

Agarwal, Prachi; Abudu, Derrick; Calabrese, Linda; Chukwurah, Ogoegbunam

Research Report

The automotive sector in Nigeria: Opportunities under the AfCFTA

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Research Report

The automotive sector in Nigeria: Opportunities under the AfCFTA

Prachi Agarwal, Derrick Abudu, Linda Calabrese, and
Ogoegbunam Chukwurah

April 2023

Supporting Investment and Trade in Africa (SITA)



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Acronyms

AfCFTA	African Continental Free Trade Area
CBN	Central Bank of Nigeria
CBU	completely built unit
CKD	completely knocked down
EV	electrical vehicle
FBU	fully built unit
FDI	foreign direct investment
GVC	global value chain
ICE	internal combustion engine
NADDC	National Automotive Design and Development Council
NAIDP	Nigerian Automotive Industry Development Plan
NEPC	Nigerian Export Promotion Council
OEM	original equipment manufacturer
RCA	revealed comparative advantage
RVC	regional value chain
SKD	semi-knocked down

Executive summary

The automotive industry in Nigeria is one of the country's most promising sectors due to its growing domestic market size. The large continental market offered by the African Continental Free Trade Area (AfCFTA) is also likely to present an opportunity for the industry. The Nigerian auto industry gained prominence in the 1970s and 1980, with a production capacity of 149,000 units a year, but was constrained by the high cost of domestic production and weak demand amid economic problems, currency volatility and the end of the commodity boom.

Today, despite having a vehicle market size of 1,150,000 for new and used cars and a growing middle class, the country is a net importer of (mostly used) vehicles, and domestic production has been in declining. In 2021, imports of vehicles reached around \$2.3 billion, with 60% being passenger cars. Nigeria is also a significant net importer of automotive components, sourced mainly from China and South Africa. To reverse this trend, the Nigerian government sought to revive the industry and enhance its competitiveness through the National Automotive Industry Development Plan (NAIDP – 2014). In 2019 alone, the country's automotive industry saw \$1 billion in investment due to the introduction of the NAIDP 2014.

Owing to the current limited disposable income of the average Nigerian, the acute need for public transport, and limited access to car finance, imported used cars can still be critical for the living standards of most low-income Nigerians. However, it is estimated that 20-30 million low-income Nigerians depend on motorcycles as a means of transport and may not be affected by reduced imports of used cars. Therefore, an outright ban, and the imposition of high tariffs on certain imported used cars (especially old and accidented) could be a productive policy move to spur growth in the local industry. Although it may affect domestic prices for cars, the impact on poverty is expected to be minimal.

In 2021, Nigeria imported about \$680 million worth of motorcycles, indicating a high demand for two-wheelers which have a relatively low cost of production and unit price, and can be crucial for the development of the Nigerian industry as well as, providing mobility to Nigerians that were dependent on imported used cars. Moreover, the recent domestic and external market demand for electric vehicles (EVs) could offer opportunities to the Nigerian auto industry to produce electric or hybrid cars and two-wheelers.

Scale is a critical element of the success of the automotive industry, and estimates suggest that modern assembly plants have a minimum efficient scale of at least 100,000 vehicles a year. It may not be possible for Nigeria to produce complete vehicles and parts domestically on this scale yet. The AfCFTA will then be critical for Nigerian automotive manufacturers wanting to integrate into regional value chains to produce specialised products along the value chain. In the future, the Nigerian and the overall African market size is likely to increase, and the local industry may have enough demand to develop economies of scale.

At present, Nigeria's exports tractors, trailers, semi-trailers, and new pneumatic tyres to the African markets. This export experience could help exporters enter other critical supplier networks in the sector. Additionally, the Nigerian automotive industry could witness an increase in inflows of market-seeking foreign investors under the AfCFTA. The results of a simulation analysis undertaken in this study show that the investment of 222.5 billion naira (about \$500 million), will lead to an increase in industrial output by 467.7 billion naira due to the direct impact on the machinery, equipment, and vehicles industry as well as the indirect and multiplier effect on other associated industries. This investment could also raise labour compensations by 77.5 billion naira.

To fully appreciate the opportunities that AfCFTA offers, specific interventions will be required to reduce or eliminate constraints affecting the growth of the domestic automotive industry. Some other actionable policy recommendations for the government include:

- **Facilitating exports** by easing export constraints, eliminating cumbersome export procedures, creating industrial parks, providing export-related training, and establishing an export fund
- **Impose bans on imports of used cars**, especially old and accidented cars, introduce high standards for used cars, increase import tariffs on used vehicles
- **Increase local production** by reviewing the fiscal incentives for CKD production, introducing new vehicle funding schemes, and developing the production of spare parts to service imported used cars
- **Provide production incentives** by reducing taxes on machinery and equipment imports, establishing standards for automotive components, and enabling sectoral linkages with rubber, leather producers
- **Reduce the cost of production**, especially electricity tariffs, and improved infrastructure (roads, transport, water, port access, waste management)
- **Promote innovation and skill development by creating a** skill development roadmap, integrating industry requirements

with university curriculum, setting up innovation and research fund, and providing training workshops to MSMEs

This will require collaborative efforts by the Nigerian Customs Service, Federal Ministry of Commerce and Tourism, Standards Organisation of Nigeria, Nigerian Export Promotion Council, and the Federal Ministry of Power, and other stakeholders, including auto producers and assemblers in Nigeria.

The government can also **align its industrial and trade policy to the AfCFTA** to benefit from the large continental market, scope for regional value chains, and increased investments. This would require the following interventions:

- **Support greater volumes of exports** of existing product lines (trailers, semi-trailers, and pneumatic tyres) to utilise production capacity and develop economies of scale.
- **Improve the investment climate** to attract foreign investors in large assembly and manufacturing plants resulting from greater continental demand.
- Promote the movement **from SKD to CKD assembly** given increased demand under the AfCFTA.
- **Encourage exports of intermediate and ancillary products** in which Nigeria may already have a comparative advantage (self-propelled and pedestal job cranes, winches and capstans, and spark-ignition engines), or associated products (pulley tackle and hoists, tractors, and seats for automobiles).
- **Engage with large producers of raw materials** (lithium, aluminium and rubber) on the continent to insert itself in to upstream supplier network and produce intermediate products for export.

The automotive industry is a contributor to industrial development in many African countries and has the potential to lift millions out of poverty. It is especially crucial for Nigeria's economic transformation. Growth and development of the automotive industry is likely to have spill over gains in ancillary industries in the economy. Recognising the poverty, climate and development-related aspects of such industrialisation, Nigeria has an opportunity to work towards achieving sustainable development in its automotive industry under the AfCFTA.

1 Introduction

1.1 Background and introduction

The automotive industry has been a steppingstone towards industrial development in many countries, and yet Africa lags behind in developing this sector. Apart from South Africa and Morocco, and to a lesser extent Algeria and Egypt, the African automotive market is largely catered for by imports (Ugwueze et al., 2020; Agarwal et al., 2022). The African market is small and fragmented across 50 economies, making it unattractive to investors in a sector where the optimal scale is very large. Yet, the sector shows promising signs of growth: the automotive industry on the continent in 2021 was valued at \$30.44 billion and predicted to grow to \$42.06 billion by 2027 (Agarwal et al., 2022). There is a large and rapidly growing middle-class in many countries. Integration at the regional and now continental level is consolidating the small markets into larger ones (Barnes et al., 2021). The African Continental Free Trade Area (AfCFTA), and particularly the principle of cumulation that defines the product-specific rules of origin, offer the chance not only to export to other African markets, but also to form regional value chains (RVCs) that would allow for greater integration among producers.

This is crucial for economic transformation in Nigeria. The Nigerian government aims to take advantage of the opportunities presented by the AfCFTA to develop the automotive industry in the country, with a view to growing the supply of components and fully built vehicles to domestic and African markets. Nigeria's National Implementation Plan for AfCFTA aims to increase the production of vehicles to 200,000 annually over a period of five years.

This report assesses the status of the sector in Nigeria and assesses how it can achieve its objective. Interviews were conducted with the private sector, including assemblers and component manufacturers in Nigeria, to understand their needs in achieving this national automotive goal. The following subsection reviews the literature on the automotive sector in Nigeria.

1.2 The development of the Nigerian automotive industry

Nigeria's history of automotive production dates to the 1960s, when private companies¹ started producing in the country. In the 1970s and

¹ This includes foreign firms and local firms building under license.

1980s, foreign (mainly European) companies started producing vehicles cars, minibuses, trucks, and tractors in state-owned plants, financed through oil revenues (JICA, 2015; Ugwueze et al., 2020). The industry faced several issues, including limited technology and knowledge transfer from foreign firms to local manufacturers, and limited use of domestic inputs due to high costs and low quality of local components (JICA, 2015). Nevertheless, it was the basis for the development of the automotive industry in the country.

In addition to internal challenges, the industry was hit by the Structural Adjustment Programme imposed on Nigeria by the International Monetary Fund in 1986. The devaluation of the naira, deregulation and decreased import tariffs eroded profits of domestic producers and opened the market to foreign competition (JICA, 2015). As a result, capacity utilisation dropped from 90% in 1986 to 10% in 1990 (Ugwueze et al., 2020).

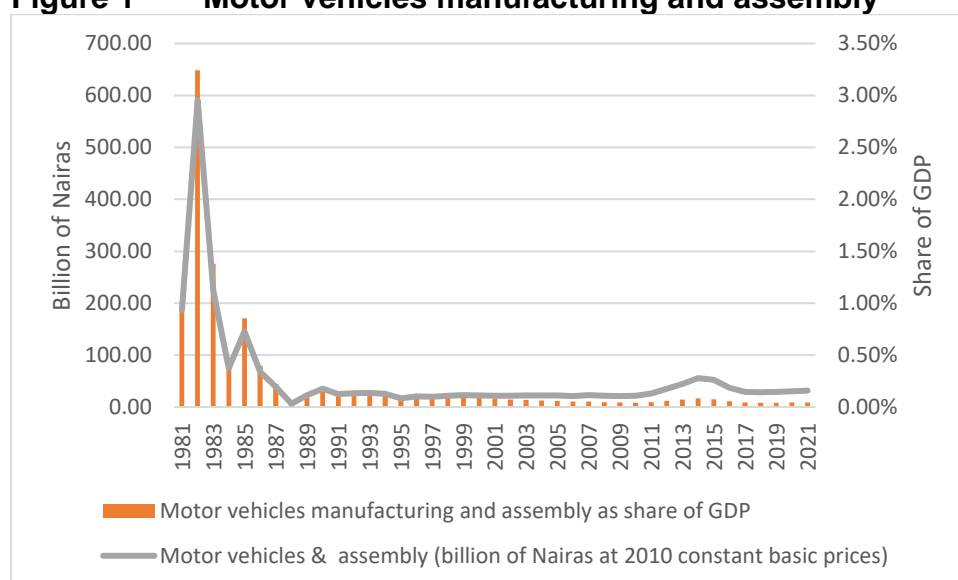
In the following years, the Nigerian government tried to revive and support the sector, first through the National Automotive Policy in 1993, then through the creation of the National Automotive Council (NAC) of Nigeria, and later through the Nigerian Automotive Industry Development Plan (NAIDP), gazetted in 2014 (JICA, 2015). But inconsistent policies, with successive rounds of liberalisation and nationalisation, discouraged investment, harming the development of the sector (JICA, 2015). As a result, the Federal Ministry of Industry, Trade and Investment initiated a review in 2022, the outcome of which is yet to be made public.

The NAIDP was designed around five key pillars aimed at supporting the entry of original equipment manufacturers (OEMs). The first was to establish critical automotive clusters and component supplier parks which would serve to agglomerate technical skills and facilitate knowledge sharing to improve productivity and competitiveness. The second pillar addressed skills development to grow indigenous competence and fill low and mid-level roles; this was to be accomplished through the development of curricula and the establishment of automotive design centres to develop manpower to maintain, repair, design, develop and operate automotive technologies. The third pillar concerned standards to assure component manufacturers and assemblers would build to the specification of the global industry. The fourth pillar, investment promotion, sought to actively court OEMs with a suite of fiscal incentives and the assurance of legislation to underpin and provide safety for investment decisions over the long term. The fifth pillar sought to incentivise offtake and the growth of the domestic used market with a credit purchase scheme and an aftermarket development programme. The aftermarket development programme required assemblers to build service centres, train service personnel, and make sufficient provision to ensure access to service parts, creating opportunities for economic engagement.

Tariffs were set at 70% for built-up cars, consisting of a 35% duty and a 35% levy. Local assembly operations were allowed to import cars without the levy and require minimal initial investments as vehicles could be assembled on a semi knocked down (SKD) basis for five years before moving to completely knocked down (CKD) production by the end of 2019 (National Automotive Council, 2014).

The decline of the sector following structural adjustment policies is evident from Figure 1. While motor vehicles manufacturing and assembly has never been a large part of the Nigerian economy, peaking at 3.2% as a share of GDP in the early 1980s, in recent years the industry has declined even further. In the period 2010–2021, the industry’s average contribution to GDP has been only 0.05%. Reliable data on employment in motor vehicle manufacturing is scarce, but according to interviews with the Nigerian Association of Manufacturers, around 1.6 million Nigerians worked in the manufacturing sector in 2022, of which motor vehicle assembly is only a small part. For instance, in 2021, manufacturing contributed to 9% of Nigerian GDP, while motor vehicle assembly was 0.04%.

Figure 1 Motor vehicles manufacturing and assembly



Note: data for 2018-2021 are estimates.

Source: Central Bank of Nigeria GDP statistics

Currently, the industry spans three clusters: Lagos-Ogun-Oyo, Kaduna-Kano, and Enugu-Anambra (JICA, 2015). A recent study identified 35 companies operating in the sector, of which six were former government-owned, later privatised assembly plants; 12 were private manufacturers; and 17 were licensed manufacturers at various stages of development (Ugwueze et al., 2020). However, in 2019, the National Automotive Design and Development Council (NADDCC) revealed that only nine assemblers were active. The combined annual production of these companies amounts to 143,395 vehicles (with an installed capacity of a little over 200,000 vehicles), not enough to satisfy the local demand. Apart from one company,

Innoson Vehicles Manufacturing (IVM), which assembles CKD kits, other foreign-owned manufacturers import SKDs and fully built units (FBUs) from their parent companies (Ugwueze et al., 2020).²

The industry faces several challenges, which can be grouped as follows (JICA, 2015; Ugwueze et al., 2020):

- Business environment challenges
 - Limited skills availability, especially for the more sophisticated technical, maintenance and engineering tasks.
 - Limited domestic suppliers of inputs, in particular rubber, iron, and steel, which hampers the integration of local content.
 - Limited opportunity to attract component manufacturing OEMs to set up in Nigeria due to small volumes and with cheap imports from abroad still finding their way into the market.
 - Absence of an integrated automotive industry, with most assemblers importing over 70% of inputs from outside Nigeria, exerting unsustainable pressure on forex reserves.
 - Limited access to foreign exchange at the official window – 60% premium in alternative markets.
 - A depreciating exchange rate and limited opportunities to hedge forex risk discourage new investment.
 - Inefficient administrative processes at the ports negatively impact JIT manufacturing, increasing average cost and time for assembly plants.
- Market challenges
 - Limited income of the middle class. Data for 2011 show that the average monthly income of the Nigerian middle class was 75,000–100,000 naira. At a fluctuating exchange rate, this was equivalent to \$463–617 in 2013, and \$204–272 in 2019 (Ugwueze et al., 2020). This income makes it difficult to access new vehicles.
 - Competition with used car (*tokunbo*) imports. A study on the Nigerian car market reports that the ratio of new to used cars in Nigeria is of 1:134. The study also reports that in 2014, 410,000 cars were imported into the country, of which 74% were used cars (PWC, 2016).
 - Poor perception of locally made commercial vehicles, which makes used cars more desirable in comparison. As noted in one study, ‘most commercial transport operators in Nigeria

² There are various ways in which auto and moto vehicles are manufactured and traded or imported. Completely built units (CBU) and fully built units (FBU) are imported ‘finished’ vehicles. Semi knocked down (SKD) are working finished vehicles, subsequently knocked down into a very limited number of parts for shipping. Completely knocked down (CKD) packs are imported and consist of most (or all) parts required. They are then assembled in a CKD plant. This would normally involve welding body panels, painting, and then final assembly. These types normally differ for the import duties they attract, which drives the decision to import FBUs, SKDs or CKDs.

believe that locally manufactured vehicles are not robust enough for Nigerian roads' (Ugwueze et al., 2020: 120).

- Cumbersome administrative processes increase time and cost to clear goods through the ports, reducing the competitiveness of locally produced units in the market.

Weak effective demand for new made in Nigeria vehicles due to the absence of a consumer finance programme.

- Low-capacity utilisation.
- Limited sources of Africa market intelligence to guide business decisions by industry players.
- Limited adoption of EVs because of the weak infrastructure to support widespread adoption (energy availability, charging stations, etc.).
- Policy challenges
 - Unclear or volatile government policies. For the critical pillar of investment promotion, the potential of the NAIDP has yet to be fully realised. Despite attracting new investments into the industry that grew installed capacity to 400,000 units a year, actual production amounted to less than 11,000 units in 2021. In the same period, the country imported a larger quantity of used units, showing its continued dependence on cheap used imports. Despite efforts to promote the sector, the private sector feels that the government has not offered sufficient support to domestic manufacturers. For instance, the proposed policy backing the NAIDP has yet to receive legislative approval, a decade after the plan was introduced. Furthermore, investors lamented that the initial protection afforded by steep tariffs on imports has not been enough to shield the sector from external competition (JICA, 2015). Respondents canvassed through the interviews also complained about the inconsistency of recent fiscal policy pronouncements, specifically the Finance Act 2020, which effectively eroded the protection assemblers previously enjoyed by reducing the import levies on vehicles from 30% to 5%.
- Infrastructure challenges
 - Absence of adequate public infrastructure, such as charging stations to support EV adoption.
 - High energy costs and unstable power supply.

1.3 Scope of this report

This report aims to understand the status of the Nigerian automotive sector and its potential to benefit from the AfCFTA. It outlines the impacts of the AfCFTA Implementation Plan in Nigeria and identifies

the policies required to support the development of the sector. In particular, it aims to assess the instruments and provisions of the AfCFTA that can facilitate the objectives of the plan, as well as to indicate additional areas of support.

This report is structured as follows. The following section analyses the status of the production and supply chain of the automotive sector, based on primary and secondary data. Section 3 considers the scope for RVCs to develop the sector in the context of the AfCFTA. Sections 4 and 5 consider the impact of the development of the sector, looking at multiplier effects and sustainability of the industry. Section 6 concludes and provides policy recommendations.

2 Industrial assessment

2.1 Production structure of the automotive sector

2.1.1 The significance of the automotive industry

The automotive industry in Nigeria started to gain prominence in the 1970s and 1980s when the country had joint agreements with six international companies (Peugeot, Volkswagen, Leyland, Mercedes-Benz, National Trucks and Steyr), which had an estimated installed production capacity of 149,000 units per annum.³ However, partly due to the high domestic cost of production, declining domestic demand, and the end of the commodity cycle boom, the industry lost some of its (foreign) manufacturers.

The industry is currently of limited significance, accounting for just 0.04% of GDP,⁴ and it employs fewer people compared with its peers, like South Africa and Morocco. However, the industry's recent improved growth performance hints at a potentially sustainable recovery from the decline that set in in the mid-1980s⁵. Nigeria currently has 33 licensed assembly plants (mostly SKD) and an installed capacity of 400,000, and three auto component test laboratories. In 2019, the country's automotive industry saw \$1 billion in investment geared towards acquiring old assembly plants and new assembly lines and establishing new dealerships.

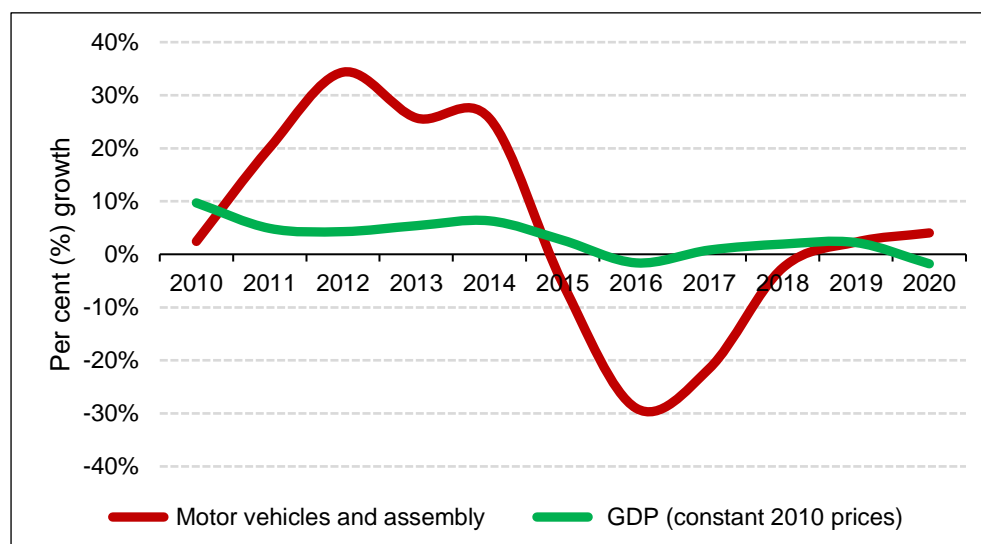
Figure 2 Performance of Nigeria's motor vehicles and assembly industry, 2010–2020

³

See www2.deloitte.com/content/dam/Deloitte/za/Documents/Consumer_Industrial_Products/ZA_Deloitte_Nigeria_Country_Report_Automotive_Insights_2018.pdf

⁴ See <https://nigerianstat.gov.ng/elibrary>.

⁵ MAN AfCFTA report

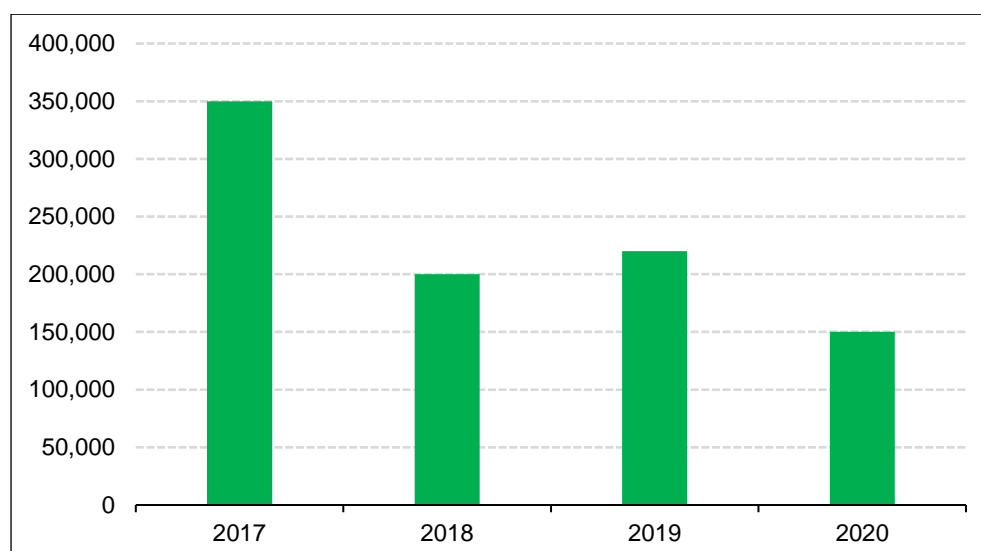


Source: Own calculations using data from the National Bureau of Statistics, Nigeria

2.1.2 Vehicle production

Nigeria's local vehicle assembling exhibits a declining trend as assembled units fell from 350,000 in 2017 to 150,000 in 2020 (Figure 3). In comparison, in 2021, South Africa, which engages in full manufacturing of vehicles rather than (SKD) assembling, produced 499,087 vehicles (OICA, 2021), a production level that dwarfs Nigeria's in recent times. The reduction in domestic production can partly be attributed to an increase in the cost of manufacturing and a slump in the value of the domestic currency, induced by a fall in international crude oil prices, one of the country's key exports, which weakens domestic demand (Agbo, 2020). This has resulted in a rise in demand for used foreign cars, representing more than 85% of annual imports (ibid). Nonetheless, the size of Nigeria's economy and population give the country the potential to establish itself as a formidable vehicle producer in Africa and globally.

Figure 3 Total local production of vehicles in Nigeria



Source: Own analysis using information from NADDC

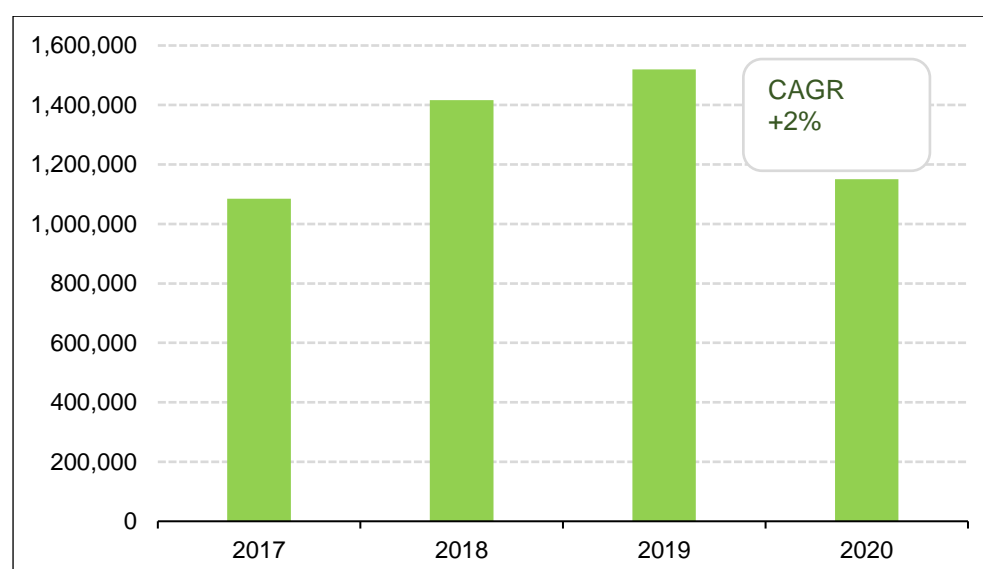
2.1.3 Market

Nigeria has a vehicle population of 11.8 million units, with an estimated annual vehicular demand of 100,000 new cars as of 2012 (National Automotive Council, 2014). The end of the commodity boom constrained domestic sales in the mid-2010s, but demand for new and used vehicles has since recovered and stood at 1,150,000 in 2020 according to the information collected from the interviewed collected as part of this report.

In 2020, the Nigerian automotive parts market stood at \$4.1 billion, with filters, brake pads, engine oil and spark plugs accounting for the largest share – \$1.89 billion.⁶ These trends and the size of the country's middle class, estimated at 38 million and growing, offer opportunities for enhancing the size and competitiveness of the domestic automotive industry.

Figure 4 Total market size

⁶ <https://www.oica.net/category/production-statistics/2021-statistics/>



Note: Total market size includes used imports, new imports, and local production.

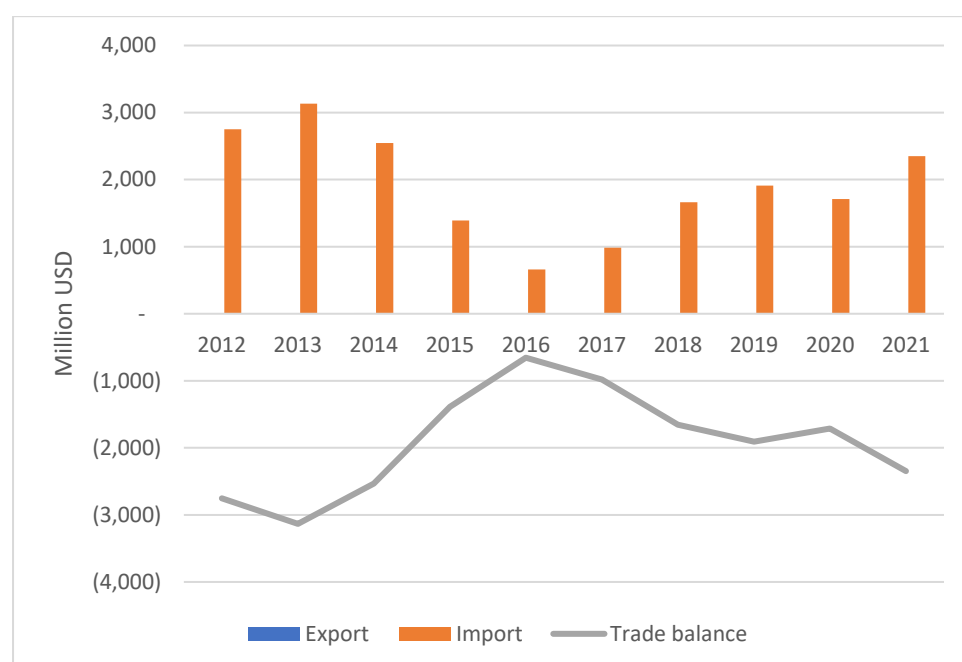
Source: Own analysis using information from Deloitte, NADDC

2.2 Supply chain components and linkages

This subsection considers the state of the automotive supply chain in Nigeria, discussing the trade in components and the linkages, both globally and in Africa, to understand the opportunities for creating RVCs. Before looking at the components, however, we consider trade in completely built units (CBUs or FBUs).

Nigeria imports vehicles (including motorcycles) while exporting a negligible amount of the same. Figure 5 below shows that in 2021 imports reached around \$2.3 billion.

Figure 5 Nigeria's trade in finished auto products

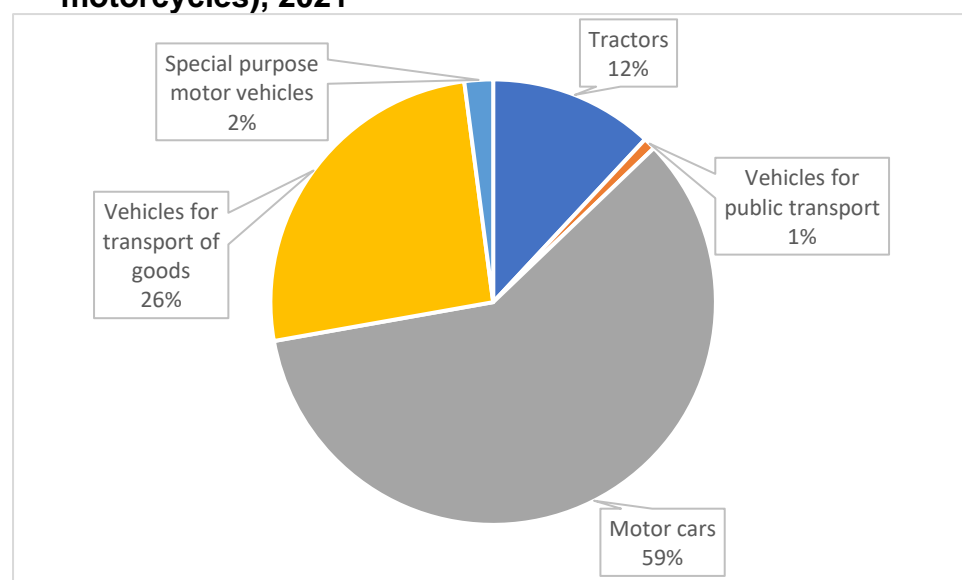


Note: Finished Products are those under HS-4 2012 codes 8701, 8702, 8703, 8704 and 8705. Data provided is mirror data collected from Nigeria's trade partners.

Source: authors elaboration on data extracted by WITS database.

Figure 6 presents the composition of imports. In 2021, 60% of imports were of passenger cars of various sizes, followed by vehicles for the transport of goods (26%).

Figure 6 Nigeria's imports of vehicles (excludes motorcycles), 2021



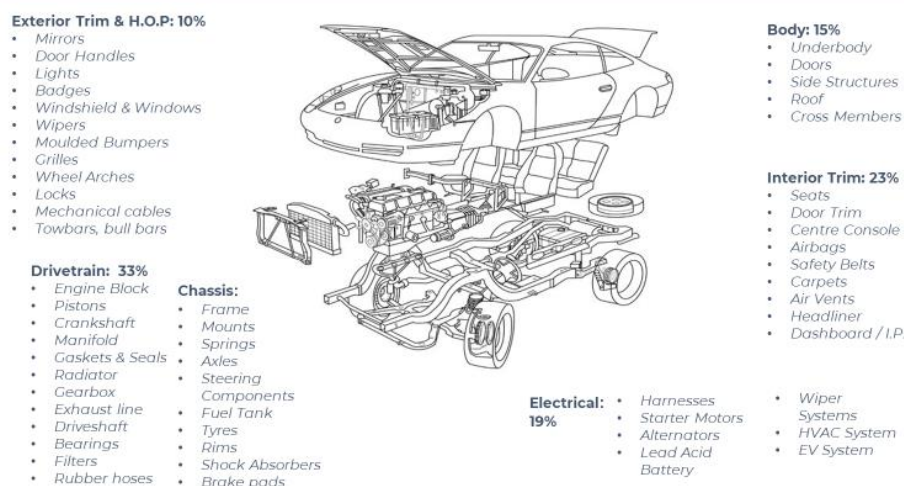
Note: Finished Products are those under HS-4 2012 codes 8701, 8702, 8703, 8704 and 8705. Data provided is mirror data collected from Nigeria's trade partners.

Source: authors elaboration on data extracted by WITS database.

For intermediate products (all the parts and components of vehicles, from engines to seats and from glass to tyres – see Figure 7), Nigeria imports a lot and exports very little (Figure 8).

Figure 7 Automotive component groups

Automotive Value Chain - Components



Source: African Association of Automotive Manufacturers

Imports peaked at \$2.3 billion in 2021, mainly destined for the aftermarket given Nigeria's limited local production, while exports are negligible. In the same year, the main imported components by value were parts and accessories of the motor (\$626 million), new rubber tyres (\$463 millions), insulated wire (\$293 million), electric accumulators (\$286 million) and centrifuges (\$252 million). A detailed breakdown is provided in Table A1 in the Appendix.

Figure 8 Nigeria's trade in intermediate products for the automotive sector



Note: Intermediate products are those under HS-4 2012 codes 3819, 3820, 4009, 4010, 4011, 4012, 4013, 4016, 6813, 7007, 7009, 7315, 7318, 7320, 8301, 8302, 8407, 8408, 8409, 8413, 8414, 8415, 8421, 8425, 8426, 8482, 8483, 8501, 8507, 8511, 8512, 8519, 8525, 8527, 8531, 8536, 8539, 8544, 8707, 8708, 8716, 9029, 9104, 9401. Data provided is mirror data collected from Nigeria's trade partners.

Source: authors elaboration on data extracted by WITS database.

To understand the automotive value chain in Nigeria, it is important to determine where the parts and components are imported from. Table A2 in the appendix shows the main exporters to Nigeria, both globally and within Africa. For all of the parts, the main source is outside Africa, with the overwhelming majority of parts imported from China. In terms of exporters from Africa, the most prominent is South Africa, followed by Zambia – but these imports are much lower than those from outside Africa. This suggests that, in the current conditions, there is limited scope for intra-African value chains for the automotive sector; however, that could change under a more favourable tariff regime.

Currently, Nigeria charges import tariffs on these imports. According to the WTO tariff database, tariffs range from 5% to 20% on these product lines, at an average of 13.1%. Components such as motors and pumps attract lower tariffs (5%) whereas seats, glass and air conditioning units attract tariffs of 20%. Nigeria only imports these goods tariff-free from the other ECOWAS countries.

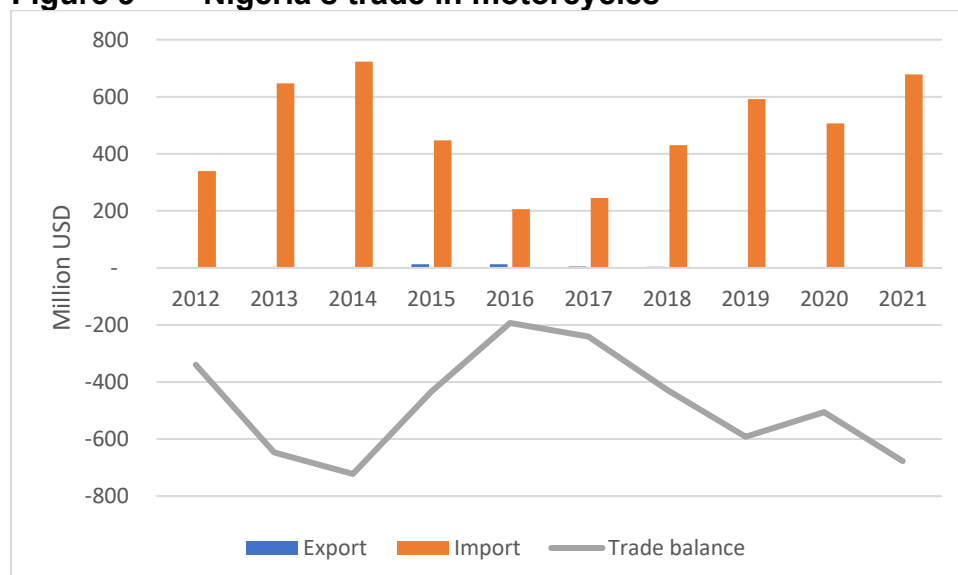
2.3 Scope for two-wheeler and motorcycle production

This section sheds light on an important subsector, motorcycle production. Producing motorcycles is different from producing automobiles for several reasons. First, motorcycles are smaller and simpler to produce than automobiles, providing an easier entry point into the vehicle assembly industry. Secondly, producing motorcycles has lower entry barriers in terms of finance and technology compared to automobiles. Thirdly, motorcycles are cheaper to purchase, and may therefore find a larger market in low-and middle-income countries, including Nigeria and its neighbours. Fourthly, local procurement is generally higher for motorcycle than automobile production, allowing for better domestic linkages (Ohara and Sato, 2008).

Motorcycles are an important subsector within the automotive industry in Nigeria. In 2015, Nigeria accounted for more than a quarter of all new motorcycles sales in Africa. In addition to personal use, two-wheelers are widely used as public means of transportation (*okadas*), as many motorcycle taxis operate in Nigerian cities. There are no official statistics on the number of *okadas* operating in Nigeria, but some estimate around 8 million (Akwagiyam, 2019), while it is estimated that around 25-30 million people depend on their services (JICA and Yamaha Motor Co. Ltd, 2022).

Trade figures shown in Figure 9 confirm the popularity of two-wheelers as a means of transport. Nigeria imports considerable numbers of motorcycles (worth \$680 million in 2021), and exports negligible quantities. In 2021, the source of motorcycle imports was India (63%) and China (37%).

Figure 9 Nigeria's trade in motorcycles



Note: data provided is mirror data collected from Nigeria's trade partners.

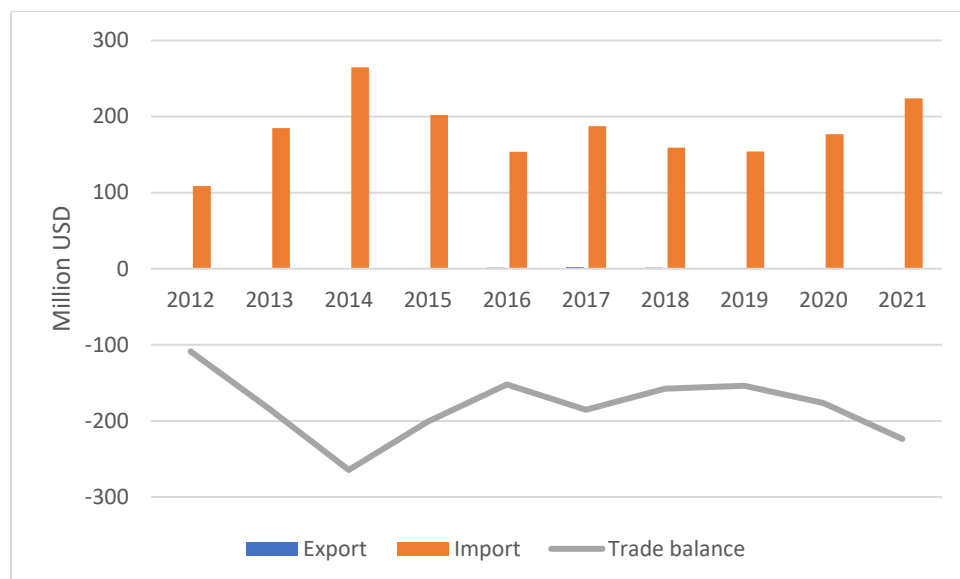
Source: authors elaboration on data extracted by WITS database.

Motorcycles remain popular despite the attempts of authorities to ban them or reduce their use. Earlier in 2022, the Lagos government banned the use of motorcycle taxis in several districts to reduce traffic accidents and crime (Salako, 2022), severely affecting imports (Tunji, 2022). The government is even considering a nationwide ban to discourage terrorist activities (Adenekan, 2022).

Regarding production, there is no clear information about the number of motorcycles produced domestically, and whether these are assembled from CKD/SKD kits or thoroughly assembled. A couple of firms (Frajend Investment Limited, Qingqi Motorcycle Manufacturing) report to be manufacturers, and there are also a few retailers and distributors of motorcycles produced abroad.

Figure 10 presents information about trade in parts and components of motorcycles. In 2021, imports reached \$224 million, while exports were again negligible.

Figure 10 Nigeria's trade in motorcycles parts and components



Note: Motorcycles parts and components are classified under HS 2012 code 8714.

Source: authors elaboration on data extracted by WITS database.

In terms of markets, in 2021 over 90% of these imports came from China. The first African exporter of motorcycle parts from Africa is South Africa, which in 2021 exported negligible amounts (worth only \$11,000) of parts to Nigeria. As discussed in section 2.2, these goods face import tariffs ranging from 5–20%.

3 Creating regional value chains

3.1 Main resource partners and products – possible linkages

3.1.1 Nigeria's automotives trade

Imports have fed Nigeria's recent automotive market expansion. As a result, the country has experienced a deterioration in its automotive trade, with its global and African exports declining by 62.8% and 68.9%, respectively, between 2015 and 2019. Consequently, the country's share of African automotive exports, which was 0.17% in 2015, stood at 0.002% in 2019. A recent study (Olney, 2022) revealed that trade agreements and better transport networks are the critical drivers of intra-African trade, implying that the AfCFTA could be used by Nigerian automotive manufacturers to increase their integration in regional and, subsequently, global value chains.

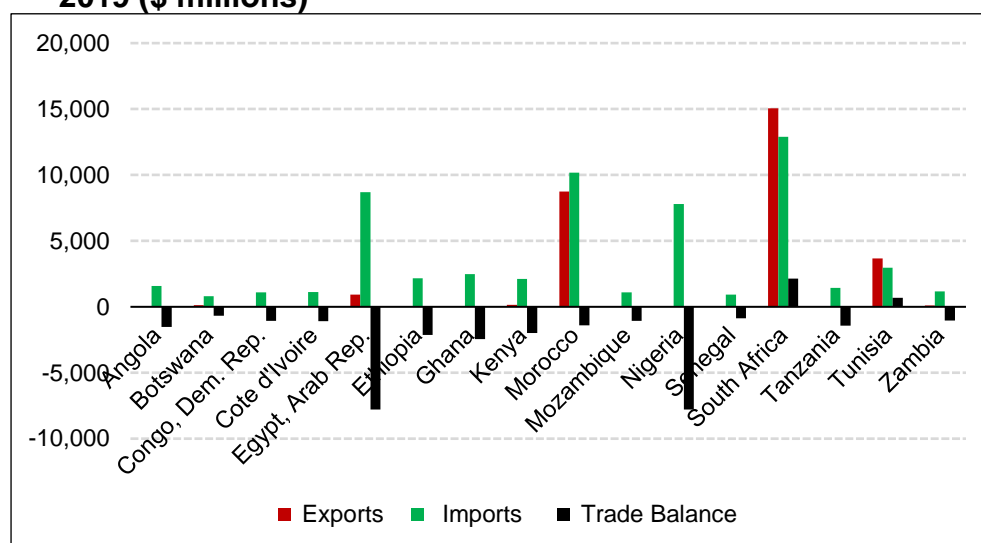
Table 1 Nigeria's automotives exports (\$ thousands)

		2015	2016	2017	2018	2019	CAGR: 2015-19
Total Exports	African	5,658,979	4,876,288	4,759,652	5,020,858	4,502,206	-5.56%
Nigeria's Exports	Global	41,793	483	2,784	7,381	794	-62.87%
Nigeria's Exports	African	9,677	145	795	145	89	-68.99%
Nigeria's Share of African Exports		0.171%	0.003%	0.017%	0.003%	0.002%	

Source: Own calculations using data from WITS, World Bank.

The deterioration in Nigeria's automotive trade is evident in its trade balance. Using 2019 as a case, Nigeria recorded the worse trade balance compared to a sample of African nations, most of which are significant automotive markets in Africa.

Figure 11 Automotives trade in selected African countries, 2019 (\$ millions)

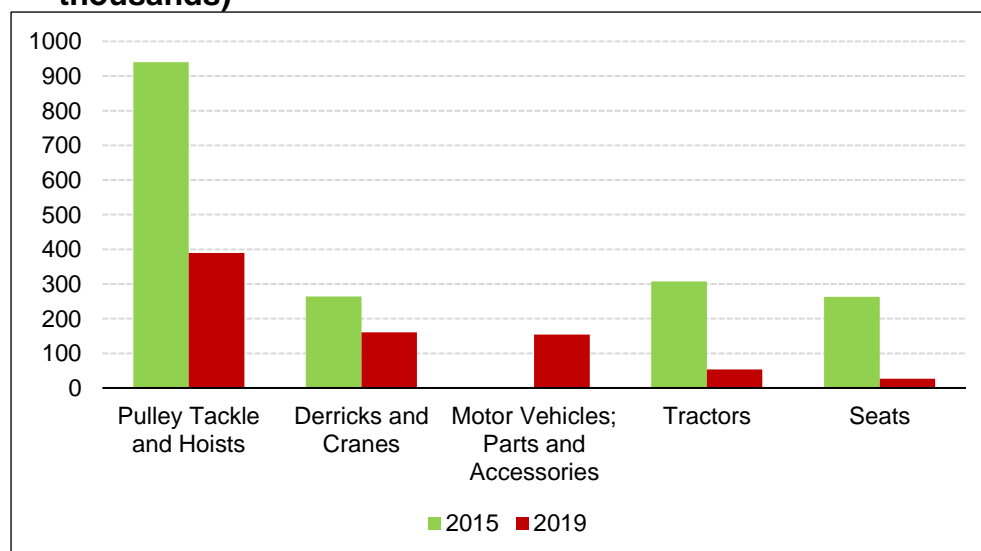


Source: Own calculations using data from WITS, World Bank.

3.1.2 Top traded products and main trading partners

Nigeria's automotive exports are negligible and consist primarily of intermediate products. Apart from motor vehicle parts and accessories, export values of all the country's other top products declined between 2015 and 2019 (Figure 12).

Figure 12 Nigeria's top automotives export products (\$ thousands)



Source: Own calculations using data from WITS, World Bank.

Nigeria's top exports to the African region present a slightly different picture from its global one. In addition to tractors, the country exports trailers, semi-trailers and new pneumatic tyres, all of which are higher-value in-demand automotive products. Moreover, the country's exports are destined for markets in nearly all corners of the African region, indicating that it already has established producers

acquainted with market conditions (e.g., consumer preferences) in most parts of the continent. RVCs have been found to be a crucial conduit for increasing the complexity of exports to foster higher integration into global value chains (GVCs) (Del Prete et al., 2017; Obasaju et al., 2021). To this end, the AfCFTA could be an immense opportunity for Nigerian automotive manufacturers to upgrade from intermediate automotive products to finished ones and from RVCs to GVCs (Abreha et al., 2021).

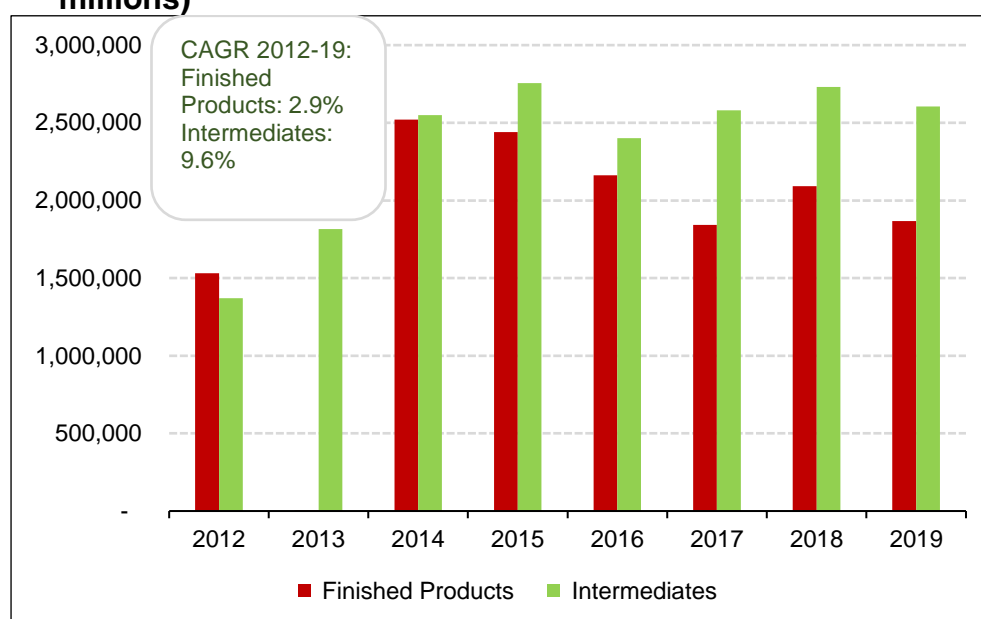
Table 2 Nigeria's main exports and imports and partners in Africa

Year	Exports	Main product	Export	Imports	Main product	Import
2015	Ghana	Pumps		South Africa	Vehicles for the transport of goods	
2016	Cote d'Ivoire	Seats		South Africa	Transmission apparatus	
2017	Ethiopia	Trailers and semi-trailers		South Africa	Pumps	
2018	South Africa	New pneumatic tyres		South Africa	Pumps	
2019	Ghana	Tractors		South Africa	Vehicles for public transport	

Source: Own calculations using data from WITS, World Bank.

3.1.3 Regional automotive trade and linkages

Intra-African imports of intermediate and finished automotive products have been volatile since 2014 but higher than in 2012. Intra-African imports of intermediates, which recorded a growth of 9.6% compared with 2.9% for finished products, have consistently exceeded those of finished products in terms of total value. The growth in automotive imports in the region indicates healthy demand and potential opportunities in the automotive industry for African manufacturers.

Figure 13 Intra-African imports of automotive products (\$ millions)

Source: Own calculations using data from WITS, World Bank.

A detailed look at the top intra-African imports reveals that all segments of the automotive value chain, including vehicles for transporting goods and motor cars, are traded in the region. In terms of performance from 2012–2019, all top intra-African imports recorded growth, more so for intermediate products, evidencing a rise in demand for automotive products in the region. The strong demand within the continent provides further credence for the need to adopt strategies to harness the opportunities that AfCFTA will provide.

Table 3 Top Intra-African imports (in \$ millions)

Year	Vehicles for transport	Motor cars	Insulated wire and conductors	Motor vehicle parts	Pumps
2012	843.57	501.71	213.19	164.81	105.28
2013	994.45	504.72	292.58	181.26	149.40
2014	1309.75	888.07	359.87	283.97	192.83
2015	1103.67	1062.84	376.94	281.86	290.25
2016	882.72	1031.23	367.42	249.57	209.02
2017	884.36	652.69	364.60	284.50	248.36
2018	1021.97	735.27	397.77	301.50	307.15
2019	927.74	612.48	385.24	271.55	269.79
CAGR 2012-19	1.37%	2.89%	8.82%	7.39%	14.39%

Source: Own calculations using data from WITS, World Bank.

In terms of countries with the highest demand (using 2019 imports) in the continent, most are clustered in the southern African region. Together, the top 10 African importers of automotive products accounted for 71.9% (worth \$3.216 billion) of Africa's imports in 2019, with vehicles for transporting goods being the most imported product. Nigerian automotive manufacturers already have trading relations with some of the region's top demand centres like South Africa, Morocco, and Ghana. Ethiopia, one of Nigeria's top export destinations, could potentially serve as a route to East African customers.

Table 4 Top African importers of automotives products from the rest of the continent, 2019

Rank	Country	Total Imports (\$ thousands)	Share of Total African Imports	Main product
1	Namibia	707,928	15.8%	Vehicles for the transport of goods
2	Botswana	602,009	13.5%	Vehicles for the transport of goods
3	Zambia	439,605	9.8%	Vehicles for the transport of goods
4	Mozambique	427,904	9.6%	Vehicles for the transport of goods
5	South Africa	221,504	5.0%	Insulated wire and conductors
6	Ghana	182,853	4.1%	Vehicles for the transport of goods
7	Eswatini	175,437	3.9%	Vehicles for the transport of goods
8	Congo, Dem. Rep.	167,201	3.7%	Pumps
9	Zimbabwe	158,655	3.5%	Screws, bolts, and nuts
10	Tanzania	133,208	3.0%	Trailers and semi-trailers
Total		3,216,303	71.9%	

Source: Own calculations using data from WITS, World Bank.

3.2 Using AfCFTA rules of origin for RVCs

3.2.1 The case for a regional automotive value chain

Africa is one of the regions in the world that relies heavily on imports of used vehicles. If global imports were reduced or curtailed, demand for new vehicles produced in the region could reach around 450,000 in the case of East Africa alone (World Economic Forum, 2021). Additionally, the growth of financial markets and in rising GDP per capita across the region will make cars more accessible to Africa's population. Equally important, most of the raw materials required for

manufacturing vehicles, like lithium, aluminium, and rubber, are available in the continent.

3.2.2 AfCFTA as an opportunity

The AfCFTA, which aims to increase the integration of African markets by reducing tariff and non-tariff barriers, also defines product specific rules of origin which can be crucial for spurring RVCs for the automotive industry. Specifically, determination of the nationality of automotive components through the process of cumulation allows investments to be made in intermediate products and final assembly across Africa, linking production hubs through effective supply chains. Considering vehicle production alone, estimates suggest that modern assembly plants have a capacity of at least 100,000 vehicles a year (Black et al., 2017), requiring a significantly higher output to reach the minimum efficiency scale. This implies that a broader integration is required for Africa to increase its benefits from the automotive industry (Barnes et al., 2021) through regional integration to encourage large-scale productive investment.

The larger African market built through regional integration fostered by AfCFTA could attract further foreign investment. Morocco has relied significantly on FDI inflows to develop its car industry, worth \$10 billion in 2019 (Fofack and Mold, 2021) and it is now a significant supplier of cars to Europe, Africa, and its domestic market. Nigeria, the continent's largest economy and host of a large middle class, could equally utilise FDI inflows to become one of the hubs for vehicle manufacturing in Africa.

The successful creation of large-scale vehicle production plants is critical for encouraging investment in the component sector, which is the most salient segment of the automotive industry. However, for investment in the components sector to be more beneficial to the continent, vehicle manufacturing plants should not rely on SKD assembly, as is the case now in most countries. Vehicle production plants that involve more substantial manufacturing should be encouraged instead to draw more value-added benefits in the production process.

The other industry segment that could benefit from successfully creating (more) large-scale vehicle manufacturing plants is vehicle parts and accessories. As discussed earlier, vehicle parts and accessories are already one of the most traded products in the region. The continent could benefit more if integration encouraged the establishment of large-scale vehicle manufacturing plants that would spur the demand for components and parts suited to vehicles produced in the region rather than to imported used ones. Harnessing the potential of AfCFTA to spur large-scale vehicle manufacturing plants is imperative as this will create the market for automotive components – and parts and accessories are always in high demand, in part due to the poor road infrastructure in most African countries.

As with any trade agreement, the size and distribution of benefits of AfCFTA to African nations will depend in part on the costs associated with enforcing rules of origin to promote RVCs. In the automotive industry, rules of origin can be critical in reducing the importation of foreign (used) vehicles, motorcycles, and components and parts, and in fostering the expansion of those in the region. However, where compliance with these rules is onerous and expensive, making it difficult for a member country to solicit or supply automotive products to another, the potential gains are reduced (Tsowou and Davis, 2021).

3.2.3 Nigeria's comparative advantage

This section aims to identify automotive products that Nigeria can rely upon to increase its integration in RVCs. To do so, the concept of revealed comparative advantage (RCA) (Balassa, 1986; Hausmann et al., 2014) was applied to a universe of 6-digit level trade data. The RCA was then computed to determine whether Nigeria has a comparative advantage in producing a given automotive product. An RCA greater than 1 indicates Nigeria has a comparative advantage in producing a product. Observing from the results, no product in the automotive industry has an RCA greater than 1 in the case of Nigeria.

Nonetheless, the RCAs of several products although below 1 witnessed growth from 2017–2019. For this study, besides the magnitude of a product's RCA, we are equally concerned with the growth in RCA to identify products with opportunities for increasing domestic production and exports. Thus, for each product, its growth rate (i.e., CAGR) in RCA from 2017–2019 was computed. The 50 products with the highest growth in RCA were selected; these are all automotive components, and their leading importers are mostly in the southern and northern African regions.

Table 5 Opportunities for Nigeria to increase and diversify automotive exports

Rank	HS Code	Product	CAGR RCA	Top importing countries		
				1st	2nd	3rd
1	842539	Winches or capstans nes	377%	South Africa	Egypt	Morocco
2	401130	Rubber tyres, aircraft, new	199%	South Africa	Angola	Kenya
3	848250	Bearings, cylindrical roller	177%	South Africa	Morocco	Zambia
4	870423	Diesel powered trucks, >20 tonnes	159%	Egypt	Morocco	D.R. Congo

5	841392	Liquid elevator, parts	146%	Namibia	Congo	Libya
6	902990	Parts/accessories of revolution counters	138%	South Africa	Morocco	Tunisia
7	840729	Engines, spark-ignition, marine nes	134%	Egypt	Namibia	Mauritius
8	853921	Filament lamps, tungsten halogen	129%	South Africa	Morocco	Egypt
9	830260	Door closures, automatic, metal	129%	South Africa	Egypt	Morocco
10	401290	Tyres, interchangeable treads	124%	South Africa	Kenya	Egypt
11	731512	Chain, link, iron, not roller	109%	Egypt	Morocco	South Africa
12	841583	Air conditioners, no refrigerating unit	104%	Morocco	South Africa	Tunisia
13	848240	Bearings, needle roller	97%	South Africa	Morocco	Egypt
14	850161	AC generators, of an output <75 kVA	84%	South Africa	Mozambique	Madagascar
15	731829	Non-threaded articles, iron, nes	80%	Egypt	Morocco	South Africa
16	940190	Parts of seats	75%	South Africa	Morocco	Tunisia
17	851190	Parts of electrical ignition equipment	73%	South Africa	Tunisia	Egypt
18	731811	Screws, iron	71%	Egypt	South Africa	Tunisia
19	870410	Dump trucks, for off-highway use	65%	South Africa	Ethiopia	Ghana
20	401390	Inner rubber tubes, nes	65%	Egypt	South Africa	Kenya
21	851110	Spark plugs	63%	South Africa	Egypt	Tunisia
22	841410	Vacuum pumps	62%	Egypt	South Africa	Morocco

23	842649	Cranes & lifting frames, self-propelled	61%	South Africa	Egypt	Mauritania
24	840790	Engines, spark-ignition, nes	59%	South Africa	Egypt	Namibia
25	850153	AC motors, multi-phase, >75kW	58%	South Africa	Egypt	Morocco
26	401695	Vulcanised rubber articles, inflatable	56%	South Africa	Zimbabwe	Egypt
27	870850	Drive axles for motor vehicles	53%	South Africa	Egypt	Zambia
28	830120	Locks for motor vehicles, metal	53%	South Africa	Egypt	Tunisia
29	848320	Bearing housings etc with bearing	52%	Egypt	South Africa	Morocco
30	731519	Chain parts, articulated link, iron	52%	South Africa	Egypt	Madagascar
31	842199	Filter machine, parts	51%	South Africa	Tunisia	Egypt
32	700991	Glass mirrors, unframed	51%	Morocco	Egypt	South Africa
33	870331	Automobiles, diesel, <1500cc	51%	Morocco	South Africa	Tunisia
34	401691	Rubber floor coverings, not cellular	49%	South Africa	Ethiopia	Morocco
35	732020	Springs, helical, iron	48%	South Africa	Egypt	Tunisia
36	401110	Rubber tyres, cars, new	46%	South Africa	Morocco	Egypt
37	851130	Distributors & ignition coils	43%	South Africa	Egypt	Tunisia
38	870839	Brake system parts	43%	South Africa	Tunisia	Botswana
39	870332	Automobiles, diesel, 1500-2500cc	42%	Morocco	South Africa	Tunisia
40	870870	Wheels for motor vehicles	41%	Morocco	South Africa	Egypt

41	400910	Rubber tubes, not reinforced	41%	South Africa	Egypt, Arab Rep.	Eswatini
42	851210	Bicycle lighting/signalling equipment	39%	South Africa	Burkina Faso	Kenya
43	853630	Electrical circuit protectors, <1kV	39%	South Africa	Egypt	Tunisia
44	848350	Flywheels & pulleys	38%	South Africa	Morocco	Egypt
45	853940	Ultra-violet or infrared lamps	38%	Libya	Mali	Egypt
46	852721	Radio receiver, external power	37%	Morocco	South Africa	Egypt
47	848340	Gearing, ball screws	36%	South Africa	Egypt	Morocco
48	848210	Ball bearings	36%	South Africa	Egypt	Morocco
49	853641	Electrical relays, <60V	35%	Egypt	Tunisia	South Africa
50	853922	Filament lamps, <=200W, >100V	35%	Libya	Mali	Egypt

Source: Own calculations using data from CEPII BACI⁷

3.3 Motorcycles and two-wheelers VCs

Section 2.3 has discussed the differences in production of automobile and motorbikes, showing that motorcycle assembly has lower entry barriers due to simpler technology and lower costs. In fact, motorcycles are assembled in countries that do not (yet) assemble cars, such as Uganda, from SKD and CKD kits (Calabrese, 2017).

The question, then, concerns the types of GVCs that can be created for production. Motorcycles GVCs are usually of two types. The first is international, spanning across several countries, and are generally found for Asia's large motorcycle producers. For example, for producing a Honda C8G3 in an Asian country, around 80% of inputs are produced by global (typically other Asian) suppliers, and the remaining 20% is sourced locally. The second type is local, which allows motorcycles to be produced closer to the market. In this case, most components are produced locally, and only some parts are imported (JICA et al., 2021). We do not have information to ascertain whether the GVC in Nigeria is of the first or second type, but to our knowledge, local assembly includes minimal local parts: section 2.2

⁷ http://www.cepii.fr/CEPII/en/bdd_modele/bdd_modele_item.asp?id=37

showed that most inputs for the car and motorcycle industry are imported; while section 2.3 highlighted that imports from Africa of spare parts for motorcycles are negligible. Given this, we can assume that for any motorcycle currently assembled in Nigeria, most components will be imported from abroad.

Nigeria has a large internal market and an increasing demand for mobility. Two-wheelers offer an affordable alternative to second-hand imported cars and could therefore be produced domestically on a large scale. Because two-wheelers are affordable, easier to produce and with lower barriers to entry than motor vehicles, the Nigerian government could promote their production through investment and by encouraging FDI under the AfCFTA.

The question, then, is what can be done through the AfCFTA. The current situation makes the creation of regional/African value chain unlikely in the short term. The only African countries that currently have the potential to fulfil some of the needs in terms of inputs are South Africa and, to a lesser extent, Ethiopia and Egypt. These are the countries that Nigeria should aim to import from first. Moreover, if Nigeria was able to attract two or more large-scale motorcycle plants, it would be possible, with some policy support, to also attract component suppliers.

The creation of the AfCFTA and the related elimination of intra-African tariffs could potentially boost imports of intermediate inputs from Africa (from non-ECOWAS countries, given that ECOWAS countries already face zero-tariffs). Through AfCFTA, Nigeria could import more of these inputs from South Africa, Egypt and Ethiopia, and even from other African producers who are uncompetitive at the current tariff level. However, this is unlikely to make a huge difference to the current levels of imports, given that the other African countries produce limited quantities of these inputs for export.

Similarly, one could consider whether Nigeria could become an exporter of motorcycles and components in Africa. Looking at current trade trends, in 2020, Nigeria was the largest importer of motorcycles in Africa, accounting for around 60% of total African imports (\$1.2 billion), followed by Kenya, Morocco, Uganda and Togo, all around 5% of total African imports. In terms of parts, in 2020 the largest importer of motorcycle components in Africa was Egypt, with \$68 million worth of imports, followed by Nigeria (\$20 million), Tunisia (\$39 million), DRC (\$35 million) and South Africa (\$33 million). Increased production in Nigeria could first focus on fulfilling the large potential of the domestic market. Exporting to other African countries could be the second step once the domestic market is adequately supplied.

4 Investment multiplier effect

4.1 Investment trends: domestic, regional, international

In 2021, FDI in Africa recovered from the slump precipitated by the Covid-19 pandemic. FDI flows reached \$83 billion (UNCTAD, 2022), marking a 113% rise from 2020 and increasing the region's share of global FDI flows to 5.2%, up from 4.1% in 2020. The West African sub-region attracted \$14 billion of FDI flows (a growth of 48% compared to 2020 values), mainly driven by Nigeria and Ghana. More specifically, Nigeria sustained its attractiveness for foreign investors as flows doubled to \$4.8 billion, driven by investment in oil and gas.

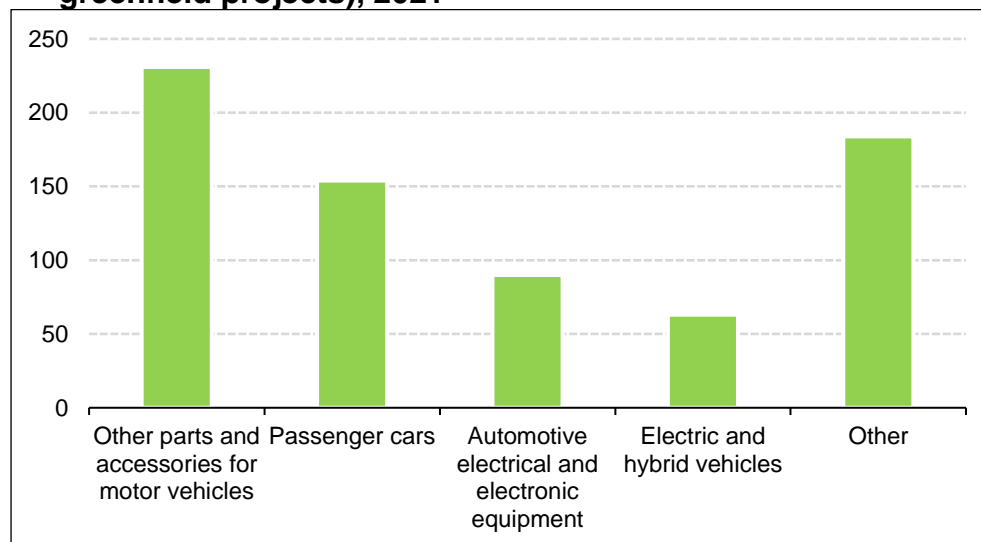
Table 6 Top global industries by value (announced greenfield projects)

Top industries in value	Value (\$ billions)			Number		
	2020	2021	Growth rate	2020	2021	Growth rate
Electronics and electrical equipment	47	120	156%	882	1028	17%
Information and communication	85	104	23%	2962	3743	26%
Electricity and gas supply	103	90	-13%	546	484	-11%
Construction	33	49	49%	320	329	3%
Automotives	33	34	3%	571	692	21%
Transportation and storage	27	33	25%	639	737	15%
Chemicals	40	28	-30%	452	445	-2%
Trade	23	24	4%	580	638	10%
Food, beverages, and tobacco	18	19	9%	432	431	0%
Pharmaceuticals	15	19	26%	360	378	5%

Source: Own calculations using data from UNCTAD, 2022.

FDI in the automotive sector followed the overall FDI trend, recovering in 2021 but not yet to its pre-pandemic levels. In terms of value of flows for greenfield FDI, the automotive sector ranks among the top ten sectors. The sector recorded 737 projects in 2021, reflecting a 15% rise over its 2020 numbers and translating to \$34 billion. Probing further, the top subsectors in the automotive industry are parts and accessories for motor vehicles, passenger cars, and electric and hybrid vehicles (Figure 14).

Figure 14 Top global automotive FDI subsectors (number of greenfield projects), 2021

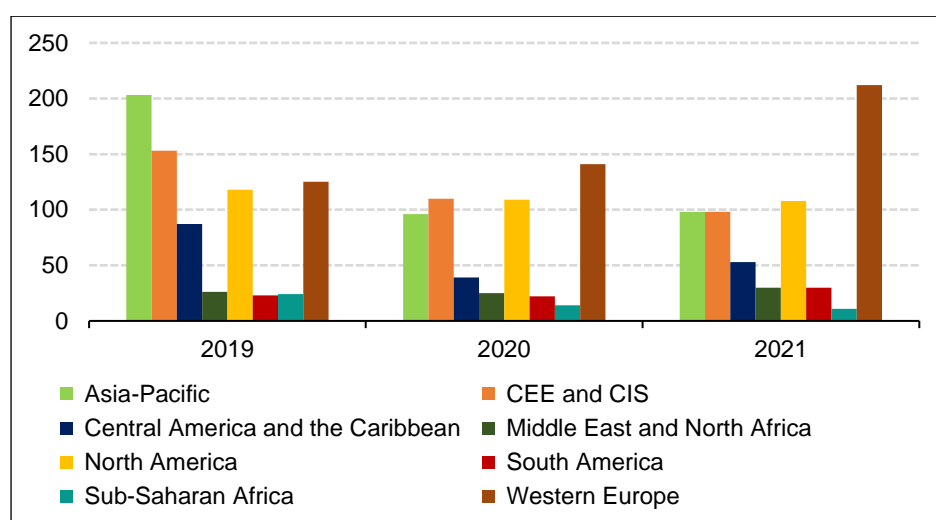


Source: Own calculations using information from Investment Monitor⁸.

The Asia-Pacific and Western European regions remain the most desired locations for automotive greenfield FDI flows globally, attracting 310 of the total 640 investments in 2021. Sub-Saharan Africa attracted the lowest number of projects, seeing number of greenfield FDI projects dwindle from 24 in 2019 to 11 in 2021 (Figure 15).

Figure 15 Number of greenfield FDI projects

⁸ <https://www.investmentmonitor.ai/sectors/automotive/fdi-in-automotives-in-2021-the-state-of-play>



Source: Own calculations using information from Investment Monitor (Caon, 2022)

4.2 Promoting domestic manufacturing

Having witnessed a decline in local production and exports of automotive products, Nigeria will require a resurgence in domestic investment complemented with FDI inflows to improve the competitiveness of its automotive industry. Accordingly, FDI inflows can be crucial in injecting additional capital and improving production know-how and, as a result, raising the quality and sophistication of automotive products produced in the country (Javorcik et al., 2018). The need to meet a specific minimum production capacity to attain minimum production efficiency further underscores the need to attract reasonably large-scale investment. Such investments must also be beneficial to the broader economy.

In this context, a scenario analysis was conducted for the Nigerian automotive industry to ascertain the potential economy-wide implications of a given injection of investment into the industry. Nigeria has a domestic market capable of supporting an annual car production of around 200,000 and a potentially large regional market provided through AfCFTA. Thus, the analysis assesses the economic impact of the investment required to produce 200,000 cars. To ascertain this, the analysis considers that about \$200 million is typically required to produce 80,000 cars (Barnes et al., 2021). So, to produce 200,000 cars, an investment of about \$500 million could suffice.

The naira equivalent of \$500 million (222.5 billion),⁹ was considered an exogenous shock – i.e., injection of investment – in the machinery, equipment and vehicles subsector using the country's 2018 social accounting matrix (SAM). The result of an investment of 222.5 billion naira will be an increase in industrial output by 467.7 billion naira due to the direct impact in the machinery, equipment,

⁹ Using the official exchange rate of 445 naira: \$1.

and vehicles subsector as well as the indirect and multiplier effect through other sectors. Industries, including finance and insurance, will benefit indirectly by rendering more financial and actuarial services to the expanded machinery, equipment, and vehicles subsector. Also, total value-added could potentially rise by 366.5 billion naira, with the machinery, equipment and vehicles subsector potentially reaping the highest benefit. Finally, the potential benefit to labour in terms of compensation is 77.5 billion naira, with that for the machinery, equipment, and vehicles subsector alone being 49.3 billion naira.

Table 7 Economy-wide implication of an increase in investment in the Nigerian automotive industry

	Total output	Percent of total	Total value added	Percent of total value added	Total labour income	Percent of total labour income
Agriculture and forestry	71.83	15.36%	58.30	15.90%	12.92	16.68%
Mining	4.11	0.88%	3.38	0.92%	0.78	1.00%
Processed foods	4.00	0.86%	3.14	0.86%	0.61	0.78%
Beverage and tobacco	4.03	0.86%	3.23	0.88%	0.66	0.85%
Textiles, clothing, and footwear	4.91	1.05%	3.27	0.89%	0.71	0.92%
Wood and paper products	3.46	0.74%	2.56	0.70%	0.52	0.68%
Chemicals and petroleum	2.25	0.48%	1.62	0.44%	0.34	0.44%
Non-metal minerals	4.00	0.86%	3.16	0.86%	0.59	0.76%
Metals and metal products	3.00	0.64%	2.07	0.57%	0.44	0.56%
Machinery, equipment, and vehicles	306.10	65.45%	238.38	65.04%	49.31	63.67%
Other manufacturing	3.96	0.85%	3.05	0.83%	0.61	0.78%
Electricity, gas, and steam	4.24	0.91%	3.28	0.89%	0.87	1.12%
Water supply and sewage	3.90	0.83%	3.13	0.85%	0.71	0.92%
Construction	4.31	0.92%	3.08	0.84%	0.60	0.78%
Wholesale and retail trade	4.15	0.89%	3.40	0.93%	0.77	1.00%
Transportation and storage	3.79	0.81%	2.73	0.74%	0.59	0.76%
Accommodation and food services	3.68	0.79%	2.72	0.74%	0.48	0.62%
Information and communication	4.28	0.92%	3.36	0.92%	0.58	0.75%
Finance and insurance	4.25	0.91%	3.16	0.86%	1.06	1.38%
Real estate activities	3.79	0.81%	3.71	1.01%	0.52	0.67%
Business services	3.25	0.70%	2.55	0.70%	0.52	0.67%
Public administration	4.33	0.92%	3.35	0.91%	1.10	1.42%
Education	4.04	0.86%	3.25	0.89%	0.79	1.02%
Health and social work	4.13	0.88%	3.32	0.90%	0.75	0.97%
Other services	3.91	0.84%	3.34	0.91%	0.63	0.82%
Total	467.69	100%	366.53	100%	77.45	100%

Source: Own computations using Nigerian Social Accounting Matrix, 2018

4.3 Investing in RVCs

GVCs have increasingly offered developing countries the opportunity to participate in global production through the supply of automotive components. However, RVCs are also important in relation to the scale required to meet minimum production efficiency and the need to be closer to consumers. Africa has many small or medium-sized economies that cannot provide sufficient domestic demand independently. RVCs can, through in an integrated market such as AfCFTA, encourage large-scale production of automotive products, creating 'automotive space' (Barnes et al., 2021)

Morocco's automotive growth has been achieved by building hubs in conjunction with large global OEMs around six ecosystems: electrical wiring; metal and stamping; battery; vehicle interior and seats; powertrain/engine and transmission; and truck and industrial vehicle body (World Economic Forum, 2021). A Nigeria automotive industry development strategy should therefore emphasise localised production, supporting the development of ecosystems around battery and electricals, tyres, nuts and bolts, automobile glass, brake shoes and lubricants – parts with universal application across vehicle brands and models serving both assembly plants and the after sales market.¹⁰ Determining these areas of advantage enables policy makers to design and implement industrial policy that facilitates participation in RVCs and GVCs.

The benefits of an integrated market can be increased through intra-regional investment complemented by FDI inflows. This can expand RVCs to benefit smaller countries that could be component suppliers. Such FDI flows are becoming more worthwhile owing to several factors, including higher returns on investment, availability of raw materials, low labour costs, and rising export potential. To this end, the effectiveness of the AfCFTA investment protocols will be essential in fostering intra-regional and foreign investment inflows.

¹⁰ This is contingent on Nigeria developing a reasonably large-scale assembly of 100,000 vehicles of a small number of models.

5 Pathways to an energy transition

The international market potential for EVs or hybrid versions, which tend to be more energy-efficient, is enormous, driven by growing environmental pressures that affect people all around the world. The rising costs of fossil fuels also contributes to demand for EVs. This presents an opportunity for a more sustainable growth model in Nigeria.

Emissions legislation also is encouraging manufacturers to produce more fuel-efficient cars. EVs are emission free, and the electricity used to power them will increasingly come from renewable sources with a lower carbon footprint. Hybrid EVs and plug-in hybrid EVs in 2021 accounted for a 10% market share of all new cars globally, and 1.5% of the total global fleet (BNEF, 2022). It is also predicted that there will be 77 million passenger EVs on the road by 2025, representing a share of 6% of the fleet (BNEF, 2022).

Experts have called for the decarbonisation of the transportation sector in Africa. The question now is whether Africa will get stuck in an inequitable and high-emission growth trap or do things differently to ensure sustainable and clean growth.

The need for a structural change could offer Nigerian automotive manufacturers enormous opportunities. The demographic dividend of a youthful population, which correlates with ICT penetration rates and awareness (Chinn and Fairlie, 2010; Odusanya and Adetutu, 2020), could increase the demand for EVs. For Nigeria to succeed on this front, rules on the age of imported used vehicles must be more strictly enforced, as evidence suggests that used vehicle imports continue to increase and disrupt uptake in new vehicles, including EVs (Ayetor et al., 2021). Moreover, additional government support to incentivise the shift from internal combustion engine (ICE) vehicles to EVs is required.

Transport modes other than cars – i.e., two-wheeler and three-wheeler – as also rapidly electrifying. These modes of transport are prominent in Africa. Africa's share of global imports of motorcycles in 2015 stood at \$1.86 billion, with Nigeria's worth \$447 million (Agarwal et al., 2022). Modest prices and ease of use have played a massive part driving demand. With the right incentives, replacing fuel-powered two-wheelers and three-wheelers with electricity-powered ones could yield good dividends. Additional benefits associated with establishing

a manufacturing base for two-wheelers and three-wheelers are the production of their components and parts.

An excellent case can be made for such a policy shift from the success of India in promoting demand and sales of EVs, especially two-wheelers. Two-wheelers make up 75% of the total vehicle fleet in India; the central government introduced FAME 1 and FAME 2 schemes that supported sales of 1 million electric two-wheelers, 500,000 electric three-wheelers, 55,000 electric cars, and 7,090 electric buses. The government also reduced goods and services tax on EVs from 12% to 5%, compared to a 28–43% indirect tax on ICE vehicles (Moerenhout et al., 2022).

Africa's rising population will increase the demand for public transport, especially in urban areas. This can be a catalyst for electrifying public transport networks – minibuses, buses and railways. The cost of public transport is a critical factor in low patronage in Africa (Diaz Olvera et al., 2008). To this end, an additional encouraging factor for Nigeria to promote the domestic manufacturing of EVs is that their optimal production scale is lower relative to ICE vehicles. Thus, in terms of scale requirements, entry barriers are much lower, making it relatively easier to attract more manufacturers to produce enough EV public transport vehicles that could potentially reduce the cost of public transport.

Turning to the Indian example again, the government has introduced initiatives to electrify its public transport network. About 6,000 electric public buses have been sanctioned, of which about 400 are meant for intercity operations. The state of Maharashtra has also set up public charging stations on highways at a distance of 25km apart to cater to e-buses and electric freight trucks. The state of Karnataka extends capital subsidies to build charging and battery switching stations for e-buses. The Canadian government has also announced \$1.1 billion for zero-emission buses and charging infrastructure (Moerenhout et al., 2022). A notable example is also of Shenzhen in China, which was the first city in the world to have fully electric bus and taxi fleets (World Bank, 2021).

A number of issues emerge from the proposed shift from ICE vehicles to EVs, whether cars, motorbikes, other two-wheelers, three-wheelers, buses or railways. First, the uptake in EVs by consumers will need to be incentivised by the government through *inter alia*, interest-free loans, awareness campaigns with civil society organisations, higher taxes on ICE vehicles, and tax exemptions on EV purchases. Second, EV production and sale will require massive private and public investment in creating an enabling and support environment with charging stations, battery replacing or swapping technology and EV waste management.

Third, Nigeria is one of the largest importers of used ICE vehicles, compared to which EVs are an expensive option (and more expensive than new ICE vehicles as well as used ones). The

government will therefore have to reduce used car imports and simultaneously find ways to make EVs cheaper – through innovation, local manufacturing of parts and components, and manufacturing subsidies. Nigeria and its neighbours possess large reserves of lithium and cobalt – both of which are used to produce battery packs for EVs. This comparative advantage can then be leveraged for local production in Nigeria that can drive down local production costs. Apart from batteries, Nigeria and its regional partners will need to develop local supply chains in parts and components. Compared to ICE vehicles, EVs require fewer parts to be assembled, most of which are electric in nature.

Fourth, supply chain development and consumer incentives will need to be matched with local after-sales service and skills development for maintenance and troubleshooting. Finally, African cities remain crowded, disconnected and costly, which could reduce social mobility and increase economic inequality. This calls for emphasis on e-buses and e-minibuses, similar to efforts by the Egyptian government to redesign the public transport network to cut carbon dioxide emissions and provide electric transport (Hegazy, 2021).

6 Lessons and policy recommendations

6.1 Learning from other successful cases

The Nigerian automobile industry stands to learn from other countries that have successfully developed a local production network, attracted investment and joined value chains.

Lessons can be drawn from the case of Brazil. In the 1950s, the industry grew under tightly controlled production and trade restrictions that imposed 90% local content requirements, high import restrictions and mandatory local production for foreign firms hoping to operate in the market (Dowlah, 2018). Over time, the Brazilian auto industry remained protected, with a 65% local or Mercosur-made content requirement, and with the requirement that 10 out of 12 production steps be conducted inside Brazilian territory (Dowlah, 2018).

Brazil's first batch of domestically produced cars came out of auto assembly firms that were entirely foreign owned but backed by a locally owned auto component industry. In the next two decades, the imports of auto components declined to less than 10%, and the domestic industry thrived (Sindipecas, 1995). In the 1990s, the government liberalised the sector and reduced the local content requirement, but the foreign companies remained obliged to meet export targets (Dowlah, 2018; Shapiro, 1994). As a result of the liberalisation, FDI increased dramatically, and many foreign-owned manufacturers (Fiat, Ford, GM, Volkswagen, Honda, Mercedes-Benz, Renault, Toyota) expanded assembly operations to enjoy the benefits of the local parts industry, cheap labour, and investment incentive programmes. In fact, the import substitution policy for the auto sector worked for Brazil as assemblers were forced to source parts from local manufacturers. This led to a series of subcontracts that spurred growth in the domestic auxiliary industry.

Subcontracts also supplied design solutions and complete systems (dashboards, rear axle assemblies, body panels), leading to the development of domestic value chains and dedicated auto industrial zones that attracted special privileges, and with it, international manufacturers. These industrial zones then acted as incubation centres for local producers (Dowlah, 2018). By 2010, Brazilian manufacturers such as the Randon Group had opened auto manufacturing bases in neighbouring Argentina (Shaw, 2010). With

subsequent bilateral trade deals with regional partners, Brazil became a large exporter to not just Colombia, and Mexico, but also its regional bloc, Mercosur members. Within Mercosur, the members established the Common Automotive Policy in the early 1990s that established the basis for intra-bloc trade in auto products, a common external tariff and reduction of domestic incentives that would distort competitiveness (De Azevedo and Massuquetti, 2015). This helped raise the competitiveness of production in the region due to economies of scale, development of RVCs and greater efficiency in Brazil and Argentina (ibid). It spurred growth in exports from both the countries, and the latest protocol of the policy (ACE No. 14) promises free trade of auto products by 2029 – a decision that will further expand bilateral cooperation and trade in the sector.¹¹

The success of Brazil yields several ideas for the Nigerian automotive industry:

- Lower import tariffs on imported machinery and equipment.
- Engage in collaborative effort with regional neighbours to explore economies of scale (bilateral deals) under ECOWAS and subsequently the AfCFTA. Nigeria is in early discussions with the African Association of Automobile Manufacturers on participating in a continental ‘auto pact’ which could create 11,072 spoke jobs and 46,482 hub jobs in the region, with a shared gross value add estimated at around \$2 billion (World Economic Forum, 2021).
- Introduce government incentives to develop local parts production through import substitution to replace import dependence but at the same time enable Nigeria to participate in a continental value chain.
- Introduce high local content requirements for assembly by foreign firms that can be lowered subsequently to develop the sector
- Develop a special trade and investment programme to target the auto sector.
- Engage in FDI promotion to attract foreign manufacturers and ensure technology transfer.
- Develop dedicated automobile technology and industrial parks to spur growth through spillover effects.
- Encourage local subcontracting by foreign assemblers to develop SMEs in the sector.

6.2 Actionable policy recommendations

6.2.1 Challenges to operations

¹¹ Full text www2.aladi.org/biblioteca/publicaciones/aladi/acuerdos/ace/es/ace14/ACE_014_044.pdf.

here:

Despite the growing middle class (estimated at 38 million in 2012) and soaring market size (demand for cars of 1,150,000 in 2020), Nigeria's automotive industry has witnessed a substantial decline in local production and exports, while reliance on imported used cars remains very high (Agbo, 2011). Imported used cars of certain types including passenger and small size engine ones are still important for the transportation needs of the average Nigerian due to limited disposable income and the high financing cost of new cars. However, the growing demand for two-wheelers offers a substantial opportunity to restrict imports of used, especially old and accidented cars in Nigeria.

Nonetheless, the import dependence on other segments of the automotive value chain demonstrates that having a considerable market and large middle class does not automatically translate to a vibrant domestic automotive industry but requires interventions to ease constraints on the operations of automotive product manufacturers. Interviews with players in the automotive industry revealed that several challenges affect the industry's growth.

- **Energy cost:** energy cost constitutes a high component of manufacturing cost, implying that higher energy costs could adversely affect the competitiveness of manufacturers. High electricity cost is one of the issues automotive manufacturers reported as a constraint on their operations. Besides the cost of electricity, shortages in its supply also confront the industry,¹² an issue which can hamper company productivity (Moyo, 2012). The issue of costly and unreliable electricity supply is particularly acute for EVs' use and (potential) production. The reliable supply of competitively priced energy will be crucial for the automotive industry's competitiveness, especially exports and the production of energy-efficient vehicles.
- **Forex:** all vehicle manufacturers or assemblers in Nigeria rely on imported components. The major constraint they face is access to foreign currency (i.e., US dollars) to import components. Interviewees say alternative forex markets have a premium of about 60%, making this an expensive option. Increasing the use of domestically produced components would strengthen the entire automotive value chain, but this will take time and in the meantime access to foreign components remains critical.
- **Fiscal incentives:** the NAIDP Bill contains some fiscal incentives which seek to spur investment in the automotive industry. However, the Finance Bill 2020 had only a 5% differential in duties payable by assembly plants importing SKD and dealers bringing in FBU units. Such measures

¹² According to the World Bank Enterprise Surveys, 77.6% of Nigerian manufacturing firms experience power outages in a typical month (www.enterprisesurveys.org/en/data/exploreeconomies/2014/nigeria#infrastructure).

enfeeble the returns on investment on in-country assembly or manufacturing of vehicles, making it difficult to attract new investment.

- **Low demand and competition from imports:** the demand for locally assembled vehicles is low, partly because of the lack of cost-competitive (in terms of interest rates) car finance. The low demand for domestically produced vehicles is compounded by competition from imported used and fully built ones. These issues make it challenging to attract OEMs into the industry. For instance, the interviews conducted under this study revealed that a bid to produce batteries locally was unsuccessful because of a lack of the required minimum annual demand (a million units), so Nigeria remains reliant on imported batteries. Improving domestic demand for vehicles will be critical in expanding domestic assemblers.
- **Government procurement of vehicles:** A contributing factor to low demand for locally produced vehicles is the weak commitment of the federal government to purchase made-in-Nigeria vehicles.
- **Access to quality inputs:** even though imported inputs can be critical for manufacturers' productivity (Verhoogen, 2021; Pane and Patunru, 2022), moving increasingly towards domestically produced inputs will be imperative. This is not happening in Nigeria, as interviewees indicated that no suppliers could promptly supply enough quality components.
- **Export and import procedures:** cumbersome administrative procedures and bureaucracies at the ports were found to be a constraint to the importing and exporting activities of manufacturers of automotive products. Overcoming constraints to clearing goods at the border would increase the benefits Nigerian automotive product producers can tap from the AfCFTA.
- **Market information:** businesses reported that limited access to market information for the African market was a constraint on their exports. Access to such information would allow firms to better assess market conditions, including potential demand, size and consumer preferences.
- **Skilled labour:** Nigeria's existing pool of skilled labour cannot meet the skills requirements of its automotive industry. While the federal government has made efforts to increase the pool of skilled workers, the automotive industry still faces challenges in finding people with the requisite technical skills. On top of that, hiring skilled expatriates is cumbersome, making it difficult for manufacturers to source talent globally: making it easier for domestic firms to do so is imperative given

that that their foreign competitors have ready access to these skills.

- **Access to finance:** access to affordable credit is a challenge automotive manufacturers face. Investment activities are constrained by limited access to capital, especially for component manufacturers.

6.2.2 Proposed recommendations for government officials and industry stakeholders

The proposed recommendations for government officials and industry stakeholders are based on seven constraints identified through this report. They are listed in Table 8.

Table 8 Proposed policy recommendations

Proposed policy prescriptions for government	Proposed action by business
Constraint 1: Facilitating trade	
Collaborate with the National Automotive Council and the Nigerian Customs Service to ease export constraints for automotive products through measures including digitalising or harmonising some processing steps.	Assess readiness to export to (or expand in) African markets and identify challenges that can be remedied.
Collaborate with the Nigerian Customs Service, the Nigeria Export Promotion Council and other relevant government agencies, such as the Federal Ministry of Industries, Trade and Investment (FMITI) and the Standards Organisation of Nigeria, to identify and eliminate duplicate export processing steps or procedures for automotive products.	Take advantage of export promotion activities and the export fund of the Nigerian Export Promotion Council (NEPC) to promote products to potential foreign customers.
Establish an export fund dedicated to providing subsidised credit or grants to exporters of ICE vehicles and EVs.	Participate in potential AfCFTA National Coordination Office and NEPC training programmes on exporting and accessing the information on African markets.
Collaborate with the Ministry of Industry Trade and Investment and the Nigerian Export Promotion Council to establish cost-effective and accessible warehouses and provide other foundational resources to targeted	Adhere to any proposed regulations on the processing of exports.

African markets of Nigerian automotive products manufacturers.

Use the Nigerian Export Promotion Council to provide training on export procedures and information on market opportunities for automotive products in African markets. The Nigerian Export Promotion Council, in conjunction with other government institutions, should sponsor the total cost or subsidise the cost of attending African and international automotive trade events. Similar efforts should be made to organise further such events in Nigeria to showcase made-in-Nigeria automotive products.

Establishing (more) automotive industrial parks or special economic zones and facilitating the entry of automotive manufacturers into such enclaves can help to expand the production of automotive products with cost-competitive prices to enhance exports.

Provide regular training in collaboration with the Nigerian Ports Authority to customs officers at designated ports on applied tariffs and documentation needs. Also initiate faster clearance of auto parts imports and CKD/FBU exports.

Constraint 2: Demand for locally produced automotive products

Collaborate with the National Automotive Design & Development Council, Federal Ministry of Industry, Trade and Investment the Federal Ministry of Finance, the Nigerian Customs Service, to review import duties and fiscal incentives for automotive products and ensure it can attract investments into the sector.

Impose a 0% or lower import duty on CKD units (ICE and electric vehicles)

Use any opportunities available in the form of fiscal incentives to scale up production and diversify the product mix.

Promote made-in-Nigeria vehicles within federal ministries and other government institutions.

and reduce value-added tax (VAT) on CKD components.

Increase the time period for the tax relief, rebates and other concessions on assemblers and producers of automotive products and components. This could also include electric vehicles and their parts. To ensure maximum impact, the increased tax relief could be limited to CKD assemblers, FBU manufacturers and companies investing in building local supply networks.

To reduce competition from imported used cars (old or young) of which Nigeria has comparative advantage in producing and accessible in terms of cost by the average Nigerian, introduce bans, increase import tariffs on these imports and ensure stringent adherence to existing import taxes to discourage such imports. Import tariffs should also be increased for used automotive parts, especially on those Nigeria has the capacity to produce. Local compliance with rules, such as emissions and roadworthiness testing, should be enforced for imported used cars. However, any increase in taxes on used goods imports will raise the overall transport cost in the country. Therefore, any raises in taxes should be rooted in overall welfare gains.

Implement a complete ban on imports of used-accidented and old vehicles.

Enhance vehicle funding schemes and expand existing ones to facilitate finance at affordable interest rates to encourage the patronage of vehicles and two-wheelers, and promote research and development in the industry.

To ensure that the Federal, State and Local government contribute to the demand for automotive products, designate locally produced automotive products for government procurement

(for instance, the federal police force and public schools).

Promote made-in-Nigeria vehicles within government agencies or institutions such as the Federal Ministry of Culture, Tourism and National Orientation once large-scale assembly is established.

Constraint 3: Access to production inputs

To spur expansion in the production of higher quality automotive components, reduce or annul import taxes on machinery and equipment required to produce automotive components. Additionally, to encourage domestic production, increase import duties on automotive components for which Nigeria has capacity to produce and especially for components of two-wheelers.

Increase the amount and duration of fiscal incentives for manufacturers of automotive components.

Collaborate with the Standards Organisation of Nigeria to establish minimum quality standards and licensing requirements (based on ISO or NIS certification) for automotive components and ensure adherence to such standards.

Enable sectoral linkages across the economy. Producers of inputs required to produce automotive components, including rubber and leather, should also be provided with targeted incentives, including cheap loans, tax reliefs and rebates.

Take advantage of any potential incentives package to increase the use of modern production equipment to produce higher-quality automotive components.

Comply with existing and new regulations or standards proposed by the Standards Organisation of Nigeria.

Constraint 4: Cost of production – energy supply and cost, infrastructure

Review electricity tariffs and ensure stable electricity supply. The Federal Ministry of Power will be instrumental in implementing this proposed policy prescription. Investment in electricity

Take advantage of any potential incentives provided by the government to do so.

grid infrastructure can be encouraged through targeted tax relief.

Other inputs such as water, good roads, waste management and port access management should be prioritised to enable a low-production-cost environment for the development of the local industry.

Leverage opportunities to be placed on special electricity tariff lines.

Constraint 5: Access to foreign currency

Work with the Central Bank of Nigeria (CBN) to facilitate rapid access to foreign currency for importing automotive components until effective measures (proposed above) are implemented to spur domestic production of automotive products.

Comply with CBN and National Customs Service rules.

Constraint 6: Innovation and skills development

The Nigerian Society of Engineers, the Federal Ministry of Education and other educational stakeholders should collaborate with the National Automotive Council to develop a skills development roadmap to meet skills shortages in the industry.

Cooperate with the Federal Ministry of Education on skills development initiatives.

Invest in the training of workers.

Collaborate with OEMs and universities to develop an engineering curriculum focused on automotive technologies and design.

The Federal Ministry of Education should grant more scholarships and other educational incentives to increase the pool of skilled workers tailored for the auto industry.

In collaboration with the Raw Materials Research and Development Council and the Nigerian Society of Engineers, the Federal Ministry of Education should set up an automotive innovation and research fund to continuously provide the requisite know-how required to enhance the industry's innovativeness and cost-competitiveness.

Provide training workshops and programmes to MSMEs in the industry, especially parts and component manufacturers. Develop specialised industrial technology parks or clusters to foster knowledge exchange and innovation. These parks could be given tax holidays as incentives. This initiative can be championed by the NADDC, SMEDAN, and the NEPZA.

Set up an automotive upgrading fund to provide manufacturers subsidised credit on conducive repayment terms to encourage investment.

Leverage any funding opportunities to increase investment.

Assess readiness, including collateral and documentary requirements, to access concessional loans and fill gaps.

6.3 Leveraging the opportunities under the AfCFTA

The AfCFTA offers the chance for Nigeria to export to the large regional market offered by other African countries and also to form RVCs that would allow for greater integration among producers on the African continent. This is crucial for economic transformation in Nigeria. The Government of Nigeria aims to take advantage of the opportunities presented by the AfCFTA to develop the automotive industry: the National Implementation Plan of the AfCFTA in Nigeria aims to increase production of vehicles to 200,000 annually over a period of five years.

To fully realise the benefits of the free trade area under the agreement in terms of increased intra-African trade, countries will need to enter into **government-to-government joint ventures in infrastructural development** to improve transport links via road, rail and waterways. This is especially true for Nigeria's linkages with its neighbours in the ECOWAS region. Other trade-related **at-the-border issues**, such as the time taken at the border to clear goods, **and beyond-the-border measures**, such as standards and regulatory norms, **need to be simplified and digitised** for ease of access for exporters under the AfCFTA.

Evidence shows that Nigeria already exports trailers, semi-trailers, and pneumatic tyres to many countries on the continent such that Nigerian exporters have gauged the market conditions and are established suppliers for these products. Under the AfCFTA, Nigeria

could export greater volumes of existing product lines and develop other intermediate as well as finished products along the automotive value chain. This is feasible given the **growing export market available on the continent** that could **lead to economies of scale** for Nigerian producers. However, production and sale of automobiles is governed by a heterogeneous set of compliance issues that differ across countries. **Harmonisation (full or even partial) of rules concerning environmental standards, passenger safety, and onboarding of suppliers** along the value chain in line with international standards could benefit trade volumes.

The large internal market and prospective economies of scale could act as a **signalling mechanism to foreign investors** who wish to establish assembly and manufacturing plants in the country. Lessons can be drawn from successful cases on the continent (Morocco) and from other developing countries that were at similar stages of development when they started promoting automotive industrial development (Brazil). In fact, Morocco relied significantly on foreign investment to supply vehicles to Europe and Africa. Perhaps Nigeria can follow suit once free trade (or some version of it) gets into full swing under the AfCFTA. This would require **national and regional FDI liberalisation** for the sector. **Common and predictable FDI rules under the AfCFTA would also incentivise investors** hoping to invest in several markets to cater to the large unrestricted market offered by the continent. However, FDI will need to be matched by intra-regional investment that will be crucial to expand value chains. **Simplified investment protocols under the AfCFTA** could be a potential tool.

However, the continent suffers from large imports of used cars that compete with the domestic automotive industry that assembles and produces cars, motorbikes, tractors, and trailers. Any move to increase demand for 'Made in Nigeria' or 'Made in Africa' products would have to be matched by **restriction on imports of used vehicles**. Rising purchasing power and growth of financial markets in the region will increase the demand for new personal vehicles. In the AfCFTA negotiations on the automotive sector, **governments could restrict or completely ban imports of used cars to reduce the competition** faced by locally made new cars. To this end, NAIDP has already increased the effective duty on imported cars to 70%, along with other quantitative restrictions.

Most of the raw materials required to produce intermediate products, including lithium, aluminium and rubber, are plentiful in Africa. Under the AfCFTA, **Nigeria could form bilateral linkages with countries to exchange exports of raw materials and insert itself into upstream supplier networks**. These raw materials could then be used to produce parts and components for the supply chain. Realistically, **Nigeria has the potential to be a large supplier for parts to other countries** that are already ahead in assembly and manufacturing of vehicles. This includes its neighbours in the ECOWAS region (Ghana is actively promoting its automotive sector),

or other large assemblers or manufacturers located in Egypt, Kenya, Morocco and South Africa. **Under the AfCFTA, these large players could also provide export training to new players** wishing to join the value chain. Some of the products where Nigeria already has a revealed comparative advantage vis-à-vis its own export basket include self-propelled and pedestal job cranes, winches and capstans, and spark-ignition engines. Other products where Nigeria has already established an export-connect and for which exports can be expanded under the AfCFTA include pulley tackle and hoists, tractors, and seats for automobiles. However, this is feasible only if the industry is able to expand volumes, production or assembly of vehicles.

Although countries are yet to finalise the rules of origin for the automotive sector, a **high local content requirement of 'Made-in-Africa' inputs** could force countries to reduce the dependence on imported inputs and spur development of small countries as component manufacturers on the continent. Although it may take a couple of decades for this kind of industrialisation to bear fruit, **continued support from the AfCFTA secretariat and country-level implementation agencies** could help foster a self-sufficient and profitable automotive sector in Nigeria and in Africa, backed by foreign and regional investment that assembles or produces for the domestic and international market. However, policymakers must be mindful of the high minimum scale and investment required in vehicle assembly and component production. Given that Nigeria has a head-start in this with some SKD assembly, there is scope for it develop a thriving auto sector under the AfCFTA arrangements.

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Appendix 1 Trade statistics

Table 9 Nigeria's imports of intermediate products for automotive production and repair, 2021

Product code	Product description	Trade value in \$ millions
8708	Parts and accessories of the motor	626.26
4011	New pneumatic tyres, of rubber.	462.54
8544	Insulated wire	293.21
8507	Electric accumulators	286.28
8421	Centrifuges	251.82
8413	Pumps for liquids	249.53
8415	Air conditioning machines	233.83
8414	Air or vacuum pumps	209.71
8409	Parts suitable for use with engines	181.67
8302	Base metal mountings, fittings and similar	174.59
9401	Seats	145.18
8536	Electrical apparatus for switching	145.10
8716	Trailers and semi-trailers	109.86
8408	Compression-ignition internal combustion piston engines	105.82
8501	Electric motors and generators	101.02
8301	Padlocks and locks	100.49
8407	Spark-ignition reciprocating or rotary internal combustion ignition engines	86.67
8483	Transmission shafts	79.53
7318	Screws, bolts, nuts, coach screws	78.59
8527	Reception apparatus for radiobroadcasting	57.03

8426	Ships' derricks; cranes	57.00
8512	Electrical lighting or signalling equipment	51.15
4013	Inner tubes, of rubber	48.82
7315	Chain and parts thereof, of iron or steel	38.52
8511	Electrical ignition or starting equipment	33.31
4010	Conveyor or transmission belts	33.04
4016	Other articles of vulcanised rubber	32.75
8482	Ball or roller bearings.	27.16
8525	Transmission apparatus for radiobroadcasting	24.18
7007	Safety glass	20.59
7009	Glass mirrors	19.25
4009	Tubes, pipes, and hoses, of vulcanised rubber	18.15
8531	Electric sound or visual signalling apparatus	17.97
8539	Electric filament or discharge lamp	16.64
8425	Pulley tackle and hoists	13.28
7320	Springs and leaves for springs	13.20
4012	Re-treaded or used pneumatic tyres	13.19
3819	Hydraulic brake fluids and other preparations	11.60
8707	Bodies (including cabs)	9.70
6813	Friction material and articles thereof	5.78
9029	Revolution counters, production counters	5.39
8519	Sound recording or reproducing apparatus	5.06
3820	Anti-freezing preparations	0.92
9104	Instrument panel clocks and clocks	0.04

Note: table compiled using mirror data from Nigeria's trade partners

Source: WITS database.

Table 10 Nigeria's imports of intermediate products for automotive production and repair, main global partner, and main African partner, 2021

Product code (HS 2012)	Product description	Main global exporter to Nigeria	Main African exporter to Nigeria
3819	Hydraulic brake fluids and other preparation	United States	South Africa
3820	Anti-freezing preparations and preparations	Belgium	South Africa
4009	Tubes, pipes, and hoses, of vulcanised rubber	China	South Africa
4010	Conveyor or transmission belts	China	South Africa
4011	New pneumatic tyres, of rubber.	China	South Africa
4012	Re-treaded or used pneumatic tyres	China	n.a.
4013	Inner tubes, of rubber.	China	South Africa
4016	Other articles of vulcanised rubber	China	South Africa
6813	Friction material and articles thereof	China	n.a.
7007	Safety glass	China	South Africa
7009	Glass mirrors	China	South Africa
7315	Chain and parts thereof, of iron or steel	China	Zambia
7318	Screws, bolts, nuts, coach screws	China	South Africa
7320	Springs and leaves for springs	China	South Africa
8301	Padlocks and locks	China	South Africa
8302	Base metal mountings, fittings and similar	China	South Africa
8407	Spark-ignition reciprocating or rot	China	South Africa
8408	Compression-ignition internal combustion piston engines	China	Morocco
8409	Parts suitable for use with engines	China	South Africa
8413	Pumps for liquids	China	South Africa
8414	Air or vacuum pumps	China	South Africa
8415	Air conditioning machines	China	South Africa
8421	Centrifuges	China	South Africa
8425	Pulley tackle and hoists	China	South Africa
8426	Ships' derricks; cranes	China	Zambia

8482	Ball or roller bearings.	China	South Africa
8483	Transmission shafts	China	South Africa
8501	Electric motors and generators	China	South Africa
8507	Electric accumulators	China	South Africa
8511	Electrical ignition or starting equipment	China	South Africa
8512	Electrical lighting or signalling equipment	China	South Africa
8519	Sound recording or reproducing apparatus	China	South Africa
8525	Transmission apparatus for radiobroadcasting	China	South Africa
8527	Reception apparatus for radiobroadcasting	China	South Africa
8531	Electric sound or visual signalling apparatus	China	South Africa
8536	Electrical apparatus for switching	China	South Africa
8539	Electric filament or discharge lamp	China	South Africa
8544	Insulated wire	China	South Africa
8707	Bodies (including cabs)	Thailand	n.a.
8708	Parts and accessories of the motor	China	South Africa
8716	Trailers and semi-trailers	China	South Africa
9029	Revolution counters, production counters	China	South Africa
9104	Instrument panel clocks and clocks	United Kingdom	n.a.
9401	Seats	China	South Africa

Note: table compiled using mirror data from Nigeria's trade partners

Source: WITS database