and GVC tradable goods with an elasticity of substitution of 0.95.

Having inelastic GVC tradables versus elastic final and non-GVC tradables drives many of the short- and long-term dynamics. Because the trade and use of GVC tradable goods have lower elasticities relative to final goods or non-GVC tradable goods, there will be larger movements in prices in the face of shocks for those regions more dependent on GVC goods. This is true of the real exchange rate. So, a shock that has a negative impact on GVC tradable goods in China will lead to a larger depreciation in the real exchange rate than in other less-GVC-dependent regions and a larger expansion in exports and contraction in imports of final goods, all else being equal.

Annex Table 4.1.3. Calibration of Short-Term Nominal Rigidities

	United States	European Union	China	North Africa	Sub-Saharan Africa	Rest of the world
Real wage	100	150	100	100	100	100
Prices*	100	150	100	100	100	100
Import prices^	100	50	33	10	10	10

Source: Authors' calculations.
Note: Base value of parameter normalized to 100; these parameters show relative sizes of nominal rigidities across the regions.
* "Prices" are domestic prices for consumption, investment, and non-GVC and GVC tradable goods.
^ "Import prices" are import prices of consumption, investment, and non-GVC and GVC tradable goods.

In the short term, the degree and rapidity with which various sectors of the economy adjust are governed by real rigidities and nominal adjustment costs. These costs follow the Ireland (2001) version of Rotemberg (1982) adjustment costs. Real rigidities play a small role in GIMF's annual dynamics and are set to one across all regions for most variables (investment, imports of consumption, investment, and GVC and non-GVC tradable goods) but are set to 1.5 for short-term labor demand adjustments. Nominal adjustment costs are set at the same value across the domestic sectors—non-GVC and GVC tradables, nontradables, final consumption goods, final investment goods (Annex Table 4.1.3). Across regions, they are the same, except for the European Union, where they are higher, reflecting greater structural price rigidities.

Nominal short-term adjustment costs vary widely across regional groupings for imports. The United States, the largest import market, has the highest nominal adjustment costs—exporters adjust their prices the slowest in the US markets. This is the short-term manifestation of the interaction between pricing to market and market power. Since small open economies are essentially price takers—exporters to these markets can relatively quickly adjust their prices—their import nominal adjustment costs are 10 percent of those of the United States. Economies such as China and Europe fall between these two extremes. Europe's level is about 50 percent of that of the United States (so still around five times higher than that of North African countries).

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CHAPTER 5: THE ENERGY SECTOR—POWERING TRILATERAL ECONOMIC INTEGRATION

This chapter highlights how North Africa can leverage its dual advantage in the energy sector with abundant reserves of hydrocarbon and renewable energy resources to position the region as a strategic energy bridge with Europe and sub-Saharan Africa, catalyzing economic diversification and spillovers for the region. As Europe accelerates its energy transition and seeks to bolster energy security by diversifying supply, North Africa is uniquely placed to expand its exports of both traditional fuels and renewable energy to meet this demand. Simultaneously, sub-Saharan Africa's growing energy deficit and electricity gaps provide a new market where North African investment and technology can play a catalytic role. Under an illustrative scenario, by scaling up infrastructure, North Africa could potentially supply over 100 TWh of electricity to Europe and sub-Saharan Africa, meeting 3 and 6 percent of demand, respectively. Furthermore, by investing in cross-border energy infrastructure and value-added industries, North Africa can move beyond raw material exports, climb further up global value chains, and foster technology transfer and human capital development. With the rise of artificial intelligence, robust energy infrastructure will be vital for North Africa to support local innovation and support rising international energy demand. Leveraging this dual advantage can generate substantial economic spillovers for North Africa and its neighbors, including job creation and human capital development, deeper global value chain integration, industrial development, technology transfer, and enhanced regional resilience.

A. The Shifting Energy Landscape of Supply and Demand

Global energy demand is rising, and shifting geopolitical dynamics are reshaping trade and investment flows. In this evolving context, North Africa has a historic opportunity to establish itself as a strategic energy corridor between Europe and sub-Saharan Africa and deepen its integration into regional and global energy value chains:

- The European Union is accelerating efforts to reduce dependence on Russian hydrocarbons and scale up clean energy imports through the REPowerEU initiative, EU Emissions Trading System (ETS) and ETS2, ban on internal combustion engine (ICE) cars, and potentially the introduction of the Carbon Border Adjustment Mechanism (CBAM). These efforts create a growing demand for secure energy partners—an opportunity North Africa is well positioned to seize.

- Sub-Saharan Africa, meanwhile, continues to face significant energy access challenges. As of 2022, over 688 million people—85 percent of whom live in sub-Saharan Africa—lacked access to electricity (World Bank 2025). With Africa's population expected to more than double over the next 50 years, the urgency to expand energy infrastructure and access across the continent is intensifying (IEA 2022a; United Nations, Department of Economic and Social Affairs, Population Division 2024). Mission 300, the initiative launched by the World Bank and the African Development Bank in partnership with African

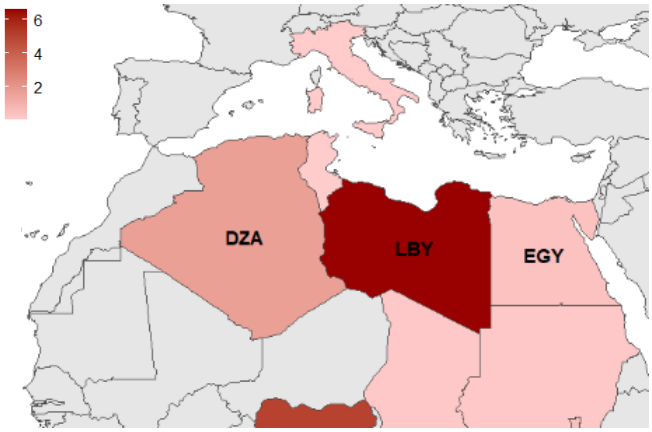
governments, multilateral institutions, and private sector investors, aims to connect 300 million people in sub-Saharan Africa to electricity by 2030 through infrastructure investments, policy reforms, and National Energy Compacts, promoting renewable energy, private investment, and regional linkages across the continent.

- As artificial intelligence becomes increasingly central to economic transformation, data center electricity consumption is set to more than double by 2030, growing at four times the rate of total electricity consumption and attracting increasing investment (IEA 2025b). Strengthening energy infrastructure will therefore be critical to enhance the capacity of North Africa to adopt and scale AI-driven solutions locally and help meet the rising demand for energy driven by AI technologies. By delivering energy for Europe's AI expansion, supporting sub-Saharan Africa's electrification and digitalization goals, and scaling its own AI capabilities, North Africa can deepen trilateral linkages and play a pivotal role in powering the next phase of economic transformation.

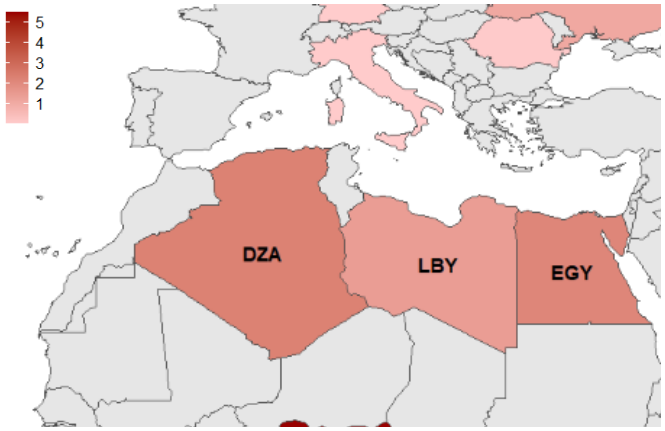
North Africa—geographically and economically positioned between these two demand centers—holds significant untapped energy potential, in both hydrocarbons and renewables (Figure 30). This dual advantage offers the region a unique opportunity not only to supply energy resources but also to capture greater value added through stronger economic linkages. By leveraging this position, North Africa could serve as a critical energy bridge: supporting Europe's diversification ambitions while helping to address sub-Saharan Africa's urgent electrification needs (Box 5). However, realizing these opportunities will require more than exporting raw energy. Success will depend on strengthening regional linkages and increasing domestic value added through local manufacturing, processing, and services, laying the foundation for job creation and economic development.

Figure 30. North Africa: A Regional Energy Corridor for Hydrocarbons and Renewable Power

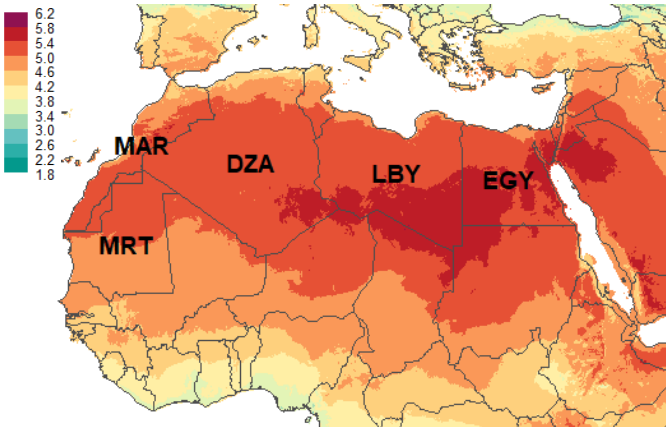
1. Proven Oil Reserves, 2020
(Billion tons)



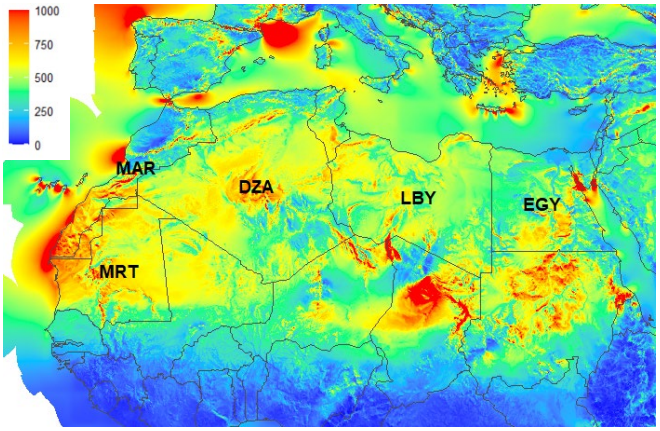
2. Proven Natural Gas Reserves, 2020
(Trillion cubic meters)



3. Solar PV Power Potential
(Long-term average of daily PVOUT (kWh/kWp/sday), 1994–2024)



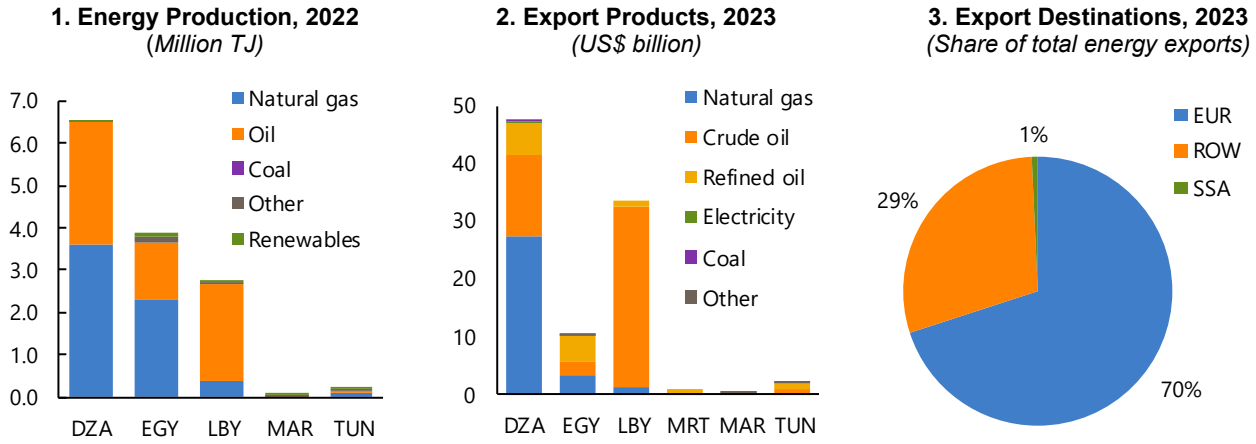
4. Wind Mean Power Density
(*Watts/square meter at 150 meters)*



Sources: Energy Institute (2025); ESMAP and World Bank (2020); and Technical University of Denmark and World Bank (2025).
Note: PVOUT = Photovoltaic power output

North Africa's hydrocarbon generation potential is vast. As of 2024, Algeria holds an estimated 12.2 billion barrels of proven crude oil reserves and 159 trillion cubic feet (Tcf) of natural gas. Libya's reserves are even more substantial—48.4 billion barrels of oil and 53 Tcf of gas—placing both countries among the world's top hydrocarbon producers (US EIA 2024; IEA 2025c). Consequently, fossil fuels continue to account for the majority of the region's energy production (Figure 31, panel 1). Moreover, North Africa's energy trade remains heavily oriented toward Europe, with over half of its energy exports—primarily oil and gas—destined for EU markets (Figures 31, panels 2 and 3). Meanwhile, Europe is highly dependent on energy imports, with over 90 percent of its natural gas and oil supply from outside the EU. Algeria alone accounts for 14 percent of the EU's gas imports, while Libya accounts for close to 10 percent of oil imports (European Council of the European Union 2025, Eurostat 2025a, 2025b, Strategic Perspectives 2025).

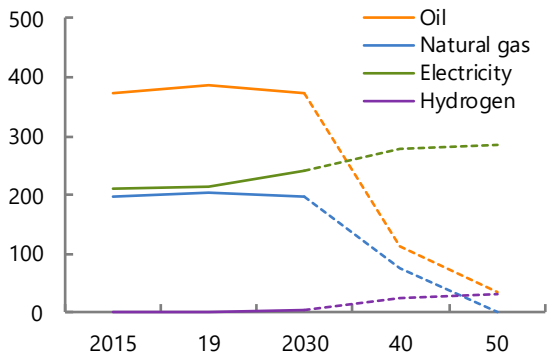
Figure 31. Hydrocarbons Dominate North Africa's Energy Production



Sources: IEA (2025b); Gaulier and Zignago (2010); and IMF staff calculations.
Note: DZA = Algeria; EGY = Egypt; LBY = Libya; MAR = Morocco; TUN = Tunisia; MRT = Mauritania; EUR = Europe; ROW = Rest of the World; SSA = Sub-Saharan Africa.

However, changing demand dynamics are reshaping the region's energy export model. The European Union's decarbonization agenda, anchored in the European Green Deal and the CBAM, envisions a sharp reduction in fossil fuel imports but could be softened by increasing demand for AI and other uses. By 2040, European demand for oil and natural gas is projected to contract by approximately 70 and 60 percent, respectively, while demand for low-carbon alternatives such as hydrogen and electricity is expected to rise (Figure 32). At the same time, Europe accounts for the third largest share of AI data center electricity consumption (15 percent), and demand is projected to rise in Europe and globally at an accelerating rate as AI adoption increases, which will require energy from a broad range of sources (IEA 2025b). In addition, although the CBAM will negatively affect carbon-intensive imports, the import of hydrocarbons could increase if the policy induces import substitution of these goods. For hydrocarbon-dependent economies such as Algeria and Libya—where oil and gas account for more than 40 and 90 percent of government revenues, for these countries, respectively—these dynamics present significant macroeconomic and fiscal challenges. This highlights a critical dilemma: while hydrocarbons continue to generate substantial near-term revenue, sustained dependence on a shifting European market exposes these countries to heightened risks (Radzewicz-Bak and others 2024). To mitigate these risks, North African economies will need to diversify their hydrocarbon export destinations and actively pursue new markets, particularly in regions like sub-Saharan Africa where energy demand is projected to grow for a broad range of resources in the next few decades, including oil, gas, and renewables (IEA 2025b).

Figure 32. European Hydrocarbon Demand to Decline and Renewable Demand to Increase
(Mtoe)



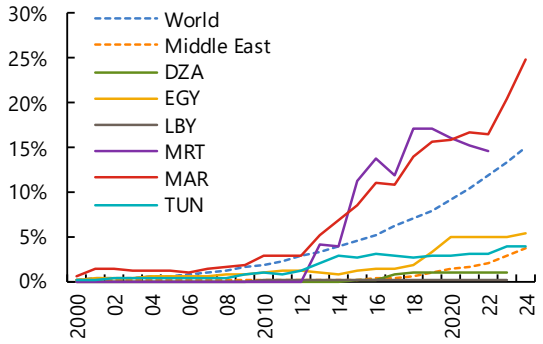
Source: European Commission (2024).
Note: Dotted line is projection.

North Africa's renewable energy potential is exceptionally large, offering a pathway for economic linkages, sustainable growth, job creation, and to respond to rising international demand for renewables. According to the International Renewable Energy Agency (IRENA), the region's technical potential is estimated at up to 2,800 gigawatts (GW) of solar, 220 GW of wind, and 112 GW of hydropower—equivalent to nearly 200

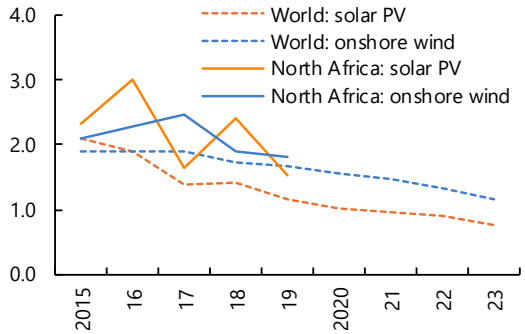
times the region's current installed capacity (IRENA 2023a, 2025c). As the average installation and production costs for utility-scale solar photovoltaics and other renewables continue to decline (Figure 33, panel 1), the share of renewables in electricity generation is rising, particularly among energy-importing countries such as Morocco and Mauritania (Figure 33, panel 2).[20]

Figure 33. Renewable Energy Becoming Increasingly Viable

1. Electricity Generation: Wind and Solar
(Share of total electricity generation)



2. Average Project Installation Cost
(Thousand 2023 USD/kWh)



Sources: EMBER (2025); IRENA (2023a, 2024a); and IMF staff calculations.
Note: DZA = Algeria; EGY = Egypt; LBY = Libya; MRT = Mauritania; MAR = Morocco; TUN = Tunisia.

Amid shifting global energy dynamics, electricity offers North Africa a strategic opportunity in addition to traditional hydrocarbon exports. Emerging regulations and targets from the European Union reinforce the case for electricity—and especially clean energy—trade. Cross-border electricity trade also supports the urgent electrification needs in sub-Saharan Africa, which the region may have difficulty in meeting domestically. With North Africa already generating over 40 percent of the continent's electricity, the region is well placed to expand its role as a clean energy hub—exporting power both northward to Europe and southward to its African neighbors (IEA 2025c). Electricity generation is projected to grow significantly, driven by substantial increases in renewable generation in line with national strategies (IEA 2025a). Under an illustrative scenario, if interconnections were scaled and North Africa allocated 20 percent of its generation to Europe—after meeting domestic needs and accounting for transmission and distribution losses—this could lead to the redirection of around 70 TWh annually to the EU, representing almost 3 percent of current electricity demand (Ember 2025). Meanwhile, the region is scaling up green hydrogen production with an EU-oriented export strategy. IRENA estimates suggest that North Africa has the potential to supply around 18 percent of EU green hydrogen and related commodities by 2050 (IRENA, 2025a, 2025b).

As North Africa expands its role as a regional energy exporter, scaling up electric interconnections will require careful attention to both economic efficiency and social equity. Scaling up electric interconnections can lead to energy prices increasing in exporting countries, ensuring that gains from trade are redistributed to consumers can address equity concerns and help ensure political support for these interconnections. In addition, sufficient quality infrastructure and coordination are needed to mitigate the losses inherent to longer-distance electricity transmission and distribution. Morocco's Sila Atlantik project, formerly Marrakech-Xlinks, for example, coordinates generation and offtake to minimize inefficiencies and maximize export viability (Morocco World News 2025b).

[20] North African countries have set targets to increase the share of renewables in electricity production. Morocco targets 52 percent renewable electricity generation by 2030, Tunisia 35 percent, Egypt 42 percent, Mauritania 48 percent, and Algeria 27 percent (UNFCCC 2025). Although Libya has yet to submit aNationally Determined Contribution (NDC), it has set the goal of achieving 20 percent renewable energy by 2035 in its National Strategy for Renewable Energy and Energy Efficiency (REAOL 2023).

Box 5. Empowering Growth and Diversification in Sub-Saharan Africa

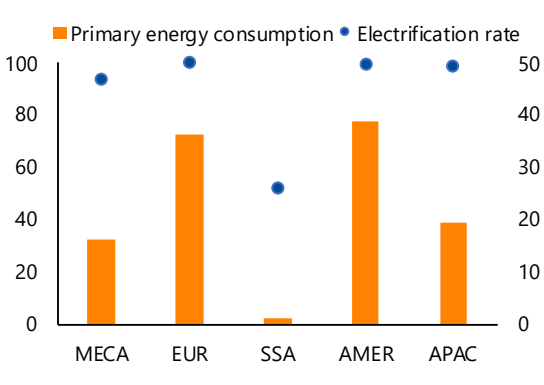
Sub-Saharan Africa's limited and unreliable electricity access imposes severe economic costs. Expanding access, especially through cross-border connections with North Africa, can spur growth, diversification, investment, and job creation across key sectors.

Sub-Saharan Africa's limited energy access imposes high economic costs. With just over 50 percent of the population having access to electricity, the region has the lowest electrification rate in the world (Figure 5.1). In addition, while Africa is home to nearly 18 percent of the world's population, it accounts for less than 6 percent of global energy use. This energy gap is detrimental to lives and livelihoods as well as economies: sub-Saharan Africa is home to nearly 70 percent of the world's extreme poor. As the region's population increases over the coming decades, energy demand is set to increase further, compounding the issue.

Even those with electricity access face frequent outages. Unreliable electricity and frequent outages disrupt people, firms, and entire economies. Power outages force firms and critical infrastructure to rely on expensive and polluting backup generators, decreasing productivity, entrepreneurship, and employment and reducing competitiveness and job opportunities. A World Bank study in 23 African countries found that a 1 percent rise in electricity outages leads to an average 3.5 percent drop in business productivity.

Box Figure 5.1. Energy Access by Region

(*LHS: Percent of population; RHS: MWh per capita***)**



Sources: Energy Institute; HYDE; Gapminder; Our World in Data; UN; and IMF staff calculations.
Note: MECA = Middle East and Central Asia; EUR = Europe; SSA = Sub-Saharan Africa; AMER = American Continent; APAC = Asia-Pacific

Expanding energy access is a powerful engine for economic growth and structural transformation. Reliable electricity enables firms to operate more efficiently, reduces production costs, and supports the emergence of new industries, particularly in manufacturing, agricultural processing, and digital services. It also attracts investment by lowering operational risks and improving the business environment. Universal access to electricity could unlock millions of jobs across the continent, especially for youth entering the labor force. Moreover, energy access facilitates economic diversification by enabling countries to move beyond commodity exports and develop value-added sectors that are more resilient to external shocks.

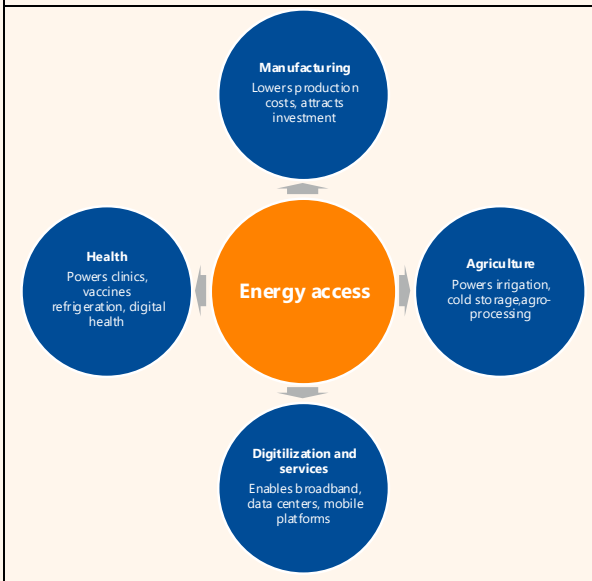
Energy access is a foundational enabler across multiple sectors critical to economic transformation. Together, these can enable sub-Saharan Africa to advance in value chains beyond commodities.

- **Manufacturing:** Reliable electricity lowers production costs, increases competitiveness, and attracts investment in industry and processing.
- **Agriculture:** Energy access powers irrigation systems, cold storage, and agro-processing facilities—critical tools in a region where more than two-thirds of the postharvest food supply is lost—thereby reducing waste and enabling value addition.
- **Digitalization and services:** Electrification enables the expansion of digital infrastructure, including broadband connectivity, data centers, and mobile platforms, supporting innovation in e-commerce, fintech, and remote education and opening new markets and employment opportunities.
- **Health:** Electrification enables the operation of clinics, refrigeration of vaccines, and digital health platforms.

Box 5. (*concluded*)

However, Sub-Saharan Africa faces significant challenges in meeting its own current and future energy demands. While half of total export value is derived from fossil fuels in sub-Saharan Africa, hydrocarbon exports are concentrated in a small group of countries, and most countries in the region are net energy importers (IEA 2022a). Sub-Saharan Africa has significant untapped oil and gas resources, which could support higher production in the coming decades, but development is uneven. In addition, while sub-Saharan Africa's technical potential in renewables is high, on average, however, the region's installed renewable-based electricity generation capacity represents less than 3 percent of the global total (IRENA 2024b). The region faces numerous obstacles for scaling up energy production in hydrocarbons, including limited and asymmetric investment, weak infrastructure and grid constraints, policy and regulatory hurdles, and systemic and institutional challenges.

Box Figure 5.2. Empowering Economic Diversification



Source: IMF staff.

Expanding cross-border energy linkages with North Africa can help realize these gains. While current electricity connectivity between North Africa and sub-Saharan Africa remains limited, planned infrastructure projects offer a pathway to expand trade. Strengthening electric interconnections and advancing gas pipeline projects, such as the Morocco–Mauritania transmission line and the Nigeria–Morocco and Trans-Saharan gas pipelines, can enable surplus energy from the north to flow southward. North Africa generates over 40 percent of the continent's electricity and has significant capacity in both hydrocarbons and renewables. Under an illustrative scenario, if interconnections were scaled and North Africa allocated 10 percent of its generation to sub-Saharan Africa—after meeting domestic needs and exports to Europe and accounting for transmission and distribution losses—this could lead to the redirection of around 35 TWh annually to sub-Saharan Africa. This would represent over 6 percent of the region's current annual electricity consumption, with the potential to raise electrification rates commensurately, given progress in the domestic enabling environment.

This vision aligns with broader initiatives like the World Bank and African Development Bank's Mission 300, which aims to connect 300 million people in sub-Saharan Africa to electricity through partnerships with development institutions and the private sector and the Blue Raman submarine Cable, part of the EU Global Gateway and the Mattei Plan and co-funded by the European Commission and Sparkle, which will enhance digital connectivity and technological convergence between Europe, Africa, and India. These links would not only help meet sub-Saharan Africa's rising energy demand but also support regional linkages, reduce energy costs, and enhance the reliability of supply, amplifying the economic and social benefits of electrification across sectors.

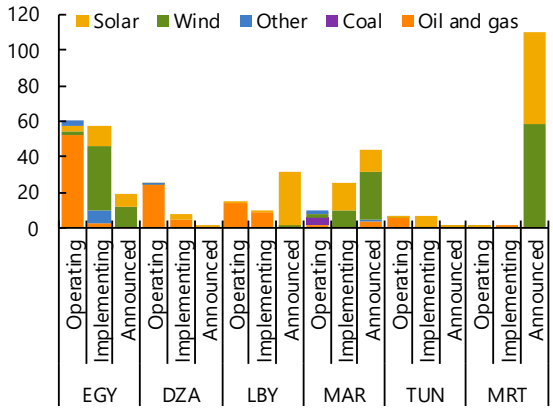
Sources: European Commission (2025), IEA (2022a), IRENA (2024b), United Nations, Department of Economic and Social Affairs, Population Division (2024), World Bank (2025), and IMF staff.

B. Infrastructure and Investment Patterns in Transition

Although hydrocarbons still dominate North Africa's energy mix, investment trends are shifting to electricity and renewables. The region's vast renewable energy potential is beginning to attract growing investment (Figure 35, panel 1). In 2023 alone, North Africa attracted US$65 billion in energy-related FDI, with more than 60 percent directed toward renewables. While 122 fossil fuel power plants were built between 2010 and 2019, only 22 have been added since 2020, underscoring a marked pivot toward cleaner energy sources (Figure 34). Over the past five years, energy-related FDI largely originated from the GCC and Europe, led by the UAE, France, Saudi Arabia, and other European countries (Figure 35, panel 2). However, financing for renewable energy across the region is uneven, with Egypt, Morocco, and Algeria receiving the bulk of investment commitments (IRENA 2023a).

Figure 34. Power Stations in North Africa

(Thousand MW)

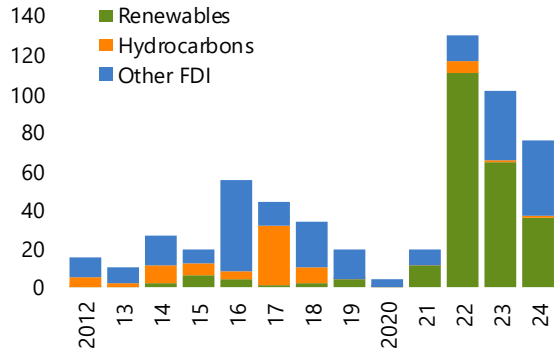


Source: Global Energy Monitor (2025).
Note: Data as of February 2025. EGY = Egypt; DZA = Algeria; LBY = Libya; MAR = Morocco; TUN = Tunisia; MRT = Mauritania.

Figure 35. Investment in North Africa Shifting toward Renewables

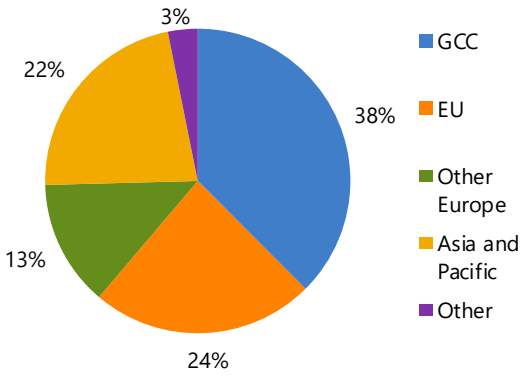
1. Announced FDI, 2019–24

(US$ billion)



2. Announced Energy FDI, 2019–24

(Thousand MW)



Source: Financial Times (2025).
Note: FDI = foreign direct investment; GCC = Gulf Cooperation Council; EU = European Union

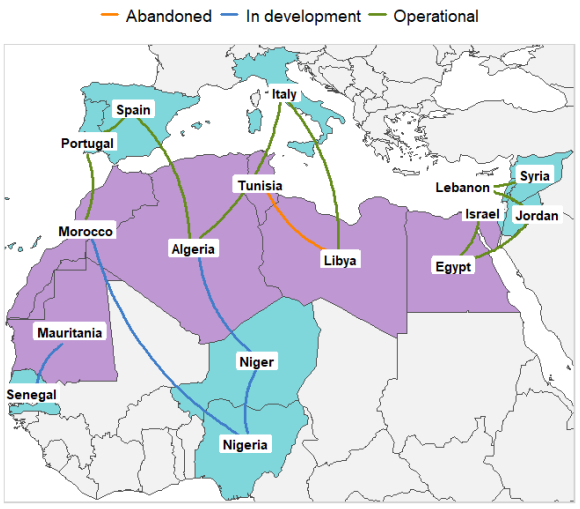
Infrastructure for energy trade in North Africa remains highly asymmetric—well developed toward Europe but limited toward sub-Saharan Africa.

- ***Hydrocarbons infrastructure is well developed with Europe but sparse southward.*** Most oil and gas exports flow through established corridors such as the Trans-Mediterranean Pipeline (30 bcm), the Maghreb–Europe Pipeline (12 bcm), and Algeria's liquefied natural gas (LNG) terminals—altogether supplying over 20 percent of EU gas imports (ENTSOG 2024). In contrast, links with sub-Saharan Africa are limited. Promising projects like the Nigeria–Morocco Gas Pipeline (the world's longest planned offshore pipeline) and the Trans-Saharan Gas Pipeline (connecting Nigeria to Algeria) are under development but progressing slowly (Agbetiloye 2025; Energy Capital & Power 2025a) (Figure 36, panel 1).
- ***Electricity transmission networks mirror this imbalance.*** North Africa's connections to Europe are relatively advanced—such as the Morocco–Spain HVDC line (1,400 MW) and the planned Tunisia–Italy ELMED interconnector (600 MW). However, infrastructure linking the region to sub-Saharan Africa is nascent, with the Morocco–Mauritania line (300 MW, targeted for 2025) still in early stages (ONEE 2023; Tunisian Ministry of Industry, Energy and Mines and Terna Italy 2023) (Figure 36, panel 2).

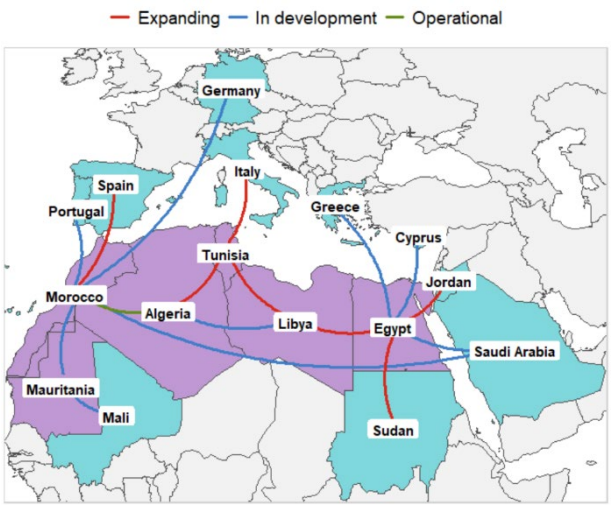
Regulatory and institutional fragmentation continues to constrain the expansion of electricity trade. Effective cross-border trade requires harmonized technical standards, third-party grid access, transparent tariff structures, and functioning platforms for long-term power purchase agreements. Yet these elements remain unevenly applied across the region. While regional initiatives—such as AfSEM and the Continental Power System Master Plan—offer a coherent vision, they have struggled to move from planning to implementation. Meanwhile, multilateral platforms like the UfM and Mediterranean Gas and Energy Markets (MED-GEM), as well as bilateral partnerships—such as the EU–Morocco Green Partnership or Algeria's memoranda of understanding with Mauritania—have helped align policy goals but rarely translate into binding investment commitments or infrastructure delivery. As a result, power generation investments often outpaced transmission and market readiness, leaving stranded capacity and unrealized export potential.

Figure 36. Growing Energy Linkages

1. International Gas Pipelines



2. International Electric Interconnections



Sources: AU-NEPAD (n.d.-a, n.d.-b); Asaolu (2025); EIB (2024); Enerdata (2021); Energy Capital & Power (2021, 2024a, 2024b, 2025a, 2025b); GOGEL (2024); IEA; Med-TSO (2022a, 2022b, 2022c, 2023); MEED (2007); Ministry of Energy and Mineral Resources (n.d.); Ministry of Energy Transition and Sustainable Development (n.d.); Tunisian Ministry of Industry, Energy and Mines (2023); Morocco World News (2025a, 205b); NS Energy (2024); Ouki (2023); and IMF staff calculations.

C. Existing Energy Value Chains—Fueled by Hydrocarbons and Tied to Europe

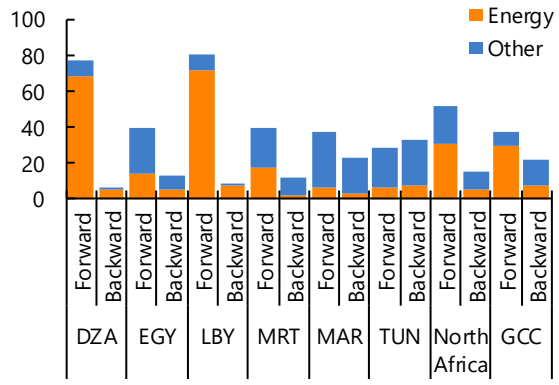
North Africa remains weakly integrated into global energy value chains, in both renewables and hydrocarbons. While the region has made progress in expanding generation capacity—especially in renewables—its role in upstream and downstream segments of global value chains is limited, reducing its ability to capture economic spillovers from technology and human capital development.

- ***Participation in global clean energy value chains is low.*** North Africa's participation in global clean energy value chains remains limited, and there is ample scope to deepen it. Progress is held back by persistent structural barriers, including limited local manufacturing capacity, fragmented industrial ecosystems, and minimal upstream integration into global supply chains for key technologies such as solar panels, wind turbines, and grid components (IRENA 2023a; SEforALL 2023). Most renewable infrastructure is built using imported technology, curbing domestic value addition, job creation, and technology transfer. Although some governments have announced localization strategies, implementation has been limited, and impact remains minimal.

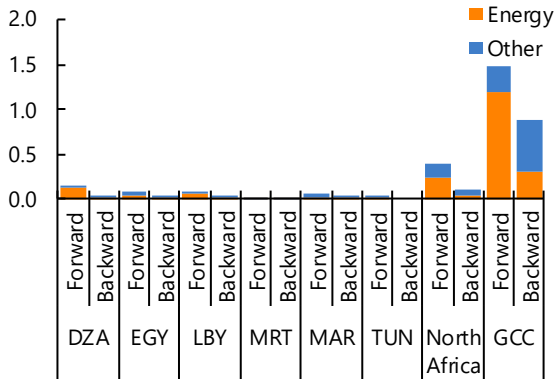
- ***Hydrocarbon value chain participation is concentrated and shallow.*** Exporters like Algeria and Libya display strong forward linkages—hydrocarbons account for nearly 70 percent of their total exports—but their role in global energy trade is narrow compared with the more vertically integrated GCC economies (Figure 37, panels 1 and 2). These countries have weak backward linkages, with limited participation in upstream services or technology-intensive processes. Energy importers like Morocco and Tunisia have more diversified trade structures and demonstrate stronger backward linkages in non-energy sectors, but electricity trade—particularly for renewables—remains underdeveloped despite increasing generation capacity.

Figure 37. Energy Value Chains Remain Underdeveloped

1. Global Value Chain Linkages, 2023
(Percent of country gross exports)



2. Global Value Chain Linkages, 2023
(Percent of global gross exports)

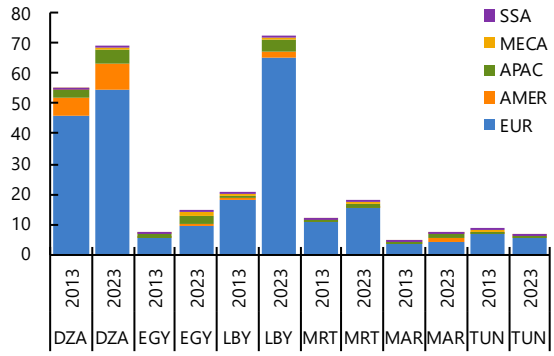


Sources: EORA; and IMF staff calculations.
Note: "Energy" includes mining, petroleum, and electricity sectors from EORA26. DZA = Algeria; EGY = Egypt; LBY = Libya; MRT = Mauritania; MAR = Morocco; TUN = Tunisia; GCC = Gulf Cooperation Council.

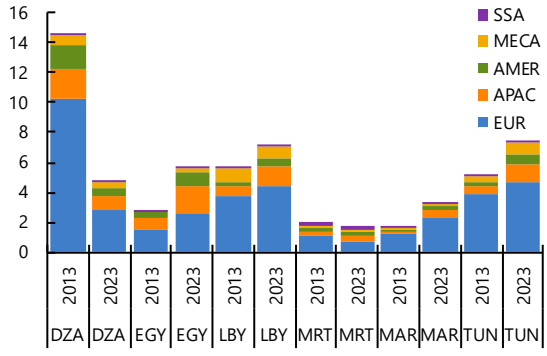
North Africa's energy trade structure remains narrow and asymmetric. The region's forward and backward energy linkages are overwhelmingly oriented toward Europe, particularly in hydrocarbon-exporting countries such as Algeria and Libya, where EU-related energy trade accounts for a significant share of gross exports (Figure 38, panels 1–3). While backward linkages are low compared with forward linkages, they exhibit more diversification across non-European partners. By contrast, energy value chains within North Africa and with sub-Saharan Africa remain minimal, though Mauritania has recently begun to diversify its trade relations in a wider range of sectors (Figure 38, panel 4). Overall, the region's energy linkages are highly asymmetric—deeply tied to northern markets while largely disconnected from southern opportunities.

Figure 38. Energy Chains to Europe

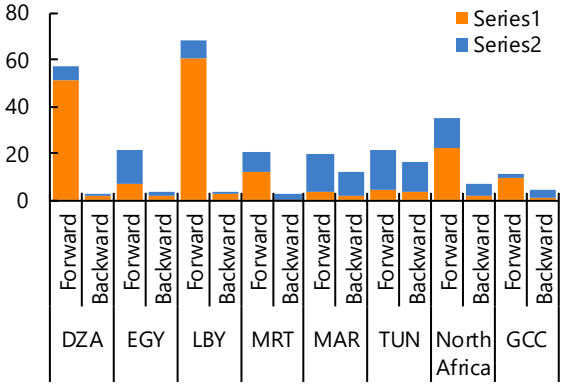
1. Regional Energy Value Chain Forward Participation, 2023
(Percent of gross country exports)



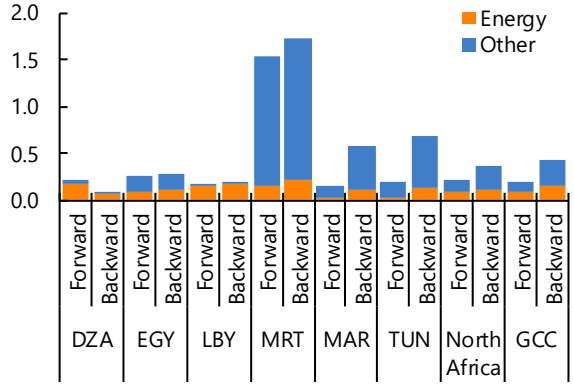
2. Energy Regional Energy Value Chain Backward Participation, 2023
(Percent of gross country exports)



3. Regional Value Chain Participation with the EU, 2023
(Percent of gross country exports)



4. Regional Value Chain Participation with the Rest of Africa, 2023
(Percent of gross country exports)



Sources: EORA; and IMF staff calculations.
Note: "Energy" includes mining, petroleum, and electricity sectors from EORA26. DZA = Algeria; EGY = Egypt; LBY = Libya; MRT = Mauritania; MAR = Morocco; TUN = Tunisia; GCC = Gulf Cooperation Council.

D. The Energy Value Chain Opportunity

North Africa is uniquely positioned to become a central player in regional and global energy value chains. Yet the region's current role remains narrow and largely extractive—dominated by raw hydrocarbon exports with limited downstream processing or industrial linkages. This underutilization contrasts sharply with the region's potential. A new energy value chain is emerging, linking sub-Saharan Africa's critical resources with Europe's demand for greener technologies. North Africa can serve as a pivotal transformation hub at the center of this triangle.

- ***Sub-Saharan Africa provides upstream resource supply***, with vast reserves of critical minerals such as cobalt, manganese, chromium, platinum, aluminum, and uranium—essential inputs for solar panels, wind turbines, batteries, and other clean technologies (SEforALL 2023; Chen and others 2024). Historically, heavy reliance on raw exports has constrained value addition and exposed sub-Saharan Africa to commodity price shocks (Abdel-Latif, Khandelwal, and Zhang 2025). These challenges can be mitigated by investing in mineral processing, refining, and low-level manufacturing—activities that North Africa is well positioned to support.

- ***Europe offers downstream industrial demand and capital***, with strengths in high-value manufacturing, including electrolyzers, wind turbines, and electric vehicle components. European institutions such as the European Investment Bank (EIB) and European Bank for Reconstruction (EBRD), along with private investors, can finance infrastructure and green industry development, while also supporting skills training, technology transfer, and regulatory reform (Karkare and Medinilla 2023; SEforALL 2023). The EU's Critical Raw Materials Act promotes nearshoring and sustainable partnerships, reinforcing North Africa's role as a secure intermediary between sub-Saharan Africa's resources and Europe's industrial base (European Commission 2023).

As the middle node in this value chain, North Africa can build capacity and expand to new sectors. Algeria, Egypt, Morocco, and Tunisia have strong potential to develop manufacturing segments in energy value chains, such as solar panel module assembly, battery packaging, and mineral refining, because of their infrastructure readiness, labor competitiveness, and proximity to both raw materials and end markets (SEforALL, 2023). Morocco, for example, is already refining cobalt and attracting investment in EV battery production. Egypt and Morocco are producing fertilizer, ammonia, and green hydrogen, and Tunisia's automotive components sector is well placed to support green mobility supply chains (Tanchum 2024). Algeria is building on its strong pipelines, refining capacity, and new hydrogen and solar plans to move from being mainly a transit country to becoming a producer and processor in regional green energy value chains (Box 6). These industries can offer a path to inclusive industrialization, job creation, and deeper integration into global green energy value chains. With the right policy mix, regional cooperation, and international support, North Africa can evolve into a value-adding hub at the heart of a sustainable regional economy. For Europe, it offers a reliable regional partner in the green transition. For Sub-Saharan Africa, it opens new pathways for industrial collaboration and electrification.

With the right policies and partnerships, North Africa can move toward the center of the global economy—transforming into a strategic hub for energy, industry, and inclusive growth. This includes investment in technical education, R&D, and digital infrastructure; harmonization of industrial and energy policies under the AfCFTA; and targeted incentives to attract green manufacturing. Public–private partnerships, regional coordination, and strategic alliances with Europe and sub-Saharan Africa are essential. To support this transformation, countries will need to scale up human capital development through technical and vocational

training in energy-related engineering, management, and manufacturing. Partnerships with European institutions and training initiatives can help build a workforce equipped for the green transition. At the same time, technology transfer must be actively facilitated through joint ventures, licensing agreements, and supplier development programs, particularly in emerging sectors such as solar, hydrogen, and battery technologies. As highlighted by Arezki (2024), without sound governance and transparent fiscal regimes, there is a risk that green energy investment could replicate past extractive patterns. To avoid this, revenues from mineral processing and clean energy exports must be reinvested in infrastructure, public services, and social development.

With AI transforming the global economy and driving up energy demand, North Africa is uniquely positioned to benefit from this shift and enable Europe and sub-Saharan Africa's AI transformations. Europe's AI ecosystem is expanding rapidly and is already one of the largest and fastest-growing regions for data center electricity demand to support model training, industrial automation, and smart infrastructure (IEA 2025b). As the region with the lowest data center electricity consumption per capita, sub-Saharan Africa is poised to benefit from AI-enabled development, using digital tools to transform agriculture, health, education, and public services, but persistent energy deficits and infrastructure gaps remain major barriers (Signé 2025). North Africa can serve as a strategic energy bridge by scaling up its renewable and hydrocarbon dispatchable energy capacity, modernizing grids, and expanding cross-border interconnections to deliver reliable electricity to European data centers and support Sub-Saharan Africa's digitalization goals. At the same time, North Africa itself stands to benefit from deploying AI locally: optimizing energy systems, improving industrial productivity, and enhancing service delivery. It can leverage its energy resources and infrastructure to attract investment and embed AI into newly built systems, enabling smarter cities, cleaner industries, and more resilient public services. Early examples, such as the use of AI algorithms to optimize processes in Morocco's paper industry, show the potential for broader application. With targeted investment in digital skills, data infrastructure, and regulatory frameworks, North Africa can evolve from a resource exporter into a regional AI-energy hub, deepening trilateral linkages, powering inclusive growth, and supporting new industries in the process.

Box 6. Algeria and Energy Value Chain Integration—from Transit to Transformation

Algeria is emerging as a strategic anchor in the development of trilateral energy value chains that link sub-Saharan Africa's upstream resources, North Africa's midstream processing and transit capacity, and Europe's downstream industrial demand. This evolving role positions Algeria not only as a traditional energy exporter but also as a potential transformation hub in a broader regional value chain.

Algeria's energy infrastructure is among the most developed in Africa. It hosts three major gas pipelines to Europe—the Trans-Mediterranean, Medgaz, and Maghreb-Europe (GME) pipelines—collectively supplying over 20 percent of EU gas imports. Algeria also has significant liquefied natural gas (LNG) capacity and is investing in new interconnections with Tunisia, Libya, and Mauritania. These assets make Algeria a natural transit point for regional energy flows.

Two major pipeline projects underscore Algeria's trilateral potential:

- ***Upstream:*** Nigeria and other sub-Saharan countries supply natural gas and critical minerals.
- ***Midstream and downstream:*** Algeria processes, stores, and transits energy products, while also developing refining and petrochemical capacity.
- ***Downstream:*** Europe provides capital, technology, and industrial demand, particularly for clean fuels and green hydrogen.

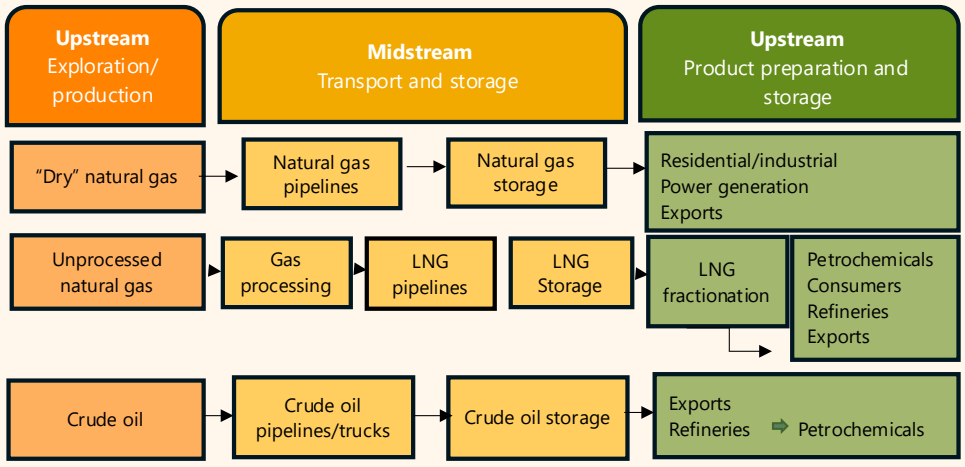
Algeria's potential goes beyond transit. Algeria's current refining capacity allows for full coverage of the local market with fuel; Sonatrach, the national oil and gas company, is investing in a new project that would increase its processing capacity by 17 percent, The country has also developed its petrochemical industry (methanol, ammonia) and aims to increase its processing capacity of higher value–added products such as polypropylene. With target investment, it could also develop local manufacturing and processing capabilities in areas such as mineral refining (for example, phosphates, rare earths), for which the country possesses significant resources, and renewable energy production and transportation. In this regard, Algeria has developed a national strategy for the development of green and blue hydrogen, complemented by the launch of two pilot projects and plans to install 15 GW of solar capacity by 2035. This could foster the development of component manufacturing for solar, wind, and battery technologies.

These activities would deepen Algeria's integration into regional and global value chains, enabling it to capture more value-added domestically. They would also catalyze technology transfer through joint ventures, licensing agreements, and supplier development programs—especially with European firms seeking secure and proximate partners in the green transition.

Moreover, these developments would create demand for a more skilled workforce. Algeria could leverage this opportunity to invest in human capital development, including technical and vocational education in energy and industrial engineering; partnerships with European institutions for training and certification; and on-the-job learning through FDI-linked employment.

By moving beyond its traditional role as a hydrocarbon exporter, Algeria can become a pivotal node in a trilateral energy value chain—linking African resources with European markets and fostering inclusive industrial development across the region, Algeria is positioning itself as a regional leader in green energy value chains, leveraging its industrial base, renewable energy potential, and strategic trade ties with Europe.

Box Figure 6.1. Oil and Gas Value Chain



Source: IMF staff.

E. Conclusions and Policy Recommendations

North Africa stands at a crossroads in the global energy transition. While hydrocarbons—especially in Algeria and Libya—have historically been the center of the economy, the region now has an opportunity to seize its potential for renewables and increase its energy capacity. The European Union's accelerating energy transition and sub-Saharan Africa's electrification needs present North Africa with an opportunity to connect all three regions, catalyzing greater economic linkages, technological transfer, and human capital development.

To seize this opportunity, North Africa can pursue a two-pronged strategy:

- ***Reinvent the hydrocarbon export model.*** Hydrocarbon exporters should prepare for declining European demand by diversifying markets, including expanding linkages with sub-Saharan Africa, capitalizing on demand driven by AI, and moving up the energy value chain. This includes investing in petrochemicals, refining, and energy services, while strengthening backward linkages through the development of domestic industrial inputs and service providers. Expanding energy ties with sub-Saharan Africa—through southbound pipelines, joint infrastructure ventures, and trade corridors—could create new markets and enhance regional energy security.

- ***Scale up renewables and cross-border electricity trade.*** With over 2,800 GW in solar potential, North Africa can emerge as a major and diversified energy hub, exporting renewable electricity to both Europe and sub-Saharan Africa, and green hydrogen globally, in addition to traditional hydrocarbons. Achieving this will require upgraded transmission systems, harmonized technical standards, and accelerated implementation of regional frameworks such as the African Single Electricity Market, the Continental Power System Master Plan, and Mission 300, which prioritizes African regional linkages, including for Mauritania, which is one of 12 countries with a National Energy Compact. Infrastructure links with sub-Saharan Africa, particularly high-voltage cross-border transmission, should be a priority.

Beyond energy production and trade, deeper integration into global clean energy value chains is essential for long-term industrial and economic development. This means localizing manufacturing of technologies, enhancing regulatory frameworks, and attracting FDI through targeted incentives. For instance, policies like Egypt's 2017 New Investment Law could be expanded to catalyze technology transfer and job creation. World Bank projections suggest the transition to clean energy could generate nearly 800,000 jobs in Morocco and up to 2 million in Egypt over the next three decades. Leveraging North Africa's abundant resources in both hydrocarbons and renewables can generate substantial economic spillovers for the region and its neighbors, including job creation and human capital development, deeper global value chain integration, industrial development, technology transfer, and enhanced regional resilience (Box 7).

Finally, realizing this vision will require a stronger institutional foundation. Although bilateral and multilateral energy partnerships have grown, many still lack binding commitments and infrastructure follow-through. Greater political coordination—within North Africa and with European and sub-Saharan partners—is essential to move from dialogue to delivery. With the right reforms and regional cooperation, North Africa can evolve from a fossil fuel exporter to a strategic energy bridge—linking continents, strengthening resilience, and shaping the future of the region's economy.

Box 7. North Africa's Energy Corridor: Opportunities and Risks

North Africa's dual energy advantage offers transformative potential to position the region as a strategic energy bridge between Europe and sub-Saharan Africa. By leveraging hydrocarbons and renewables, the region can drive numerous benefits, including value chain integration, job growth, and technology transfer. Realizing these gains, however, requires navigating critical risks. Strategic policy action and targeted investments will be essential to convert these opportunities into sustainable growth.

Key opportunities:

- **Strategic energy bridge:** Leverage dual energy advantage in hydrocarbons and renewables to meet the needs of Europe's energy transition and expanding electrification in sub-Saharan Africa.
- **Export diversification:** Both hydrocarbon and non-hydrocarbon exporters can expand renewable energy exports (solar, wind, green hydrogen) alongside traditional fuels.
- **Regional integration gains:** Energy corridors can strengthen trilateral linkages (North Africa–Europe–sub-Saharan Africa), boosting trade and investment flows beyond energy.
- **Value chain integration:** Move beyond raw material exports into processing, manufacturing, and green industrial hubs.
- **Job creation and human capital:** Generate employment through renewable projects and infrastructure development, fostering skills and technology transfer.
- **AI and digital economy enabler:** Build robust energy infrastructure to support AI-driven industries and data centers locally and internationally.

Critical risks:

- **Stranded hydrocarbon assets:** Declining global fossil fuel demand could leave existing reserves underutilized.
- **Infrastructure bottlenecks:** Limited cross-border connectivity and grid capacity may constrain regional integration.
- **Regulatory fragmentation:** Inconsistent energy policies and standards across countries could deter investment.
- **Financing gaps:** High upfront costs for renewables and transmission projects may limit scalability.
- **Geopolitical and security risks:** Regional instability and supply chain vulnerabilities could disrupt infrastructure development and energy flows.
- **Social equity concerns:** Risk of uneven energy pricing and affordability issues during transition.

Source: IMF staff.

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CHAPTER 6: CONCLUSIONS AND POLICY RECOMMENDATIONS

North Africa stands at a pivotal juncture. Positioned between Europe's industrial demand and sub-Saharan Africa's demographic dynamism, and in the context of an evolving global economic order, the region can become a strategic economic connector. With global supply chains shifting, energy systems transforming, and regional frameworks like the AfCFTA gaining traction, North Africa has a powerful opportunity to reshape its economic trajectory. Amid global economic shifts, regional linkages offer North Africa the chance to enhance its role in European and African value chains. Geopolitical tensions and supply chain disruptions have increased interest in regional economic linkages, positioning North Africa as an ideal nearshoring hub for Europe. The region's competitive labor, industrial base, and preferential EU market access enhance its appeal. Simultaneously, AfCFTA unlocks intra-African trade potential, allowing North Africa to serve as a critical link between European and African markets.

The analysis across this paper demonstrates that stronger linkages among Europe, North Africa, and sub-Saharan Africa—through trade and investment—can unlock substantial gains in growth, resilience, and shared prosperity. Empirical evidence from gravity models and dynamic general equilibrium simulations confirms that deep reforms will be needed to fully seize this opportunity. Reducing trade barriers, improving logistics, and strengthening the business environment can boost exports, GDP, and participation in global value chains for all three regions. These gains are amplified when paired with targeted investments in human capital and infrastructure, particularly in sectors like energy and manufacturing, boosting North Africa's GDP by up to 7 percent. Capital, innovation, and expertise from Europe can flow into African markets, while African exports gain better access to Europe.

The energy sector, in particular, offers a transformative opportunity. North Africa's abundant traditional and renewable resources and proximity to both European and African markets position it as a future hub for energy production and trade. By moving beyond extractive models and investing in downstream processing and manufacturing, the region can foster job creation, industrial upgrading, and technological transfer and the rise of artificial intelligence.

Realizing this vision will require bold policy action to capitalize on opportunities and enhance North Africa's position in global value chains. Governments must accelerate structural reforms, improve business environments, harmonize regulations, develop industrial ecosystems, and invest in cross-border infrastructure. Regional coordination—both within North Africa and with European and sub-Saharan partners—will be essential to move from aspiration to implementation. Priorities include modern logistics, digital transformation, and financial inclusion to reduce trade costs, foster innovation, and support cross-border economic activity:

- First, trade and investment reforms are essential to reduce both tariff barriers and NTBs, harmonize standards and customs procedures, and fully implement AfCFTA protocols. These steps would lower trade costs and facilitate the formation of regional value chains.

- Second, upgrading infrastructure and logistics—particularly through modern ports, efficient customs systems, and cross-border corridors like the Trans-Maghreb and Cairo–Dakar highways—can dramatically improve connectivity and competitiveness.

- Third, improving the business environment and investing in human capital are critical to attracting FDI and supporting industrial transformation. This includes streamlining regulations, enhancing contract enforcement, and expanding vocational training aligned with the needs of energy and manufacturing sectors.

- Finally, energy integration offers a transformative opportunity: scaling up renewable generation, expanding electricity interconnections with sub-Saharan Africa, and localizing energy-intensive manufacturing can position North Africa as a regional energy hub. Together, these reforms would not only unlock economic potential and technology transfer and the rise of artificial intelligence but also foster inclusive growth, resilience, and long-term prosperity across the continent.

North Africa has a powerful opportunity. The region can become a linchpin of the trilateral connection. The rewards of action are substantial: higher growth, more jobs, deeper resilience, and a stronger position in global value chains. But realizing this vision will require political will, ambition, coordination, and sustained reform. Joint ventures—such as manufacturing hubs, infrastructure links, and financial partnerships—could streamline trade, build interconnected value chains, and support balanced, sustainable development.

PUBLICATIONS

North Africa: Connecting Continents, Creating Opportunites