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Diversifying European Supply Chains: Can Africa Play a Role?

By Rainer Thiele*, Tomke Necker** and Cara Spitzer***

Summary

Multiple geopolitical disruptions have highlighted the need for firms to diversify their supply chains. For Germany and the EU, this might imply an increased reliance on Africa, the neighboring continent, for example when it comes to sourcing critical raw materials for the energy transition towards renewables. In this paper, we critically assess whether Africa can indeed play a significant role in Europe's strategy of diversifying supply chains and reducing its dependence on China in particular.

Zusammenfassung

Eine Vielzahl geopolitischer Verwerfungen haben für Unternehmen die Notwendigkeit deutlich gemacht, Lieferketten stärker zu diversifizieren. Für Deutschland und die EU könnte dies zu einer stärkeren Hinwendung zum Nachbarkontinent Afrika führen, etwa wenn es darum geht, die Versorgung mit kritischen Rohstoffen für die Energiewende sicherzustellen. In diesem Artikel wird kritisch diskutiert, ob Afrika eine nennenswerte Rolle dabei spielen kann, Europas Lieferketten zu diversifizieren und insbesondere die Abhängigkeit von China zu reduzieren.

JEL classification: F15; L67; L72

Keywords: supply chains, critical raw materials, textiles and clothing, China, Africa

1. Introduction

Numerous supply chains that cut across multiple geographies and generate significant economic benefits for the countries they connect are central to eco-

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conomic globalization. These complex networks of supply chains have contributed to increased stability and prosperity worldwide. As the world's largest manufacturing hub, China has played an instrumental role in shaping global supply chains. However, trade tensions, the emergence of political disputes, the economic upheaval caused by the COVID-19 pandemic and the raw material needs for the European energy transition towards renewables have revealed considerable risks associated with excessive reliance on a single supplier (Chepeliev et al. 2022; Müller 2023). In response to the geopolitical frictions centered around China, suggestions to relocate production closer to the home country or to more geographically favorable regions have gained significant traction. These developments might prompt a reassessment of global production networks, with European nations and companies seeking to mitigate vulnerabilities and diversify their sourcing strategies.

In this context, Europe's neighboring continent – Africa – might emerge as a nearshoring destination for key industries. Africa does not only have the advantage of geographical closeness to Europe, closeness being a factor that has repeatedly been shown to matter for trade relations in gravity-type trade models (e.g. Head and Mayer 2014). It could also benefit from existing language and cultural ties that partly originate from the colonial past (e.g. Felbermayr and Toubal 2010).

One example that we consider in more detail below is critical raw materials, where China currently has a dominant position. Africa's abundant reserves of natural resources, including cobalt and lithium – essential for energy transitions – coupled with its cost-competitive labor force, could render the continent a viable alternative to established production regions (Karkare and Medinilla 2023). The promotion of value addition and downstream processing of minerals might even facilitate a transition for African economies from a position of supplying raw materials to a more integrated role within the global market, fostering domestic economic growth and greater participation in higher-value segments (Mavhunga 2023).

A second example we specifically look at in this paper is the clothing sector, a labor-intensive industry which contributed to East Asia's spectacular industrialization. In this case, economic forces rather than geopolitical shifts are mainly behind the ongoing diversification of supply chains. China is still the world's leading exporter, but clothing sector investments have recently been shifted to Asian low-wage economies, such as Cambodia, Vietnam, Myanmar and Bangladesh, taking advantage of rapidly rising wages in China (Altenburg et al. 2020). The question we deal with is whether some African countries can also become major clothing exporters, filling the space vacated by China.

The remainder of the paper discusses the potential of nearshoring in Africa for these two industries. Similar considerations may also apply to other indus-

tries, examples including the establishment of vaccine production facilities in Rwanda, Senegal and South Africa in response to the COVID-19 pandemic, or the location of automobile assembly lines in Morocco and Rwanda. The two cases highlighted in this paper should therefore be regarded as exemplary rather than providing an exhaustive account of ongoing or planned shifts in European supply chains.

2. Sourcing Critical Raw Materials from Africa

The European intention to respond to China's dominance in global value chains is nowhere more apparent than in the raw materials sector. The EU's Critical Raw Materials Act specifically seeks to diversify away from this dependence (Fernandez-Stark and Bember 2023). It foresees, among other things, that only 65 percent of the EU's demand for a critical mineral may be sourced from a single country. Currently, the EU itself extracts or processes very few critical raw materials. Since 2000, the processing of these materials – including commodities such as aluminum, copper, iron, and rarer elements like gallium and neodymium – has progressively shifted to China. For instance, China is currently accounting for 100 percent of the refined supply of natural graphite, 70 percent of cobalt, and almost 60 percent of lithium and manganese (IRENA 2023), and its share within all the manufacturing stages of solar panels exceeds 80 percent (IEA 2022). China may well use its strategic position in mineral supply chains as a weapon for its geopolitical interests. It responded already to the US' export controls on semiconductors with export restrictions of graphite (Carry et al. 2023).

Africa is well endowed with many of the raw materials the EU considers as critical. As shown in Table 1 for selected raw materials that are among others used in electrical vehicle batteries, South Africa and the Democratic Republic of Congo are the leading producers worldwide of Manganese and Cobalt, respectively, while African countries are also important suppliers of copper and graphite. With respect to Lithium and Nickel, where production on the continent is still fairly limited, countries like Gabon and Tanzania (Nickel) as well as Cote d'Ivoire and Morocco (Lithium) are heavily investing in exploration activities (IRENA 2023), and Zimbabwe has the fifth largest – still largely unexploited – Lithium reserves worldwide. Hence, there is considerable scope for the EU to include Africa in its strategy to diversify the sourcing of critical raw materials.

Table 1
Production Shares of Selected Raw Materials, 2022

Copper	Manganese	Nickel	Cobalt	Lithium	Graphite
Chile	South Africa	Indonesia	Democratic Republic of the Congo	Australia	China
Peru	Gabon	Philippines	Indonesia	Chile	Mozambique
Democratic Republic of the Congo	Australia	Russian Federation	Russian Federation	China	Madagascar
China	China	France	Australia	Argentina	Brazil
United States	Ghana	Australia	Canada	Brazil	Others
Russian Federation	India	Canada	Cuba	Others	
Indonesia	Brazil	China	Philippines		
Australia	Ukraine	Brazil	Others		
Zambia	Côte d'Ivoire	Others			
Mexico	Malaysia				
Kazakhstan	Others				
Canada					
Poland					
Others					

Note: Adapted from IRENA (2023)

Would Africa benefit?

While African leaders would most likely welcome additional demand for their raw materials, the expected welfare effects of such a shift in supply chains towards Africa are far from ensured. Africa is arguably the continent that suffers most from the natural resource curse, i. e. the paradox that countries richly endowed with raw materials tend to have lower GDP per capita and worse development outcomes than countries with fewer natural resources (Henri 2019). Africa's main oil-producing countries – Angola and Nigeria – are prominent cases in point. The main driver behind the resource curse is a lack of institutions such as government accountability that are strong enough to enable a growth-enhancing investment of the resource rents rather than their capture (Hodler et al. 2023; Mehlum et al. 2006), and institutions are (too) weak in almost all African countries with sizeable resource endowments.² Linked to the resource curse is the so-called “Dutch Disease”, the economic phenomenon by which booming extractive industries crowd out tradable sectors such as manufacturing and export-oriented agriculture. With its dramatic decline in agricultural exports when oil revenues expanded, Nigeria is again a telling example (Struthers 1990).

To avoid a repetition of the previous negative experience with resource booms in Africa, there are initiatives underway to go beyond crude raw material extraction, both from the African and the European side. The African Union, for example, is currently working on a critical minerals strategy to help resource-rich African countries advance industrial upgrading and integration into battery and electrical vehicle value chains (Carry et al. 2023). Within the Global Gateway framework launched in 2021 as a counterweight to China's Belt and Road initiative, the EU supports similar endeavors. It already signed agreements with both Argentina and Chile in 2023 to secure access to crucial lithium resources. In return, the EU committed to assisting with the development of competitive and sustainable processing facilities as well as local value addition in the mining sector. Along the same lines, the EU is negotiating with several African countries, including the Democratic Republic of Congo, Namibia, and Zambia (Fernandez-Stark and Bember 2023). It has to be noted that the EU has set itself a goal of processing at least 40 percent of materials internally in the Critical Raw Materials Act (European Commission 2023), but that still leaves considerable room for supporting value creation in Africa.

Value can be created through downstream and upstream linkages to the raw materials sector. The former mostly involves processing and refining of minerals in smelters and refineries. However, the operation of the smelters and refineries

² Among the resource-rich countries in Africa, Botswana's management of diamond receipts is the only major exception, where the government succeeded in implementing the right growth-promotion policies and ensuring that strong and inclusive institutions are in place (Acemoglu et al. 2002).

is both capital- and energy-intensive and has been shown to generate very low profit margins (Carry et al. 2023). Significantly higher profit shares are generated at the next stage of the value chain, in product manufacturing, for example through the production of batteries or battery components. As concerns backward linkages, local suppliers tend to create more jobs and are often well-positioned to develop solutions that are tailored to context-specific mining conditions (ibid.).

Most of the plans to increase the domestic value-added share of critical raw materials in Africa are currently far from being implemented. A number of prerequisites have to be in place, including a skilled labor force, the necessary technology and know-how, an adequate power supply, a reliable infrastructure and stable institutions that render longer-term engagement of multinational enterprises viable. Most African countries fall short of these prerequisites. For instance, according to Transparency International's corruption perception index only four small African economies (Botswana, Cape Verde, Rwanda, Seychelles) are ranked among the 50 least corrupt countries in 2023 (Transparency International 2024). Most African nations also lack the requisite connectivity between mining sites, processing facilities and export hubs (Karkare and Medinilla 2023). If properly implemented, the African Continental Free Trade Area (AfCFTA) agreement, which entered into force in 2019 and has been signed by all African countries except Eritrea (Hinz et al. 2022), could alleviate some of the existing impediments. It explicitly aims at removing Non-Tariff Barriers (NTBs) such as long waiting hours at borders and bottlenecks in physical infrastructure including power grids.³ The AfCFTA could also render foreign investment more attractive by overcoming the fragmentation of markets in Africa, and it could facilitate the establishment of regional value chains such as the envisioned electrical vehicle battery cluster in the Southern African Development Community (Foli 2020).

3. Importing Clothes from Africa

Despite its recent shift towards technologically more sophisticated products, China is still a dominant player in the textile and clothing industry. In 2023, it accounted for 42 and 32 percent of world textile and clothing exports, respectively, being by far the largest supplier worldwide (UN Comtrade). The EU, in turn, sourced 34 and 28 percent of its textile and clothing imports from China, respectively. As shown in Figure 1, when compared to China, all African coun-

³ Simulations using a gravity-type trade model developed at the Kiel Institute for the World Economy show that a reduction of the NTBs (cost of doing business; transport cost etc.) by 10 percent within the AfCFTA could raise aggregate real production in Africa by almost 30 percent, while tariff reductions (tariffs are already low) would hardly increase welfare on the continent (Hinz et al. 2022).

tries taken together are currently only of little importance for the European market. Two further issues can be discerned from Figure 1. First, Africa’s weight is considerably stronger in clothing than in textiles. This is in accordance with Africa’s comparative advantage given that producing clothes is significantly more labor-intensive than producing textiles. Second, its clothing exports to the EU have slightly risen over time while China’s have fallen; the opposite is true for textiles. This can be regarded as a very rough first indication that Africa might have benefited from China slowly abandoning the labor-intensive clothing sector in response to rising wage costs.

While China retains its position as the world’s leading exporter despite rapidly rising wages, clothing sector investments have recently been shifted to Asian low-wage economies, such as Vietnam and Bangladesh. By contrast, a massive relocation of clothing production capacities to Africa is not yet happening. Altenburg et al. (2020) compare wages and labor productivity of six major Sub-Saharan African (SSA) clothing exporters (Ethiopia, Madagascar, Ghana, Kenya, Mauritius, and Tanzania) to Asian counterparts (China, Bangladesh, and Vietnam) and three Mediterranean countries (Morocco, Portugal, and Turkey) that are supposed to hold most promise as nearshoring locations that serve the Eu-

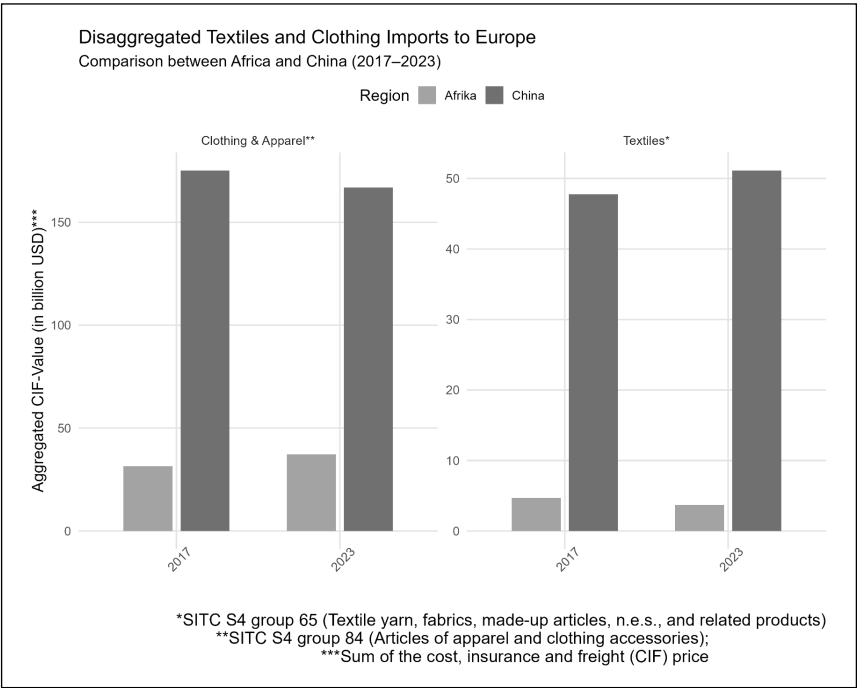


Figure 1: EU Textile and Clothing Imports from China and Africa, 2017 and 2023

ropean market EU. It turns out that wage differentials are enormous, with China having a minimum wage level 10 times higher than Ethiopia. Among the SSA countries covered, only Mauritius – one of the few upper-middle income countries in Africa – gets close to the wages paid in China. Low wages correspond to low labor productivity in the poorer SSA countries. Still, Ethiopia and Ghana are more attractive locations in terms of unit labor costs than China, Bangladesh, Vietnam, Morocco, and Portugal, whereas Madagascar and Kenya are less attractive.

Unit labor costs are of course not the only determinant of a country's competitiveness. Analogous to the case of raw material processing, African countries typically exhibit high cost of doing business in other dimensions, for instance due to weak trade and transport infrastructure and inefficient bureaucracies. The World Bank's logistics performance index, for example, puts Turkey, Portugal and Vietnam well ahead of Ethiopia, Ghana, Madagascar and Tanzania in terms of trade and transport costs (World Bank 2024). The net effect on competitiveness is hard to gauge, but in most cases low labor productivity and high costs of doing business are likely to offset any wage advantages.

One African country for which this might not apply is Ethiopia (Ceglowski et al. 2018). The country has attracted a broad set of global investors, mainly from Asian countries such as China and India, through building several clothing-specific industrial parks (Khurana 2018). In these parks, investors are offered various financial incentives, cheap water and electricity as well as a reliable infrastructure. The government also encourages linkages between clothing, textile and agriculture by promoting the use of local cotton (Altenburg et al. 2020). Nevertheless, Ethiopia's textile industry depends heavily on foreign cotton and other materials, which raises production costs and erodes potential advantages. Madagascar constitutes another interesting case of an African country that plays a significant role in the clothing industry. It has been the leading African clothing exporter to the EU since 2017 (UN Comtrade) despite very low labor productivity and weak institutions. This is because Mauritius, the neighboring country, has shifted most of its clothing industry to Madagascar in response to steadily rising wages along its development path (Altenburg et al. 2020). Mauritian firms have kept their more capital- and energy-intensive fabric mills in Mauritius (and export fabric to their clothing assembly factories in Madagascar), among other things to escape unreliable water and electricity supply in their host country.

4. Concluding Remarks

In this paper, we have discussed Africa's potential to benefit from the EU's strategy to reduce its dependence from China by diversifying its supply chains, focusing on critical raw materials and the textile and clothing industry. While

any nearshoring to Africa cannot yet be observed in the data, it appears plausible that the EU will increasingly source critical raw materials from Africa where many of them are in abundant supply.

A sizeable shift of European value chains towards sourcing from African countries and at the same time establishing manufacturing capacities in Africa will require that the continent becomes more attractive for foreign direct investment. This in turn will depend on appropriate framework conditions, including a reliable infrastructure, a well-trained workforce, and stable institutions. There are a number of successful examples such as the clothing industry in Ethiopia, wind and solar parks in Morocco and Egypt, automobile assembly lines in Morocco, and vaccine production facilities in Rwanda and Senegal, which all were made possible by a comparably favorable local business environment. Other African countries still have a long way to go but can build on these examples.

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