

CHAPTER 1

The pulse of export diversification in Africa

As highlighted in the introduction, African countries struggle to diversify their exports, partly due to historical factors that created path dependencies from a lack of skills endowment and technological advancement. The first two sections of chapter 1 aim to identify recent drivers of export diversification to provide a better understanding of the key challenges in promoting export diversification. The third section provides a forward-looking perspective of export diversification opportunities that provide greater benefits for structural change. Throughout the analysis, the importance of regional integration in fostering diversification stands out. The last section discusses the pivotal role of the African Continental Free Trade Area in redressing the low levels of intra-African trade and encouraging export diversification.

1.1 Trends driving export diversification and structural change

1.1.1 Measurement of export diversification and data limitations

Different forms of diversification are connected and cannot be understood in isolation. Figure 3 illustrates some elements of diversification, including export diversification across goods and services, domestic output diversification and quality upgrading of already manufactured products.¹ A wide range of products is essential to increase the quality of products through a higher availability of inputs and technologies. The Theil index, a statistical measure of concentration or diversification, is used as the main indicator to identify diversification trends. The Theil index is defined as $T = \sum_{k=1}^n \frac{x_k}{\mu} \ln \left(\frac{x_k}{\mu} \right)$, where k is a specific product line of all product lines n ; μ is the average of product line value; and x_k is the value of the exports in a specific product line. The decomposability property of the index allows a representation of diversification at the intensive margin – within active export lines – and the extensive margin – between active and inactive export lines or export products (the products that a country exports) (see box 4 for a mathematical definition) (Cadot et al., 2011). Higher numbers of the index indicate a higher concentration of exports. To account for quality upgrading within exported products, that is, higher value due to an increase in the quality of a product, as a key channel for structural change, the analysis is supplemented with a revised economic complexity index that considers different unit values within products.

Export diversification is usually measured by the number of export lines and the Theil index. Although the number of active export lines is easier to interpret, export volume can still be strongly concentrated in a few products or sectors only. Both indicators are used to illustrate diversification trends at the aggregate and sector levels. The higher the Theil index, the more unequal the export distribution, and the more concentrated the exports.

For the analysis of diversification trends, this chapter uses officially recorded trade data at the Harmonized System (HS) six-digit level, aggregated to the HS section and chapter level for illustrative purposes.² Export data are bound to limitations in quality and quantity. Of the 54 African countries considered, 45 report trade data in a continuous

¹ Product quality upgrading refers to product differentiation and increases in the value of a product (Hummels and Klenow, 2005). In trade data, this is measured through the reported unit values of traded quantities.

² The analysis of new product diversification opportunities (chapter 1.3) further incorporates different unit values within six-digit product lines.

Figure 3

Elements and linkages of diversification



Source: UNCTAD, based on McIntyre et al., 2018.

manner (UNCTAD, 2020a). However, owing to mirror trade data³ and import data obtained from the United Nations Commodity Trade Statistics Database, only Eritrea and South Sudan had to be dropped in the time-series analysis of the Theil index. Moreover, official trade data may suffer from double counting due to trade in value added and re-exports that are not consistently recorded.

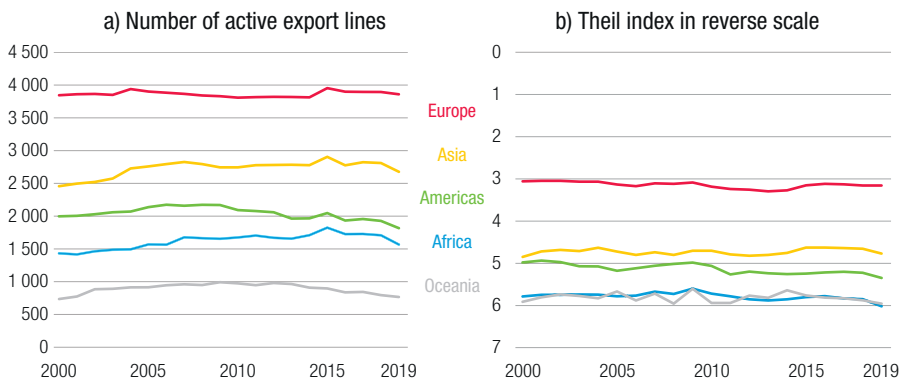
1.1.2 Export diversification trends

Africa is the second least diversified region after Oceania, and it has the most concentrated export structure when considering the unequal distribution of export shares over products (Figure 4b). The least diversified African country, Guinea-Bissau, exported only 178 product lines. Clearly, small-island developing States and the least

³ International trade analysis database and Centre d'études prospectives et d'informations internationales data set based on the United Nations Commodity Trade Statistics database.

Figure 4

Number of active export lines (a) and Theil index in reverse scale (b) of merchandise at country level, average by region, 2000–2019



Source: UNCTAD calculations, based on data from the international trade analysis database and Centre d'études prospectives et d'informations internationales.

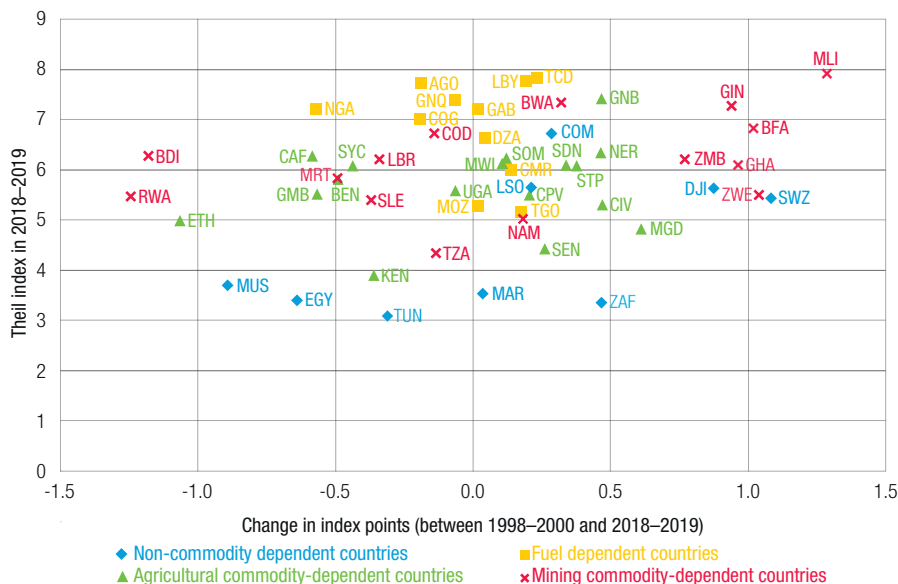
Note: The total number of possible active export lines at the HS 1992 six-digit level is 5,018.

developed countries are the least diversified. However, the small island Mauritius, for instance, is an exception, with 3,034 active export lines. While there has been some improvement in export diversification on average across African countries from 2000–2009 (Figure 4b), exports became more concentrated during the period 2010–2019. The decomposition of the Theil index reveals that, on one hand, diversification increased through a growing number of active export lines, especially until 2015 (see blue line for the average over all African countries in figure 4a). On the other hand, the distribution of export shares over products (the within part of the Theil index) has become more unequal.

Over the past two decades, less than half of all African countries managed to diversify their exports. Figure 5 shows that most countries are in the upper-right quadrant, indicating high concentration in 2018–2019 with a worsening trend compared with 1998–2000 (three-year average). The five countries with the highest export concentration, measured by the Theil index, are Mali, Chad, Libya, Angola and Guinea-Bissau. Of these five countries, only Angola has experienced a slight improvement over the last 20 years. The top five countries with the greatest improvement over the whole period are Rwanda, Burundi, Ethiopia, Mauritius and Egypt. A differentiation of the Theil index into its between

Figure 5

Theil index in 2018–2019 and change compared with 1998–2000



Source: UNCTAD calculations, based on data from the international trade analysis database, the Centre d'études prospectives et d'informations internationales data set and the United Nations Commodity Trade Statistics database. Notes: A negative change in the Theil index indicates increased diversification. Owing to insufficient data, Eritrea and South Sudan are not featured in the figure.

Abbreviations: AGO, Angola; BDI, Burundi; BEN, Benin; BFA, Burkina Faso; BWA, Botswana; CAF, Central African Republic; CIV, Côte d'Ivoire; CMR, Cameroon; COD, Democratic Republic of the Congo; COG, Congo; COM, Comoros; CPV, Cabo Verde; DJI, Djibouti; DZA, Algeria; EGY, Egypt; ETH, Ethiopia; GAB, Gabon; GHA, Ghana; GIN, Guinea; GMB, Gambia; GNB, Guinea-Bissau; GNQ, Equatorial Guinea; KEN, Kenya; LBR, Liberia; LIB, Libya; LSO, Lesotho; MAR, Morocco; MDG, Madagascar; MLI, Mali; MOZ, Mozambique; MRT, Mauritania; MUS, Mauritius; MWI, Malawi; NAM, Namibia; NER, Niger; NGA, Nigeria; RWA, Rwanda; SDN, Sudan; SEN, Senegal; SLE, Sierra Leone; SOM, Somalia; STP, Sao Tome and Principe; SWZ, Eswatini; SYC, Seychelles; TCD, Chad; TGO, Togo; TUN, Tunisia; TZA, United Republic of Tanzania; UGA, Uganda; ZAF, South Africa; ZMB, Zambia; ZWE, Zimbabwe.

component (extensive margin) and its within component (intensive margin of diversification) reveals that in 46 African countries⁴ some export diversification has occurred by adding

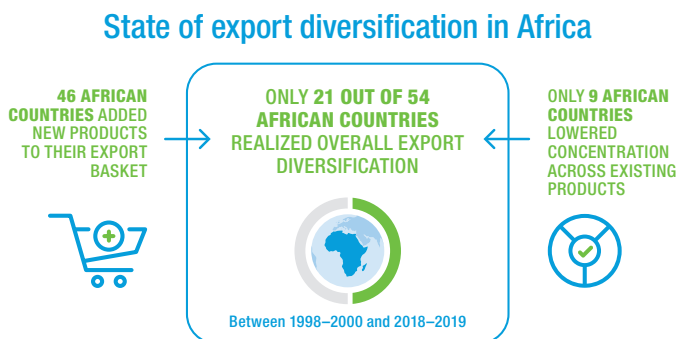
⁴ These are (in order of change): Rwanda, Burundi, Angola, Equatorial Guinea, Congo, Chad, the Democratic Republic of the Congo, Ethiopia, Comoros, Guinea, Mauritania, Mozambique, Uganda, Sao Tome and Principe, Liberia, Sierra Leone, Somalia, Seychelles, Djibouti, Zambia, Malawi, Benin, Ghana, Cameroon, Togo, the Sudan, the United Republic of Tanzania, Madagascar, Guinea-Bissau, Nigeria, Cabo Verde, Libya, Senegal, Algeria, Burkina Faso, Lesotho, Morocco, Mauritius, Mali, Gabon, Egypt, Tunisia, Côte d'Ivoire, Kenya, the Niger and Namibia.

new products (between component), whereas the distribution of export shares over products (within component) has become more equal in only nine countries.⁵

While in the 2000s, export diversification increased in 31 African countries (average improvement of -0.1186 index points), the 2010s was characterized by a reverse trend (average increase by 0.18 index points). This is the case of Uganda (Box 2). On average, the Theil index increased by 0.06 index points, and only 21 African countries diversified their exports between 1998-2000 and 2018-2019. The slowdown or even reversed trend in diversification could be cautiously related to the impact of the global financial crisis in reduced growth in global GDP, trade and investment, and the increasing industrialization of Asian countries, fuelling demand for African natural resources (Whitfield and Zalk, 2020).

Non-commodity-dependent countries are, on average, the most diversified (Theil index 4.5), followed by agricultural commodity-dependent countries (Theil index 5.7), mining commodity-dependent countries (Theil index 6.2) and fuel-dependent countries (Theil index 7). Although mining commodity-dependent countries export on average more products than agricultural commodity-dependent countries (on average 1,829 and 1,410 export lines, respectively), the share of export products is much more concentrated in mining commodity-dependent countries. Between 1998–2000 and 2018–2019, some fuel-dependent countries experienced relatively strong diversification trends.

The intra-African exports of African trading partners are the most diversified, followed by their exports to Europe and Asia. Compared with 1998–2000, exports to all regions were more diversified in 2018–2019, but the strongest diversification increase between that period is observed in exports to Africa and the Americas. Exports to Europe are almost as concentrated as they were two decades ago (Figure 6).



⁵ These are (in order of change): Mauritius, Gambia, Central African Republic, Egypt, Kenya, Nigeria, Tunisia, Ethiopia and Benin.

Box 2

Uganda: Its experience in export diversification

The drive of Uganda to achieve export diversification in the 2000s came along with strong economic growth and poverty reduction. Its commodity dependence decreased from 95 per cent in 1998–2000 to 70.6 per cent in 2008–2010, and the number of exported products grew from 1,031 to 3,242 in the same years. In 2000, diversification was realized in the agroprocessing industries (processed fruits and vegetables, and fish), flowers, wood, minerals, chemicals and some light manufacturing (skins and hides). The share of manufactures in merchandise exports increased from 2 per cent in 1994 to 34 per cent in 2012. The benefits for decent employment creation remained, however, limited. Some emerging non-traditional export sectors, such as petroleum oils and cement, are capital-intensive sectors with little opportunities for additional export diversification potential.

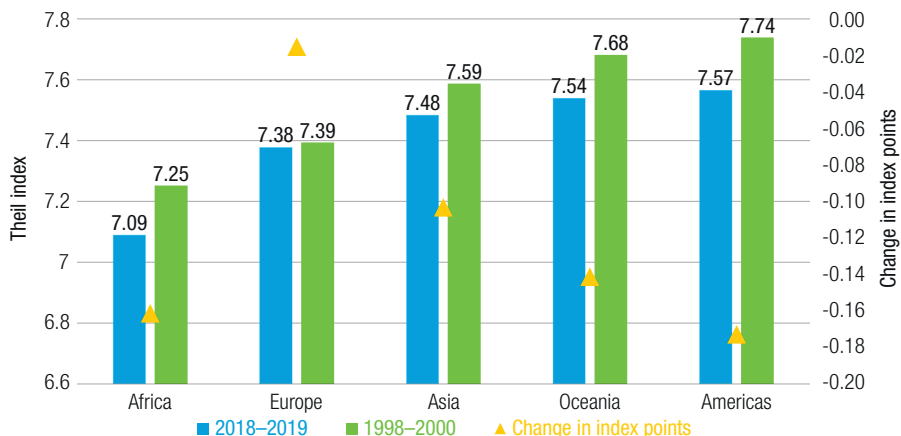
The slowdown of export diversification in the aftermath of the 2008-2009 financial crisis and increased export concentration between 2015 and 2019 might be a syndrome of these structural constraints and the path dependence of diversification potential. According to one study by the Government of Uganda and the United Nations Development Programme, some of the new non-traditional exports, including the agroprocessing industries, add to export diversification but they have limited scope for structural transformation. After the number of exported products more than tripled in the 2000s, it fell from 3,242 to 2,340 between 2008–2010 and 2018–2019. A closer look at the sectoral level shows that the agricultural- and mining-related sectors registered a larger decline in the number of active export lines. A more concerning trend is the decrease in the number of active export lines in chemical products, machinery and mechanical appliances, and vehicles, which are high value added sectors and important to industrialization. The slowing and partially reversing trend of export diversification has also been observed by the *Uganda Science, Technology and Innovation Policy Review*, conducted by UNCTAD in 2018 and 2019.

While there are complex factors at play, a trade-enabling environment and a favourable regulatory environment are necessary conditions to maintain diversification success. In its Third National Development Plan 2020/21–2024/25, the Government of Uganda pointed out that despite some improvements, interest rates and the cost of electricity and information communications and technology (ICT) services remained high, and underinvestment in manufacturing was hindering structural transformation.

Sources: UNCTAD, based on Economic Commission for Africa and United Nations Development Programme, 2017; Government of Uganda, 2020; Government of Uganda and United Nations Development Programme, 2017; Hausmann et al., 2014; UNCTAD, 2020b; World Bank and Government of Uganda, 2015.

Figure 6

African export diversification, by regional trading partner, and change between 2018–2019 and 1998–2000



Source: UNCTAD calculations, based on data from the international trade analysis database and the Centre d'études prospectives et d'informations internationales data set.

A stronger orientation towards the regional African market is a promising avenue for accelerating export diversification, as intra-African exports are dominated by manufactured goods rather than commodities (see chapter 1.4 on the role of the African Continental Free Trade Area).

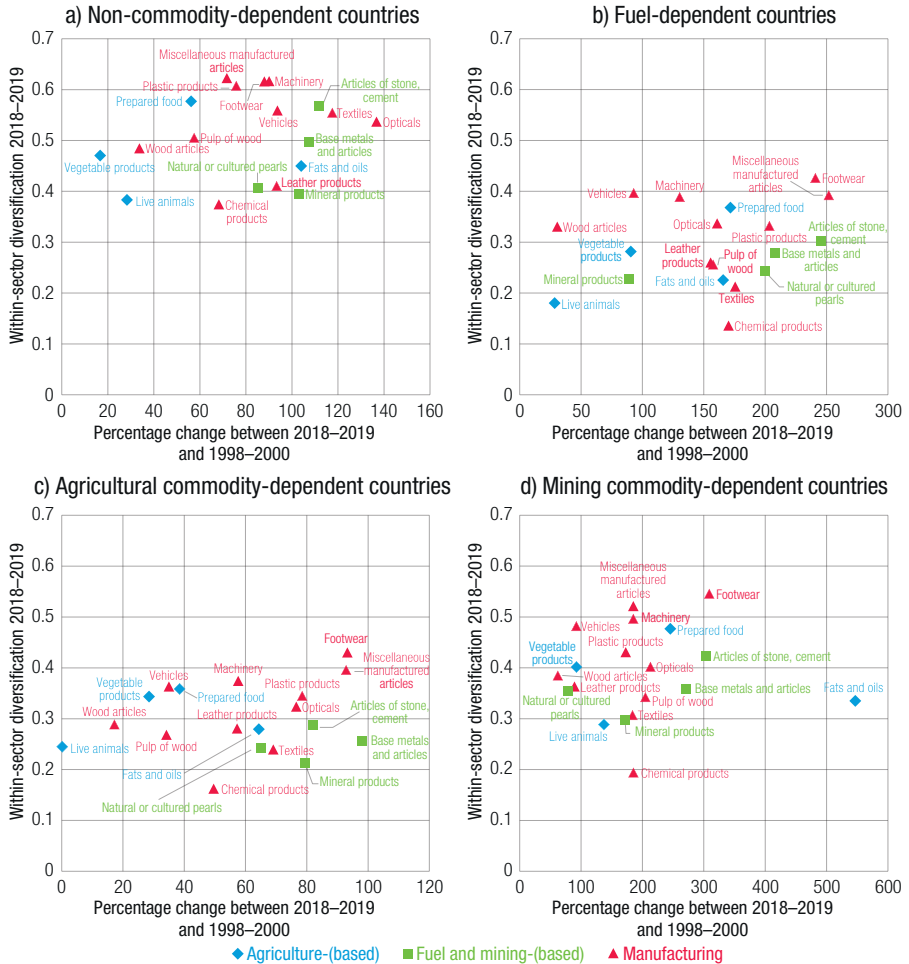
Sectoral diversification trends

A comparison of diversification trends across sectors and between commodity dependence statuses aims to identify some common features and experiences in diversification. Figure 7 illustrates within-sector diversification in 2018–2019 and the change in diversification compared with 1998–2000 across the HS section and according to countries' commodity classification. Each section under the HS classification aggregates a different number of product lines at the HS six-digit level, ranging from 809 product lines in textiles and 762 lines in machinery and mechanical appliances, to 53 in animal and vegetable fats, 55 in footwear and 50 in natural and cultured pearls.⁶ Figure 7 illustrates some sectoral differences across commodity-dependence statuses.

⁶ HS sections 19 (arms and ammunition) and 21 (works of arts) are excluded from the analysis, as they include only 17 and 7 product lines, respectively, at the HS six-digit level.

Figure 7

Sectoral trends in export diversification, by Harmonized System (HS) section and country commodity classification, change between 1998–2000 and 2018–2019



Source: UNCTAD calculations, based on data from the international trade analysis database and the United Nations Commodity Trade Statistics database.

Note: Within-sector diversification refers to the average relative diversification (number of active export lines over the total number of lines within each HS section); the change refers to the percentage change in the number of active export lines.

Non-commodity-dependent countries experienced the strongest diversification trend in opticals, followed by textiles (increase in active export lines of 137 per cent and 118 per cent, respectively, compared with 1998–2000). Fuel-dependent countries diversified more in miscellaneous manufactured articles (252 per cent increase in export lines) and articles of stone (246 per cent). Agricultural commodity-dependent countries diversified more in base metals and articles (98 per cent) and footwear (93 per cent), and diversification in mining commodity-dependent countries was highest in fats and oils (547 per cent increase),⁷ footwear (309 per cent) and articles of stone (304 per cent). These trends suggest that while resource-dependent African countries have diversified and added new products to their export basket, diversification was higher within commodities, compared with sophisticated manufactured products, where diversification was low.

1.1.3 Benefits of diversification for building resilience and structural change

An important objective of export diversification is the promotion of structural change. However, increasing the number of products exported does not necessarily mean that there has been diversification into products with higher value. To determine whether diversification over time occurs in more sophisticated products, indicating structural change and higher productive capacities, UNCTAD (2021c) revised the economic complexity index and introduced a technological development index.⁸ This new index takes into account product differentiation, measured by the unit value of an exported product. A country could still increase its economic complexity by increasing the quality (that is, the value) of its exported products even if it is not adding new products to its export basket. The results suggest that the strongest improvements in technological development have been achieved by Rwanda, Angola, Ethiopia and Uganda, although the first three are still below the African average. Moreover, only three countries (South Africa, Egypt and Morocco) have an index higher than the world average. The ability of a country to increase productive capacities and structural change heavily depends on the availability of inputs, technology and services. Therefore, a broader variety of goods and services is necessary to facilitate product diversification and structural change (Freire, 2019; Hummels and Klenow, 2005).

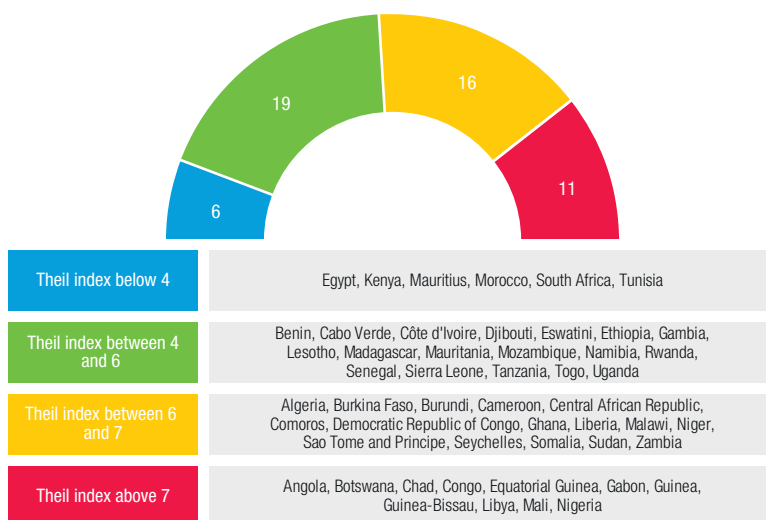
⁷ This sharp increase can be attributed to Rwanda's position as an outlier in the sector, with the country's number of export lines increasing from 0 to 22.

⁸ The technological development index is calculated following Freire (2019) as a revised version of the method of reflections proposed by Hidalgo and Hausmann (2009).

Building resilience through diversification is explained by a portfolio effect (absorbing shocks and reducing volatility) and a dynamic effect (learning effect from the introduction of new products to the basket of goods). For instance, as identified in the literature, an important driver of terms-of-trade volatility is export concentration (for example, Jansen, 2004; Malik and Temple, 2009). A comparison of the volatility of three indicators – terms of trade, government revenue and GDP – by export diversification performance shows that, on average, countries with the lowest levels of export diversification (Theil index above 7) experienced the highest volatility in all three indicators, followed by countries with a Theil index ranging between 6 and 7 (Figure 9). Countries with high levels of diversification have the largest government revenues as a share of their GDP. In 2019, while the highly diversified countries yielded an average government revenue of 24 per cent of GDP, the least diversified countries not only had the most volatile revenues (Figure 9a), but the lowest levels in 2019, as well, with values of 19.4 per cent (countries with a Theil index above 7) and 13 per cent (countries with a Theil index between 6 and 7). Figure 8 provides a breakdown of African countries by their Theil index in 2018–2019.

Figure 8

African countries by Theil index, 2018–2019

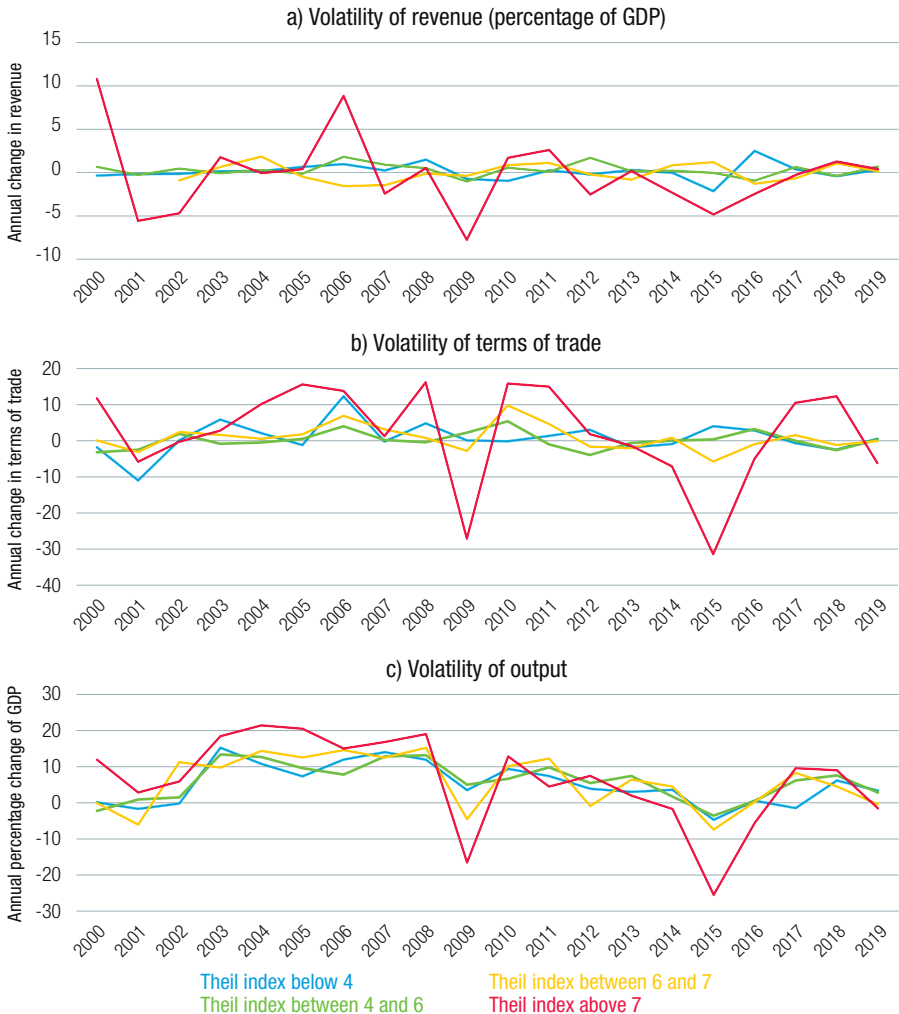


Source: UNCTAD calculations, based on data from the international trade analysis database and the Centre d'études prospectives et d'informations internationales data set.

Note: Owing to insufficient data, Eritrea and South Sudan are not featured in the figure.

Figure 9

Volatility of revenue in percentage of gross domestic product, terms of trade and output, average by export diversification status, 2000–2019



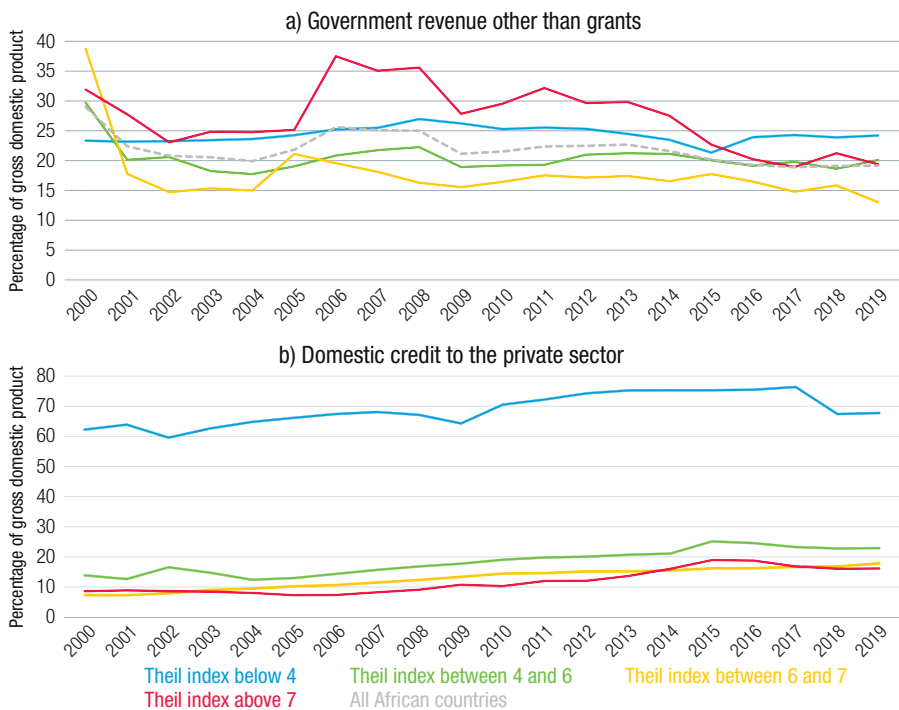
Source: UNCTAD calculations, based on data from the international trade analysis database, World Development Indicators database (World Bank) and UNCTADstat database.

Notes: Figure 9a does not include grants; in figure 9c, output volatility is expressed as current GDP in dollars.

As illustrated in figure 10a, the least diversified African countries had on average the highest government revenue as a percentage of their GDP between 2002 and 2015. This period was characterized by high commodity prices. However, revenues declined sharply after 2015, while the economies remained concentrated and dependent on a few export products. Over the observed period from 2000 to 2019, credit to the private sector was also by far the highest in the most diversified countries (on average 67.8 per cent of GDP), and lowest in the least diversified countries (between 16.2 and 23 per cent of GDP; see figure 10b), indicating the structural limitations these countries face to promote long-term investment plans and national development goals.

Figure 10

Government revenue other than grants (a) and domestic credit to the private sector (b), in percentage of gross domestic product, average by export diversification status, 2000–2019



Source: UNCTAD calculations, based on data from the international trade analysis database, World Development Indicators database (World Bank) and UNCTADstat database.

Note: See figure 9.

The pandemic has further demonstrated the importance of building resilience through diversification. The significant decline in international trade and production during the pandemic has had profound repercussions (UNCTAD, 2021d), especially since most countries in Africa have a high level of commodity dependence and rely heavily on world markets (see box 3 on the impact of the COVID-19 shock on export diversification). For instance, as one of the least diversified African economies, especially relative to per capita income, Botswana experienced a steep drop in its export demand during the pandemic owing to its dependence on diamonds (Reuters, 2020; Ventures Africa, 2020). On one hand, good governance and sound economic management has enabled the country to turn its diamond wealth into prosperity, and revenues from diamonds have been invested in public goods, which helped achieve better performance in education and health than many other resource-rich countries. On the other hand, the country shows little progress in structural transformation and faces high unemployment rates (22.6 to 24.9 per cent in 2019–2020), which hinders long-run economic growth and prosperity (Barczikay et al., 2020).

Resource-dependent countries are especially vulnerable when their foreign reserve buffers are low, causing severe balance-of-payments crises. Measured in reserves by months, Botswana, Namibia and the United Republic of Tanzania, which are dependent on mining in diamonds, copper, and gold, could overcome the decline in exports over nine, four and six months, respectively. By contrast, the Democratic Republic of the Congo and Eritrea have reserves equivalent to less than one month of imports (Natural Resource Governance Institute, 2020).

Box 3

The COVID-19 pandemic and its impact on export diversification

When the COVID-19 global pandemic struck in March 2020, unprecedented national and international measures were implemented to combat the health and economic crisis. Monthly trade data for the year 2020, obtained from the United Nations Commodity Trade Statistics database for 13 African countries, is used to assess the effect of the external shock caused by the pandemic on export diversification. While all countries experienced a drop in total exports and the number of exported products when lockdowns were imposed in April 2020, two of the most diversified countries in the sample – Mauritius and South Africa – experienced the largest decline in exports. However, in May 2020 and the following months, when lockdowns were relaxed, nearly all countries were able to significantly increase exports again. In the medium term, the most diversified economies in the sample (Egypt, Mauritius, Kenya and South Africa) experienced

a sharp increase in exports again over the rest of 2020, while the less diversified countries experienced an overall decline or a small growth in their exports. In terms of active export lines, the highly diversified countries were quickly able to export the same number of product lines and even increased the number, while the least diversified countries saw either a decline in export lines (minus 130 in the case of Botswana) or a slight increase.

Although the benefit of export diversification in reducing the vulnerability to external shocks can be confirmed, other policies such as support to firms to maintain their businesses was one of the crucial factors in resuming production and exports. COVID-19 has a long-term impact on the organization of regional and global value chains, with a trend towards stronger regionalization and incentives for companies to diversify suppliers in the interest of greater resilience. The evolving industry 4.0 and increasing automation of production processes swiftly led to re- and on-shoring of activities, but in combination with new trade restrictions, COVID-19 is expected to promote regionalization further. What this re-organization of value chains implies for the export diversification potential of African countries is discussed in chapter 1.2.3. The pandemic has facilitated these processes and amplified existing fault lines but does not change the essential policy frameworks to spur diversification. Rather, the pandemic gives momentum to build the diversification strategy of Africa on regionalization and equal access to inputs and services. Regionalization and supplier diversification could expand export diversification opportunities for African countries.

Source: UNCTAD, based on Fortunato, 2020; UNCTAD, 2020c; United Nations Industrial Development Organization, 2021.

1.2 Rethinking drivers of export diversification in Africa

This section empirically assesses determinants of export diversification. There is an extensive amount of literature on export diversification, and many determinants have been identified; these focus mainly on national determinants of export diversification (Elhiraika and Mbate, 2014; Giri et al., 2019; Gnanngnon, 2021; Osakwe et al., 2018; UNCTAD, 2018a; UNCTAD, 2018b)⁹. The following econometric assessment closes

⁹ To name an exception here, Regolo (2013) assesses bilateral drivers of export diversification for a sample of 102 trading partners over the period 1995–2007 and finds that similarities in factor endowments (physical and human capital, and land), differences in GDP and lower trade costs are positively associated with bilateral export diversification, emphasizing the role of structural factors and the importance of “who you trade with” in export diversification.

the gap in the literature by applying a bilateral panel data model on African countries. It provides new evidence on structural factors for geographical diversification and intra-African export diversification. Box 4 describes the econometric approach. Owing to data limitations and the multidimensional relationship between export diversification and its potential drivers, the analysis should not be considered to establish causality. Instead, it aims to shed light on the relevance of different policies and structural constraints to diversification.

Box 4

Evaluating drivers of export diversification in Africa: An empirical approach

The empirical analysis identifies drivers of export diversification in Africa and investigates the most significant ones. The following equation is estimated:

$$y_{ijt} = \beta_1 E_{it} + \beta_2 D_{jt} + \beta_3 Z_{ijt} + \gamma_i + \delta_j + \eta_t + \epsilon_{ijt} \quad (1)$$

where y_{ijt} is a measure of bilateral export diversification, E_{it} are exporter-specific variables, D_{jt} are importer-specific variables, Z_{ijt} are bilateral trade costs variables, γ_i are exporter-fixed effects, δ_j are importer-fixed effects, η_t are time-fixed effects, and ϵ_{ijt} is the error term. All time-varying variables enter with their first lag.

Export diversification is measured by the Theil index (as defined previously), differentiated into its between component and its within component, and the number of exported products. The two subindices of the Theil index are given by Cadot et al., 2011:

$$T^{Between} = \sum_{j=1}^J \frac{n_j}{n} \frac{\mu_j}{\mu} \ln\left(\frac{\mu_j}{\mu}\right) \quad (2a)$$

$$T^{Within} = \sum_{j=1}^J \frac{n_j}{n} \frac{\mu_j}{\mu} T_j \quad (2b)$$

Where n is the number of product lines (here: 5,018 lines), μ is the average product line value; j refers to the group of active export product lines versus non-active product lines (hence, $j = 1, 2$); J is the number of subgroups; and T_j is the overall Theil index for group j .

While the between component (equation 2a) describes the concentration of different products in the export basket, the within component (equation 2b) compares the value of exports between the products. Both parts of diversification may be driven by different policy variables and deserve a separate econometric analysis. The analysis uses mirror trade data at the HS six-digit level (International trade analysis database and Centre d'études prospectives et d'informations internationales data set based on the United Nations Commodity Trade Statistics database).

Most studies in the literature focus on a particular founding factor and include only a few other principal covariates. However, there remains uncertainty about the importance of each variable identified in the literature. Further, adding more and more variables would create collinearity. Therefore, instead of choosing the single best model by using a relatively arbitrary criterion, the econometric analysis makes use of Bayesian model averaging to address model uncertainty. This technique considers every possible combination of included determinants and has the advantage of being more robust than relying on a single, potentially misleading, model.

The selection of variables used in the analysis attempts to balance the inclusion of as many relevant factors as possible without the loss of too many observations simultaneously. The estimation strategy of equation 1 incorporates the most cited variables in the literature with sufficient data for African countries. In the end, the availability of data made it possible to study 38 African countries and 128 trading partners from 1995 to 2018.

The table below indicates all potentially relevant variables that were tested with regard to their significant relationship with export diversification. Therefore, the exporter- and importer-specific variables E_{it} and D_{jt} include GDP per capita, population, school enrolment, domestic credit to private sector, access to electricity, mobile subscriptions, institutional quality (proxied by world governance indicators), manufacturing value added as a percentage of GDP, services value added as a percentage of GDP, gross capital formation as a percentage of GDP, FDI as a percentage of GDP, exchange rate stability, trade openness as a percentage of GDP, resource rents as a percentage of GDP; E_{it} additionally includes Aid-for-Trade commitments, tariffs charged on capital goods, intermediate goods and raw materials; D_{jt} also includes market proximity of the trading partner; and Z_{ijt} includes bilateral tariffs (faced tariff), regional economic community dummy, non-tariff trade costs and common gravity variables such as distance, common border and common language.

The relevance of each variable in driving export diversification is reported by the posterior inclusion probability. The higher the estimated posterior inclusion probability, the more relevant the variable in explaining bilateral export diversification of African countries.

Table 4.1

Main determinants of export diversification in the literature and estimates of posterior inclusion probability in the bilateral model of African export diversification with world and African trading partners

Determinant and proxy	Evidence in the literature	Relevance for geographical product diversification (TBetween) with world trading partners	Relevance for geographical product diversification (TBetween) with African trading partners
(1)	(2)	(3)	(4)
Structural			
Common border	+	1.00	1.00
Common language	+	1.00	1.00
Market proximity of trading partner	+	1.00	0.08
Common colonizer	+	1.00	1.00
Common religion	?	1.00 (+)	0.85 (+)
Non-tariff trade costs	?	1.00 (-)	1.00 (-)
Distance	-	1.00	1.00
Population	+	0.08 (exporter), 0.77 (importer)	0.15 (exporter), 0.10 (importer)
Natural resource rents	-	0.78 (exporter), 0.13 (importer)	0.55 (exporter), 0.06 (importer)
Policy (general)			
Development (GDP per capita)	+	1.00 (exporter), 1.00 (importer)	1.00 (exporter), 0.54 (importer)
Human capital (School enrolment)	+	0.07 (exporter), 0.06 (importer)	0.09 (exporter), 0.19 (importer)
Financial development (credit to private sector)	Weak +	0.18 (exporter), 0.04 (importer)	0.06 (exporter), 0.25 (importer)
Physical infrastructure (access to electricity)	Weak +	0.08 (exporter), 0.17 (importer)	0.28 (+) (exporter), 0.07 (+) (importer)
Digital infrastructure (mobile subscriptions)	?	0.14 (-) (exporter), 0.49 (+) (importer)	0.08 (+) (exporter), 0.26 (+) (importer)
Institutions (worldwide governance indicators)	+	0.22 (exporter), 1.00 (importer)	0.16 (exporter), 1.00 (importer)
Manufacturing value added (percentage of GDP)	+	0.08 (exporter), 0.05 (importer)	0.08 (exporter), 0.06 (importer)
Services value added (percentage of GDP)	+	0.08 (exporter), 0.76 (importer)	0.62 (exporter), 0.08 (importer)
Gross capital formation (percentage of GDP)	Weak +	0.05 (exporter), 0.92 (importer)	0.08 (exporter), 0.12 (importer)
Aid (Aid-for-Trade commitments)	0/+	0.12 (exporter)	0.06 (exporter)
Inflation	-	0.17 (exporter), 0.05 (importer)	0.11 (exporter), 0.06 (importer)
Bilateral exchange rate depreciation	+	0.08	0.38
Exchange rate stability	Weak +	0.28 (exporter), 0.35 (importer)	0.06 (exporter), 0.09 (importer)
FDI (percentage of GDP)	0	0.04 (exporter), 0.8 (-) (importer)	0.12 (exporter), 0.09 (importer)
Policy (trade)			
Market access (regional economic community dummy)	+	1.00	1.00
Market access (bilateral tariffs)	-	0.09	0.99
Market access (trade openness)	0/+	0.14 (exporter), 0.05 (importer)	0.06 (exporter), 0.50 (importer)
Tariffs charged on intermediates	?	0.98 (-)	0.20 (-)
Tariffs charged on capital goods	?	0.08 (-)	0.12 (-)
Tariffs charged on raw materials	?	0.09 (-)	0.11 (-)
Number of observations		24 617	7 255

Source: UNCTAD calculations, based on a background paper prepared as part of the report.

Notes: Column 2: (-) = negative impact on export diversification; (+) = positive impact on export diversification; weak + = weak positive impact on export diversification; (?) = insufficiently studied relationship in the literature. Columns 3 and 4: posterior inclusion probability smaller than 0.5 = not impactful; between 0.5 and 0.75 = gives weak evidence; between 0.75 and 0.95 = gives strong positive evidence; between 0.95 and 0.99 = gives strong evidence; and greater than 0.99 = gives decisive evidence. Coefficient signs are in line with estimates in the literature, or otherwise indicated in parentheses.

1.2.1 Drivers of diversification are diverse and complex

The following discussion of the empirical results is grouped into structural factors and factors that relate to a country's trading partner; general economic policy variables such as human capital, institutions or exchange rate stability; and trade policy variables such as tariffs. The classification of variables into subgroups makes it possible to investigate more nuanced structural factors that may explain African export concentration in contrast to economic-related policies, in particular trade-related policies.

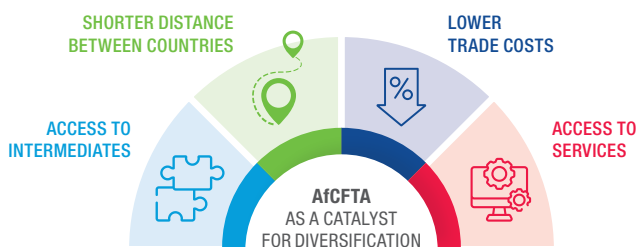
The table in box 4 provides results on the relevance of each variable for geographical product diversification (between part of the Theil index) of African countries with its world trading partners (column 3) and African trading partners (column 4). This chapter only discusses the variables that show the strongest evidence as determinants of export diversification.

First, structural and importer-related factors play a stronger role in explaining export diversification than policy variables. All bilateral structural factors – shorter distance, common border, common language – prove to be highly significant drivers of bilateral export diversification. In addition, culturally close trading partners exchange a larger number of products. Moreover, importer demand in the form of per capita GDP and population matter more than an exporter's population size and GDP. When a trading partner's share of services in GDP is substantial, this is positively associated with export diversification in Africa.

Second, the most relevant variable to promote intra-African bilateral diversification with regard to exporters is a larger share of services value added. By providing business services and market knowledge, information and communications technology (ICT) services facilitate tapping into new markets with new or existing products. Further, transport and distribution services are important across value chains to store and sell products. Access to financial services and research and development are essential to innovation of new products and the continuous improvement of products to survive in markets. Business services can be employed to overcome structural constraints through marketing and consulting to position products on the market. In South Africa, for example, small manufacturing companies played an important role in providing after-sales maintenance and repair services (UNCTAD, 2021e). Digitalization and digital technologies have been found to be significant drivers of economic growth and development (Azu et al., 2020; Solomon and van Klyton, 2020).

Third, high trade costs and the applied average tariff rate on intermediates are major barriers to export diversification in African countries, especially with world trading partners. Input costs of firms have to be reduced for better integration into value chains and subsequently being able to tap competitively into new export markets. The negative effect of high tariffs on intermediates and capital goods is confirmed in the literature on value chain integration (Estevadeordal and Taylor, 2013; Slany, 2019).

Main drivers of Africa's export diversification



Fourth, some policy variables that would be expected to play a stronger role in diversification are not relevant and even go against conventional thinking. This is presumably the case of FDI (see chapter 1.2.2). Financial development, on the other hand, measured by credit to the private sector in the exporting country, has a weak positive link with export diversification at the extensive margin, but tends to concentrate trade flows at the intensive margin of diversification. This finding can question the overall significant effect of financial development on total diversification. An initial argument for this contrasting finding, which is also confirmed in the literature (Fosu and Abass, 2019; Giri et al., 2019), could be that currently competitive products might benefit more from available financing than non-competitive products. With opportunities to grow, these products might become more dominant in the export basket and concentrate export values. The importance of deep financial development and alternative lending allowing equal access to finance across the population is discussed in chapter 3.

What also comes as a surprise is that lower market access measured through bilateral tariffs result in more evenly distributed trade volumes among existing exports. A reason for this might be that bilateral trade policy at a more disaggregated level could be targeted at exports of currently competitive goods, potentially reducing incentives to diversify into new products (chapter 1.2.2).

1.2.2 Making changes in investments, trade and industrial policies to promote export diversification

Diversifying the investment portfolio

As discussed earlier, the obtained results from the empirical assessment indicate that FDI has a limited effect on export diversification for the sample of 38 African countries considered. The impact of FDI on export diversification is related to the level of education and the overall business environment of the host country, as shown in the examples of Mauritius (Box 5), Chile (Box 7) and Viet Nam (Box 6) (see chapter 1.3). These countries were able to leverage FDI inflows to promote diversification and industrialization. In 2019, Mauritius ranked among the top 10 investor economies by FDI stock in Africa and recorded the largest FDI stock (valued at \$37 billion) among African economies (UNCTAD, 2021f). Viet Nam, for instance, explored its new comparative advantage in electronic and telecommunication equipment through the attraction of FDI. The country recorded \$16 billion of FDI inflows in 2020, placing it among the top 20 host economies globally (UNCTAD, 2021f). Another factor in the limited role of FDI might be the distribution across sectors. A comparison of greenfield investment data between developing Africa and developing Asia indicates that developing Asia attracted more investment in manufacturing industries (chemicals, and electronics and electrical equipment) and high-knowledge services (finance and insurance services) (UNCTAD, 2021f).

In 2021, African countries brought in \$77.2 billion of greenfield investments, indicating a small rise after the large decline in investments between 2019 (\$151 billion) and 2020 (\$64 billion).¹⁰ Between 2020 and 2021, the electricity, gas and steam sector, and the information and communications sector each accounted for about one quarter of investments. Other leading industries are transportation and storage (6 per cent) and the manufacture of other non-metallic mineral products (5 per cent), such as glass and glass products, cement and plaster. Some differences are observed in the share of top industries by type of commodity dependence (Table 1). In mining commodity-dependent countries, the electricity sector alone received on average 40 per cent of greenfield investment (2020–2021), followed by information and communications (16 per cent), and mining and quarrying (12 per cent). The dominance of energy in the investment portfolio increased between 2010 and 2011 from 2.8 per cent of total investment to 30.9 per cent in 2015–2016. A similar trend

¹⁰ The data on announced greenfield investment projects used for this section are obtained from fDi Markets, a service of the Financial Times (www.fDimarkets.com; accessed on 22 April 2022).

can be overserved for fuel-dependent countries which, on average, pulled in the largest amount of investment in 2021 (\$5.1 billion), compared with \$1.8 billion in a non-commodity- dependent country, \$863 million in a mining commodity-dependent country and \$389 million in an agricultural commodity-dependent country. Agricultural commodity-dependent countries invest the most in information and communications (24 per cent), followed by the manufacture of coke and refined petroleum products (16.2 per cent).

Although all sectors have been included, irrespective of their export potential, a dominant amount of investment still goes into the extractive industries, despite a rising shift in FDI from natural resources to services between 2010–2011 and 2020–2021 (Table 1). Facilitating additional investment in high-productivity services such as ICT is an important means of advancing economic diversification (World Bank, 2019). Investment incentives have been used by many developing countries, including in Africa, to attract FDI to the sectors with the greatest potential for diversification and sustainable development. Such incentives can include an exemption of import duties for the import of raw materials or intermediates, or other tax benefits, such as income tax relief. While this could encourage investment in product diversification, research and development, and boost the competitiveness of firms, tax incentives run the risk of increasing inequalities, as much-needed government revenues would decline. Studies such as James (2013) suggest that, on their own, incentives have limited effects on investment; however, the link to the overall investment climate is what promotes investments. Moreover, policymakers should use investment incentives to foster linkages to local and regional firms, which has been an important channel for furthering technology transfer and knowledge spillovers from FDI (Sabha et al., 2020). For instance, Singapore introduced a local industry upgrading programme to support the transfer of technology and knowledge from multinational enterprises to domestic firms, and South Africa offers initial capital allowance for foreign companies that acquire goods and services to form local SMEs, create direct employment and provide skills development (Sabha et al., 2020). Investment incentives can also be used to support women’s employment, for instance by hiring or promoting women and businesses owned or managed by them, and to provide child care and parental leave (Kronfol et al., 2019). The African Continental Free Trade Area will play an important role in boosting intra-African FDI through regional integration and a joint protocol on investment policy, and thus contribute to diversification. The protocol is also expected to include innovative provisions on investor obligations to ensure that investments contribute to sustainable development (UNCTAD, 2021d).

Table 1

Greenfield investments, by commodity dependence and sector

(Percentage)

	2010–2011	2015–2016	2020–2021
Mining commodity-dependent countries			
Primary	47.2	18.2	13.1
	Agriculture, forestry and fishing	0.3	0.1
	Mining and quarrying	47.0	18.1
Manufacturing	35.8	19.1	16.4
Services	17.0	62.7	70.4
<i>(Other) top industries by share of total</i>			
Electricity	2.8	30.9	40.4
Information and communications	8.2	7.1	16.5
Manufacture of other non-metallic mineral products	2.4	2.2	6.0
Transportation and storage	0.4	6.3	4.6
Food, beverages and tobacco	2.7	1.7	2.2
Agricultural commodity-dependent countries			
Primary	9.1	2.5	2.8
	Agriculture, forestry and fishing	0.1	0.3
	Mining and quarrying	9.0	2.3
Manufacturing	60.6	44.5	36.2
Services	30.3	53.0	61.0
<i>(Other) top industries by share of total</i>			
Information and communications	7.6	4.6	23.4
Manufacture of coke and refined petroleum products	34.6	0.1	16.2
Transportation and storage	1.2	11.4	13.1
Manufacture of other non-metallic mineral products	3.6	5.8	11.1
Electricity	12.7	8.0	7.0
Fuel-dependent countries			
Primary	22.0	16.1	6.0
	Agriculture, forestry and fishing	2.8	1.9
	Mining and quarrying	19.3	14.2
Manufacturing	43.9	20.0	27.9
Services	34.1	64.0	66.1
<i>(Other) top industries by share of total</i>			
Electricity	10.4	18.5	24.5
Information and communications	9.3	6.0	23.9
Manufacture of coke and refined petroleum products	18.9	3.1	9.7
Transportation and storage	1.5	11.4	5.5
Manufacture of other non-metallic mineral products	3.1	3.0	5.2
Non-commodity-dependent countries			
Primary	12.2	12.8	4.7
	Agriculture, forestry and fishing	0.1	0.0
	Mining and quarrying	12.1	12.8
Manufacturing	33.1	16.0	23.2
Services	54.7	71.1	72.0
<i>(Other) top industries by share of total</i>			
Information and communications	11.6	1.8	26.8
Electricity	10.0	24.0	19.0
Motor vehicles and other transport equipment	8.5	6.3	8.3
Construction	16.9	14.2	8.1
Transportation and storage	2.6	5.8	4.9

Source: UNCTAD calculations, based on data from fDi Markets.

1.2.3 Trade and industrial policies to create incentives for diversification and value addition

The finding that bilateral tariff rates might limit export diversification is controversial but hints at the misalignment of national and multilateral trade policies with the diversification agenda of African countries. First, tariff peaks tend to be concentrated in agriculture, as well as in apparel and textiles (UNCTAD, 2019b). By contrast, low tariffs on commodities potentially reduce market incentives for commodity-dependent countries to diversify. Second, observed tariff escalation (the practice of imposing higher tariffs on consumer products than on raw materials and intermediates) favours processing industries closer to the consumer to avoid high tariffs on finished products but discourages processing activities in countries where raw materials originate.

Export diversification and structural change are not expected to emerge spontaneously. Successful export diversification requires an active role of the State and industrial policies to promote value added sectors (for example, agroprocessing and manufacturing) and enhance the competitiveness and productive capabilities of domestic firms (see box 5, example of Mauritius). However, there is a risk that industrial policies may be ineffective due to information asymmetries in entrepreneurs' behaviour and response to industrial policies, potential rent-seeking by industry lobbyists and government officials, and limited institutional capacity to design and administer implemented policies (Oqubay et al., 2020; UNCTAD, 2021g). Some key issues that increase the effectiveness of industrial policies can be summarized from the literature: strong administrative capacity, accountability of policymakers and implementing agencies through reporting requirements, close public-private sector relationships, and the inclusion of a broad set of stakeholders representing a large number of disadvantaged groups (Economic Commission for Africa, 2014; Economic Commission for Africa, 2016; Oqubay et al., 2020; UNCTAD, 2020d; UNCTAD, 2021e). In Singapore, for instance, the Government spearheaded efforts to promote industrialization through the Economic Development Board, a quasi-government agency, which acted as the pilot agency in coordinating industrial policy (Economic Commission for Africa, 2014).

A regional approach through the African Continental Free Trade Area could support countries with limited administrative and financial capacities to implement strategic industrial policies (see chapter 1.4).

Box 5**The experience of Mauritius in leveraging trade and industrial policies for export diversification**

Mauritius is often cited as a positive example of export diversification, shifting from mainly agriculture (sugar) in the 1970s to manufacturing in the 1990s and a range of services since the early 2000s. After the collapse of international sugar prices, policymakers decided to target the textile industry. In addition, the island succeeded in developing exports of processed fish, through investments in processing facilities (sorting and cleaning), warehousing and storage, and ancillary services (ship handling and repair services).

The creation of export-processing zones was largely financed by taxes on sugar but they enabled the emergence of a textile industry and later an electronic components industry. In addition, labour productivity increases in the agriculture sector were also key to freeing up resources in the manufacturing sector. Apart from export-processing zones that provided necessary infrastructure, the country also restricted imports through tariffs and subsidized exports on manufacturing in the form of exemptions from corporation tax and access to import-free inputs and equipment.

Apart from trade policies that created incentives for diversification, one study argues that the institutional structure was also favourable for the implementation of these policies.

Source: UNCTAD, based on McIntyre et al., 2018; Mosley, 2018; UNCTAD, 2018a; UNCTAD, 2021e.

1.2.4 Changes in the global economy and value chain dynamics

Global value chains can help to diversify by tapping into new activities where a country can create a new comparative advantage. For instance, Viet Nam was successful in diversifying through the integration into global and regional value chains and actively participated in regional electronic networks (Brenton et al., 2022). Yet, in global value chains where low value added activities have been outsourced to low-wage countries, the generally most profitable activities – research and development, marketing and branding – are still performed at headquarters, creating rents and increasing stock market valuation of a few leading firms (UNCTAD, 2017a). As noted in box 3, the pandemic has increased the trend towards greater automation and the re-shoring of production activities. The fourth industrial revolution diminishes the advantage of low-skilled labour and could lead to a reduction of benefits and opportunities for job

creation in global value chains. Kaplinsky (2021) emphasizes the transformative power of ICT for “building a more economically, socially and environmentally sustainable future” (see chapter 3).

Barriers to entry into global value chains due to the dominance of global buyers have been identified in the literature (for example, Gereffi and Korzeniewicz, 1994; Gereffi et al., 2005), yet little research exists on the role of domestic market structures and broader institutional relations such as the nation State (Davis et al., 2018). To facilitate the diversification of production and exports, it is important to break down barriers to sustainable entry. Barriers to entry and survival can stem from the following factors: (a) the process of establishing a business (property rights regulation and access to productive resources, including financial capital and land) (Aghion et al., 2005; Djankov et al., 2002); (b) market entry barriers such as import-export regulation, trade-related infrastructure or the proximity to markets; and (c) value chain entry barriers created by specific requirements or preferences of value chain actors (for example, of food retailers). For example, in the Kenyan food industry, Kamau et al. (2019) emphasizes the role of standards set by lead firms in the sector that limit the potential of small firms to enter and survive in new markets. Strong intellectual property rights and branding by multinational firms often prevent imitators from entering the market which may restrict the diffusion of technology and knowledge. The example of Chile highlights the role of State intervention in promoting knowledge and emulation through Fundación Chile.¹¹

Many African countries face structural challenges to meet increasing standards in global value chains and lack the capacity to adapt production processes to international standards or finance to adopt modern equipment (Kaplinsky and Kraemer-Mbula, 2022). Innovation creates barriers to entry because of very specific knowledge and technology. The larger the technology or innovation, the greater the benefit. Owing to network externalities and economies of scale, new competitors are often not able to enter certain markets (UNCTAD, 2021e). Where access to market is facilitated, firms can face the challenge of survival. The exporter dynamics database reveals that survival rates of African firms are lower than the world average (UNCTAD, 2021d). Information and market knowledge, as well as access to intermediate inputs and finance, play an important role in increasing the survival of new market entrants. Further, the information

¹¹ Fundación Chile is a non-profit corporation that was set up in 1976 through a public-private partnership – a joint agreement between the Government of Chile and ITT Corporation, originally International Telephone and Telegraph, a North American conglomerate. It proactively introduces technological innovations and develops companies in target industries, including agribusiness, marine resources, forestry, environment and chemical metrology, human capital, and information and communication technologies (Lebdjou, 2019; World Bank, 2014).

in the exporter dynamics database on market structure and dynamics suggests that the larger the number of firms in a given market, the lower the survival rate of firms, as competition is high to begin with. There seems to be a stronger incentive to enter a market where knowledge and spillovers already exist, as diversification into new markets in products is costly, and there is weak institutional incentive for experimenting. At the sector level, there are sharp differences in entry and survival rates. Manufacturing, for example, is characterized by high barriers to entry and survival, increasing returns to scale and imperfect competition (Odiije, 2019). Small markets, limited access to finance and market information represent a major structural barrier for many African enterprises to step into the manufacturing sector. Low survival rates point to the need to actively engage with lead firms in the value chain to expand the opportunities of local firms.

The promotion of partnerships between supermarkets and small or new processors can facilitate market entry but should be maintained under the supervision of competition policy authorities to reduce anticompetitive behaviour in negotiations (UNCTAD, 2021e). International cooperation, including South–South cooperation, such as under the African Continental Free Trade Area Protocol on Competition Policy, can promote backward and forward linkages and improve the efficiency of supplying industries. In many input markets such as the fertilizer, cement, energy, finance and telecommunication markets, anticompetitive behaviour and entry barriers structurally limit diversification. For instance, in Kenya, competition policy reform played a pivotal role in the emergence of mobile banking services (Organisation for Economic Co-operation and Development and World Trade Organization, 2019).

1.2.5 The role of services in expanding markets and industries

The importance of regional value chains and global value chains for trade and integration in Africa cannot be overstated, as they form the basis of modern trade (Organisation for Economic Co-operation and Development, 2013). While accounting for about 70 per cent of global trade (Organisation for Economic Co-operation and Development, 2022), viable value chains remain among the key determinants for success and the effective exploitation of the benefits of the African Continental Free Trade Area through enhanced productivity, sophistication and the diversification of exports (Kowalski et al., 2015). However, most African countries are yet to become effectively integrated into these production and supply chains, as their exports are still dominated by raw or semi-processed primary commodities (Gondwe, 2021). Accordingly, most African countries are seen to be active in the lower segments of the

global value chains (Mouanda-Mouanda, 2019), with forward integration dominating their participation in global value chains. Figure 11 shows that forward integration is prevalent in most of Africa,¹² accounting for about 61 per cent on average of total participation in African global value chains.¹³ This suggests that Africa is yet to fully exploit the benefits of participating in global value chains. These benefits are greater, with a larger share of backward participation, as it highlights increased importation of competitive inputs for enhancing complexity and variation of the export basket (Conde et al., 2015). While key in enhancing industrial productivity and market access, the enhanced complexity and variation of exports are equally important to insulate industries from economic shocks more effectively.

At the regional level, intra-African backward integration in regional value chains is also low, representing less than 8 per cent of the manufacturing value added (Abreha et al., 2021; Slany, 2019). Although intra-African manufacturing value added trade is more balanced relative to its corresponding global trade (Economic Commission for Africa, 2015), the weak backward integration of the intra-African regional value chain indicates that regional value chains in Africa are yet to be developed to effectively facilitate gainful integration of African countries into the global value chains (Banga et al., 2015). As such, it remains imperative that African countries leverage the opportunities accorded by the African Continental Free Trade Area in developing new and viable value chains while strengthening existing ones. In this regard, the centrality of services in the functionality of these global and regional value chains is noteworthy. Services serve as key inputs (intermediate) in the production process and are vital in providing suitable linkages between suppliers and users in various stages of the value chain. As such, they are deemed key in enhancing the productivity of the relevant sectors, but also in diversifying and improving the competitiveness of exports through the effective reduction of production and transaction costs. These cost reductions can be carried out through several channels, such as capital deepening, facilitated access to trade information, easy connectivity and accessibility of markets. While shedding light on the overall relevance of services in productivity and market access of African economies, this section focuses on services linkages with the manufacturing sectors to dissect structural issues that are relevant to the development of the region's value chains and enhance its competitiveness in the global market.

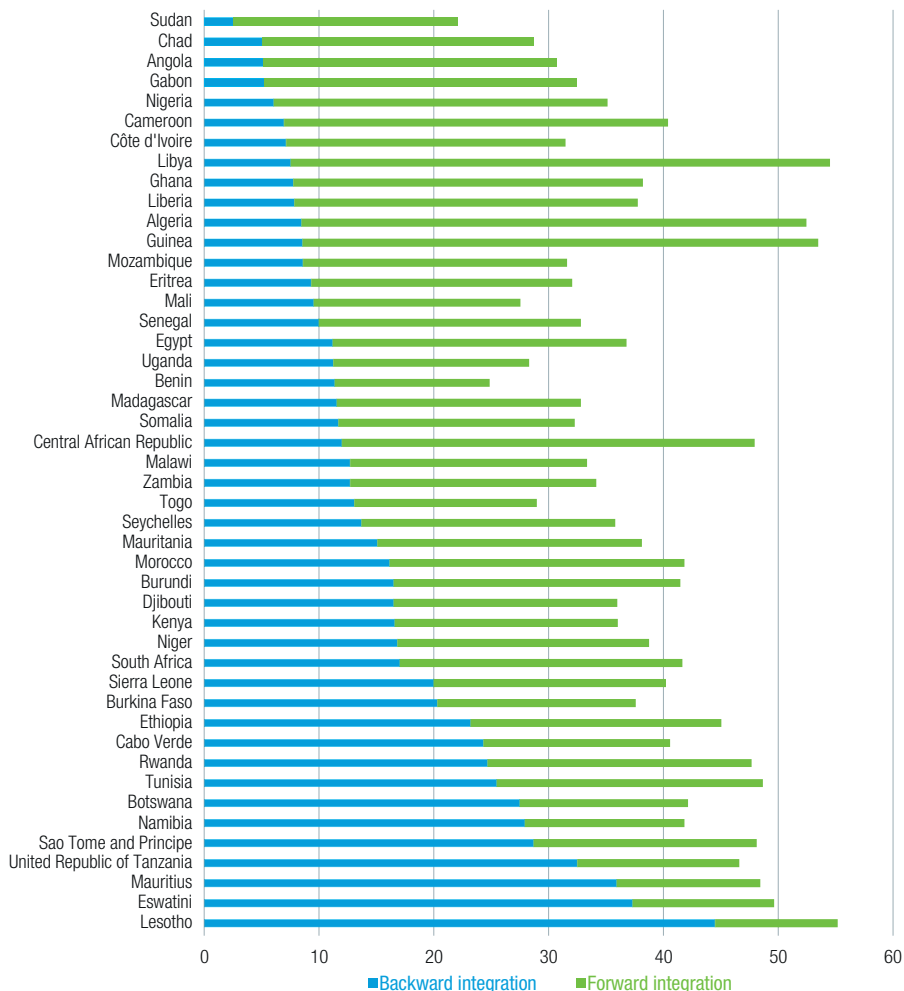
¹² Exceptions are Botswana, Burkina Faso, Cabo Verde, Eswatini, Ethiopia, Lesotho, Mauritius, Namibia, Rwanda, Sao Tome and Principe, Tunisia and the United Republic of Tanzania.

¹³ This value is calculated as a share in total participation in global value chains: $(\text{forward participation} / (\text{forward} + \text{backward}) \text{ participation}) * 100$.

Figure 11

Participation in global value chains, 2015

(Percentage of gross exports)



Source: UNCTAD calculations, based on data from the Eora database.

Note: Calculations are based on the latest available data. Owing to insufficient data, Comoros, Congo, Democratic Republic of the Congo, Equatorial Guinea, Gambia, Guinea Bissau, South Sudan and Zimbabwe are not featured in the figure.

Services linkages in production, output and export

There is a growing consensus among trade experts and practitioners that the central role of services in trade is better quantified through trade in value added, which fully accounts for services embodied in other tradable goods. Trade in value added covers services used as intermediate inputs in production as well as services that are sold together with other goods. As such, a stronger service sector with increased value added across sectors is considered essential to enhance export productivity and competitiveness and facilitate the integration of countries into productive value chains (UNCTAD, 2018c). However, the depth of this role is dependent on structural issues inherent in respective economies. As such, it varies across African countries, notwithstanding its relative contribution to the competitiveness of the different sectors and the total exported value added of the respective economies.

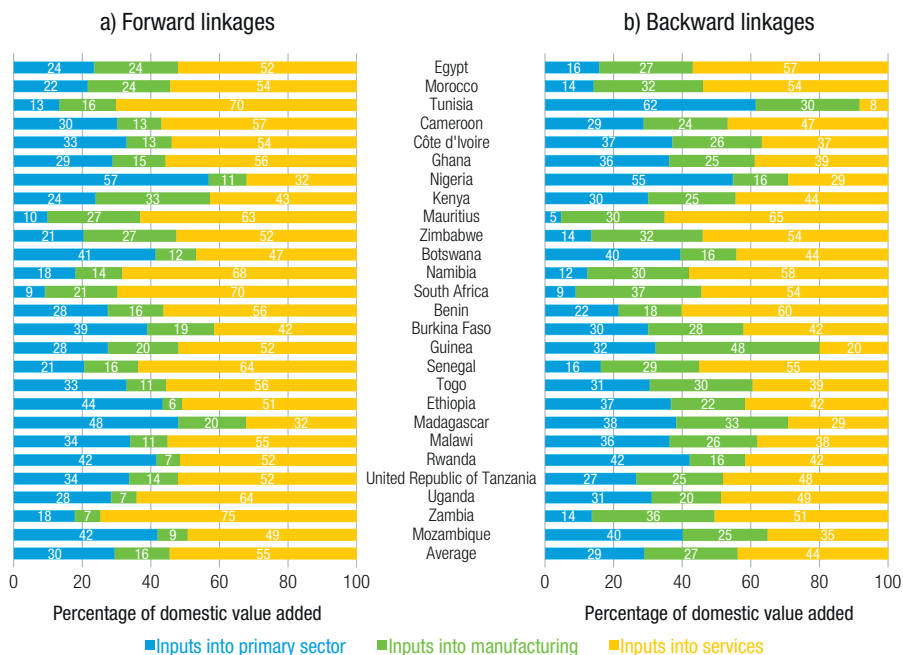
Figures 12 and 13 show that services contribute substantially to the domestic and exported value added of most countries in Africa. Overall, in production, value added is concentrated in services, followed by primary sectors. On average, services account for about 55 per cent of the total value added in Africa in forward linkages (Figure 12a). Except for Botswana, Burkina Faso, Kenya, Madagascar, Mozambique and Nigeria (32–49 per cent), services account for more than 50 per cent of the inputs in production. In non-commodity-dependent countries such as Tunisia and South Africa, services account for up to 70 per cent of domestic value added inputs in production.

The relative importance of services further varies between domestic value added and exported value added. In essence, what is used in production is different from what is eventually exported. While services dominate the value added content of final demand, primary sectors account for most of the value added content of African exports, 41 per cent of the total value added on average. These are followed by services, with an average of about 38 per cent of the total value added in forward linkages (Figure 13a). While services-driven exported value added is significant for a mix of non-commodity and commodity-dependent countries such as Zambia (74 per cent), Guinea (53 per cent), Tunisia (52 per cent), Mauritius (49 per cent), Ghana (48 per cent), Morocco (46 per cent), Cameroon (43 per cent) and South Africa (42 per cent), the primary sector dominates the exported value added in mostly commodity-dependent countries such as Nigeria (94 per cent), Botswana (77 per cent), Mozambique (63 per cent), Burkina Faso (60 per cent), Rwanda (57 per cent) and Ethiopia (54 per cent).

When backward linkages are considered, figures 12 and 13 show that services values are much lower than their corresponding values in forward linkages. The contribution of services to the exported value added in backward linkages is as low as 2 per cent

Figure 12

Domestic value added content of output, 2014



Source: UNCTAD calculations, based on data from the Export of Value Added database (World Bank).

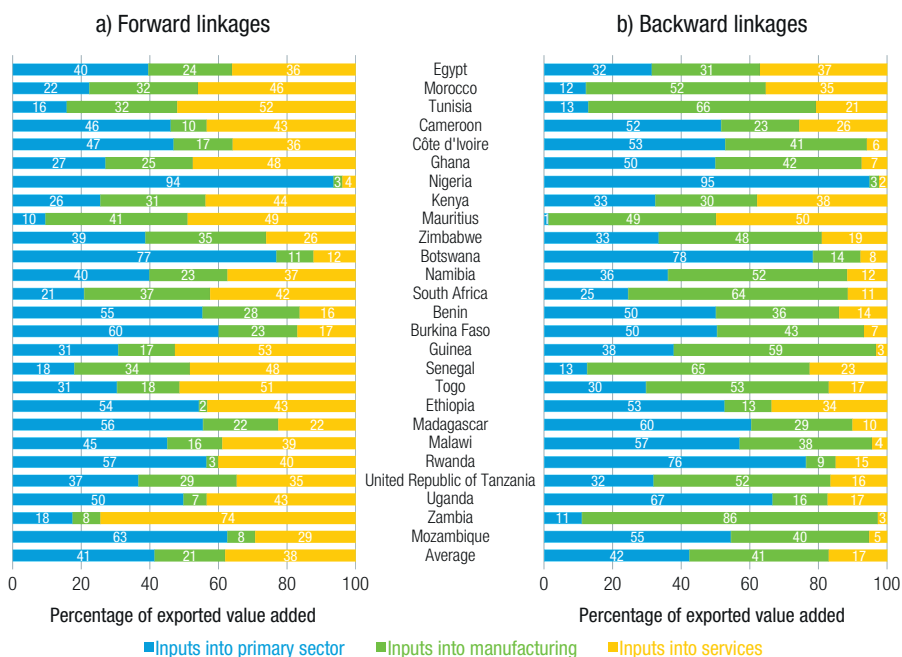
Note: Selection of countries was guided by the availability of most recent data.

in Nigeria and ranges from 3 to 7 per cent in Burkina Faso, Côte d'Ivoire, Ghana, Guinea, Malawi, Mozambique and Zambia (Figure 13b). Similar trends are observed in production, with services accounting for less than 40 per cent of total domestic value added (backward linkages) in countries such as Guinea, Malawi, Mozambique, Togo and Tunisia, despite the substantial corresponding contribution in forward linkages in production (Figure 12).

These results highlight the weak linkages between the service sector and other economic sectors in most African countries, with the resulting underperformance of most firms in the region. In this regard, the transformational role that services has played in improving quality and diversifying exports is noteworthy, particularly in countries such as Uruguay that have a rich natural resource base, like most African

Figure 13

Domestic value added content of exports, 2014



Source: UNCTAD calculations, based on data from the Export of Value Added database (World Bank).
 Note: Selection of countries was guided by the availability of most recent data.

countries (Hollweg and Sáez, 2019). Along with the increased internalization of modern, high knowledge-intensive services, particularly ICT, Uruguay has effectively reduced its dependence on natural resource-intensive exports (Criscuolo et al., 2014; Hollweg and Sáez, 2019).

In focus: Services and manufacturing linkages

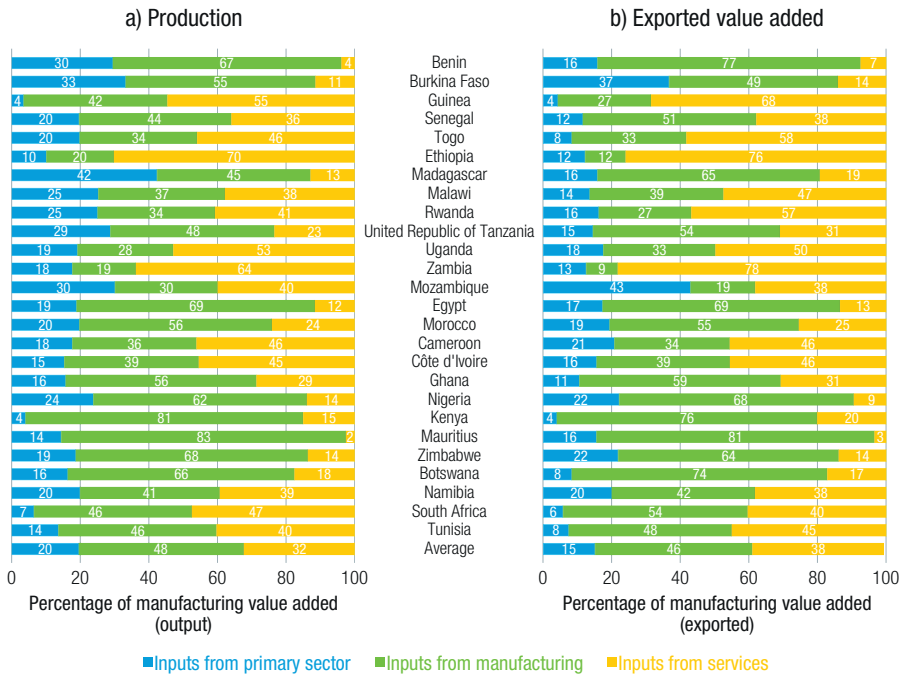
Recent literature emphasizes the increasing role of services content in manufactured goods both in production and sales, which have remained key in facilitating regional and global value chains. A vibrant manufacturing sector requires competitive services as intermediate inputs to facilitate product quality and differentiation but also to facilitate access to other competitive inputs and markets for its final products. As such, services are seen to be at the core of manufacturing productivity and competitiveness, accounting

for about one third of manufacturing gross exports in developed countries and about 26 per cent in developing countries (Lanz and Maurer, 2015). In this context, this section assesses the significance of the services sector in the productivity of the manufacturing sector in Africa. Focusing on manufacturing backward linkages both in production and sales (exports), the section will also highlight the extent to which services facilitate market access of manufacturing firms in Africa.

Figure 14 shows similar trends in the content of services in manufacturing value added both in production and exports. The figure also highlights weak intersectoral linkages in some countries. While the services content in manufacturing value added in production and exports averages 32 per cent and 36 per cent respectively, inputs from within the manufacturing sector dominate manufacturing valued added production and

Figure 14

Composition of manufacturing value added, backward linkages, 2014



Source: UNCTAD calculations, based on data from the Export of Value Added database (World Bank).

Notes: Country selection was guided by the availability of the most recent data.

export (backward linkages). There are however some exceptions. In countries such as Ethiopia, Guinea, Rwanda, Togo, Uganda and Zambia, inputs from services account for more than 50 per cent of manufacturing value added production and exports. These results highlight the existence of fair intramanufacturing linkages in most countries in Africa, suggesting the high potential that the region has in developing viable value chains, while taking advantage of the trade preferences accorded by the African Continental Free Trade Area.

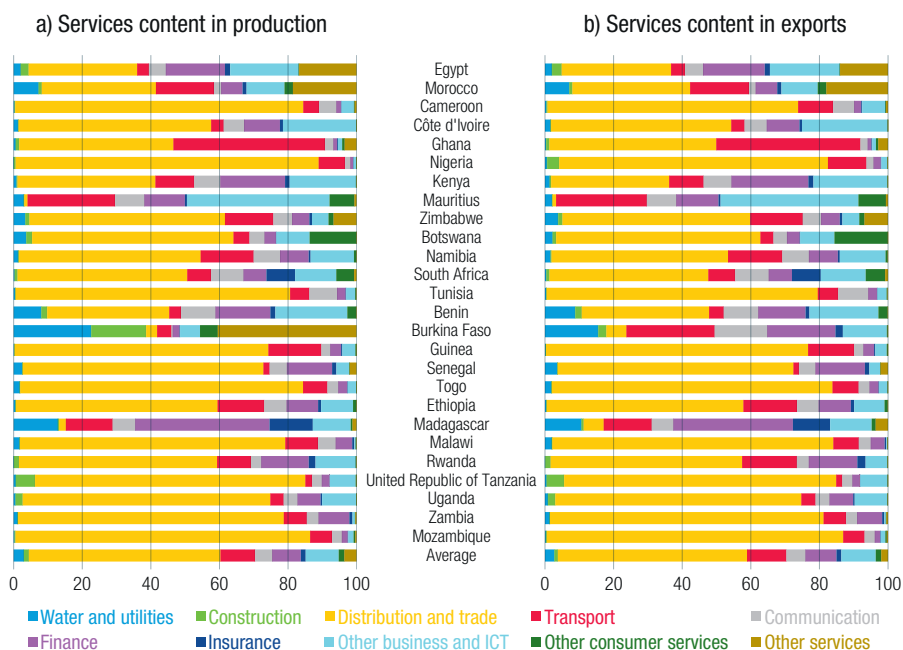


However, this potential in developing viable value chains is being undermined by the weak linkages between the service and manufacturing sectors in some countries, which among other things, is a consequent of poor or non-existent relevant service sectors. For instance, it remains a quest for most countries in the region to effectively participate in regional value chains due to poor connectivity from missing transport links within and across different modes (Gondwe and Mbonigaba, 2022). Similarly, manufacturing productivity is greatly undermined by inadequate and/or intermittent power supply due to the low per capita energy generation capacity of most countries (Gondwe and Mbonigaba, 2022; Hollweg and Sáez, 2019). Moreover, financial services play a negligible role in facilitating the growth of industries in most countries because of limited access by some firms, particularly SMEs (Economic Commission for Africa, 2015). Figure 15 shows that financial services content in traded manufacturing value added is less than 10 per cent in the rest of the countries in the sample, except for Burkina Faso (19.8 per cent), Senegal (14.4 per cent), Madagascar (34.8 per cent), Egypt (18 per cent) and Kenya (22 per cent). Notably, these challenges from poor service–manufacturing linkages affect the performance of the manufacturing firms in the region. Consequently, the odds for the development of viable value chains are dim, even under the African Continental Free Trade Area, where time and transaction costs are significantly reduced by the enlarged and liberalized market space.

On one hand, the type of services being utilized in manufacturing reflects the productive capacity of the respective economies, which to some extent is correlated with the level of income and ultimately is reflected in the level of complexity and variety of the manufactured goods (Hidalgo and Hausmann, 2009). This is well reflected in the automotive value chains

Figure 15

Services content in manufacturing value added (forward linkages), 2014



in Africa. Notwithstanding the common market challenges,¹⁴ due to increased demand for second-hand cars from Asia, for example, the lack of manufacturing capabilities is a key factor undermining the potential of some countries to effectively participate in higher levels of this value chain. For instance, participation in the automotive value chain for countries such as Ethiopia, Ghana and Nigeria is largely restricted to importing parts for local assembly (popularly referred to as semi-knocked-down operations), as they do not have the capacity for research and development, designing, let alone manufacture of specific parts, as in Morocco and South Africa (African Continental Free Trade Area Secretariat and

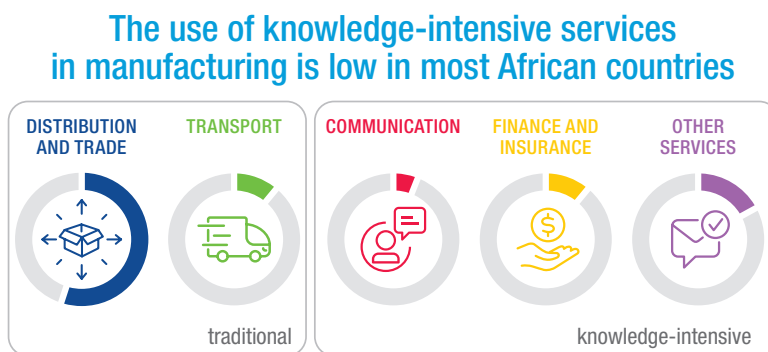
¹⁴ Most of these market challenges are being addressed under the African Continental Free Trade Area including through the provision of special tariff preferences (African Continental Free Trade Area Secretariat and United Nations Development Programme, 2021). Moreover, country-specific tariff and non-tariff measures are being imposed, including high import duties, depending on the vehicle life (World Economic Forum, 2021).

United Nations Development Programme, 2021; World Economic Forum, 2021). Similar trends are observed in other value chains with higher potential for advancement due to the region's comparative advantage in the requisite natural resources and increased demand for products of the value chain. Lack of capacity to transform raw materials and intermediate goods by most countries in the region has seen the concentration of fertilizer production in North Africa. Most of the requisite inputs are imported from outside Africa, that is, from the Russian Federation, the Middle East and the United States of America, despite the comparative advantage enjoyed by Africa in natural resource endowment and cheap labour (World Economic Forum, 2021). Overall, owing to limited productive capacities and other factors, international trade in most African countries is driven by raw or semi-processed primary commodities. This requires few inputs from other sectors, including complex services. Nevertheless, most services, including finance, energy, water and ICT, remain indispensable to achieve enhanced productivity in African industries and the consequent improvement of their market access, within regional and global value chains.

On the other hand, the nature of the services driving value added services content in manufacturing is key to determining the productivity and competitiveness of manufacturing firms. Precisely, Haven and Van Der Marel (2018) found that manufacturing productivity is negatively correlated with post-manufacturing services (transport and distribution), suggesting that increased value added content of these traditional services in production does not translate into better quality and diversified exports, notwithstanding their key role in facilitating viable linkages across value chains. Thus, the increased complexity of products goes beyond the mere increase in value addition to the type of the inputs driving the process. However, transport and distribution services dominate the manufacturing value added content of most African countries, accounting for more than 90 per cent in Mozambique and Ghana, about 90 per cent in Guinea, Togo, Malawi and Nigeria and about 86 per cent in Tunisia and Zambia (Figure 15a). This may suggest that most manufacturing firms in these and other countries with equally high valued added content of traditional services in manufacturing output and exports are potentially not very productive. This observation is reflected in the small variety and low sophistication of African exports. As a result, most African countries actively participate in the low end of global value chains.

Moreover, utilization of ICT, business and financial services is equally low across countries in the region, accounting for less than 20 per cent of the manufacturing value added in most countries (Figure 15). In today's globalized world, services are seen to be essential in enhancing productivity, cutting costs and improving the efficiency of manufacturing firms. While the technology innovations embedded in ICT services are central to enhancing product quality and enabling export diversification, communication services are, among

other things, relevant to dynamic feedback, which coupled with customer information, positively contribute to product differentiation and customization. Nevertheless, the utilization level of business and communication services inputs is low in most African countries, on average about 10 per cent, both in production and the exported outputs. Business and ICT services¹⁵ content in manufacturing value added is about 15 per cent both in output and exports in 10 of the 26 countries included in the analysis. Mauritius represents the largest share thereof in exports (50 per cent), followed by Côte d'Ivoire (31.5 per cent), Benin (30 per cent), Kenya (29.7 per cent) and Egypt (25.6 per cent). Notably, the same 5 countries in the same order also represent the highest share of business and ICT services in output with values ranging from 24.9 per cent in Egypt to 50.1 per cent in Mauritius. Other countries with values above the 15 per cent average include Botswana, Namibia, South Africa, Ethiopia and Madagascar. To this end, it is worth noting that the above list of countries with increased ICT and business services usage includes both developing and least developed countries in Africa. While partially supporting the assertion that increased content of high-intensity services such as ICT and other business services in manufacturing is associated with increased levels of development (Hollweg and Sáez, 2019), this result highlights the potential underdevelopment of ICT services in the region, which significantly undermines its productivity and trade. Except for Algeria, Mauritius, Morocco, Seychelles, South Africa, and Tunisia, ICT infrastructure remains underdeveloped in the rest of Africa (African Development Bank, 2020) with stark consequences on the cost of ICT services and utilization in the region.



In summary, although services are an important feature of trade and integration in Africa, their productive utilization in manufacturing remains a quest, mainly due to limited

¹⁵ This is a summation of communication and other business and ICT services (see figure 15).

productive capacities, compounded with weak service sectors. Overall, only 10¹⁶ of the 54 African countries have strong backbone infrastructure in energy, ICT and transport (African Development Bank, 2020) to effectively support the flawless flow of services and merchandise within and across countries for enhanced productivity and access to markets. However, this is far from being an optimal regional stance in effectively supporting the development of workable value chains, as gaps in key services within and across countries remain evident. Moreover, access to financial services is primarily limited to large corporations and businesses, notwithstanding the increasing number of SMEs in the sector (Economic Commission for Africa, 2015; Hollweg and Sáez, 2019), further suggesting increased limitations in expanding businesses and enhancing productivity in the region. Unless these gaps are effectively addressed, complementarities between services and the manufacturing sectors will remain weak in most countries. Chapters 2 and 3 will delve more into the types of services that can drive production and exported value added in Africa, enhance the complexity and variety of the region's exports and thus facilitate viable integration into high-end global value chains.

1.3 Pathways for export diversification

Export diversification that benefits structural change calls for some strategic interventions and cannot rely on market-driven incentives. Successful export diversification requires both an observation of market incentives (growth opportunities) and State intervention to provide the requisite inputs to the sector and facilitate market entrance. Efforts to guide African countries on export diversification opportunities based on data will be crucial to inform evidence-based regional value chain development and regional industrialization strategies. Figure 16 illustrates the steps to identify feasible product diversification.¹⁷ This report applies the product space method to identify potential new products for 54 African countries.¹⁸ The assessment considers that new products are feasible to be exported if their proximity to already exported products is at least 80 per cent.¹⁹ The supply-side driven concept is adjusted in that the analysis considers demand conditions in world and regional markets. Further identifying the most feasible new products with

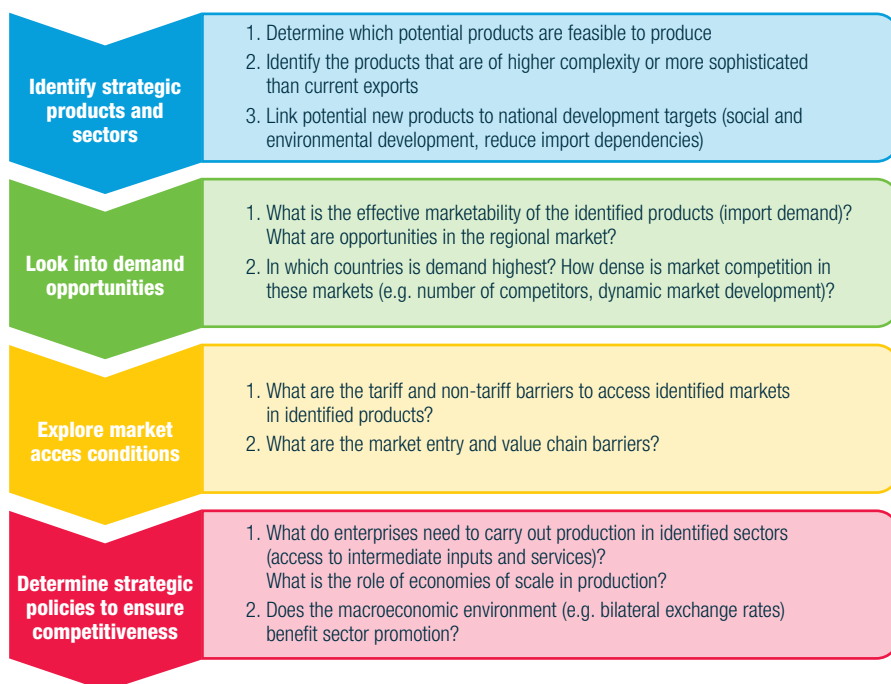
¹⁶ Algeria, Botswana, Cabo Verde, Egypt, Libya, Mauritius, Morocco, Seychelles, South Africa and Tunisia.

¹⁷ In recent years, the concept of the product space (Hausmann and Klinger, 2007; Hausmann et al., 2007; Hidalgo et al., 2007) has received the most attention. Another concept is the decision support model, which starts with an analysis of macroeconomic conditions of potential markets and goes on to identify product-market combinations (Decreux and Spies, 2016).

¹⁸ The methodology is based on Freire (2017 and 2021a).

¹⁹ Proximity between products in the product space is analytically measured by the probability that two products are found in the export basket in one country.

Figure 16

Export diversification opportunities diagnostics

Source: UNCTAD.

large demand and a higher-than-average product complexity will exponentially increase the opportunities for structural change.

Based on different unit values within product groups, the number of potential new products sharply increases with the number of existing products, at least up to a certain threshold. If a country is already strongly diversified, such as Egypt, Morocco or South Africa, there are usually fewer opportunities for new products. For these countries, other dimensions of diversification, such as diversification across actors and firms to reduce regional concentration of export earning to a few enterprises become relevant.²⁰ Although the share of potential new products with above-average complexity is significant for most

²⁰ This element of export diversification is beyond the focus of this chapter.

countries (greater than 50 per cent), it decreases substantially once the demand for these new products is considered. The finding suggests that product diversification based on relatively small jumps into new similar products would lead towards structural change in only 16²¹ of the 54 assessed African countries. For most African countries, a selective approach is necessary to guide diversification towards more complex products to promote structural change. There is clearly a trade-off between diversifying into more complex products and the possibility of a successful diversification path (more distant products are also more difficult to develop) (Si Tou, 2021). If countries achieve larger jumps in the product space through targeted investments, this will lead to additional export opportunities. Although the commodities available in a country contribute to diversification through value addition and as inputs to downstream sectors, larger jumps in the product space towards industrial sectors can be necessary to promote structural change in some cases.

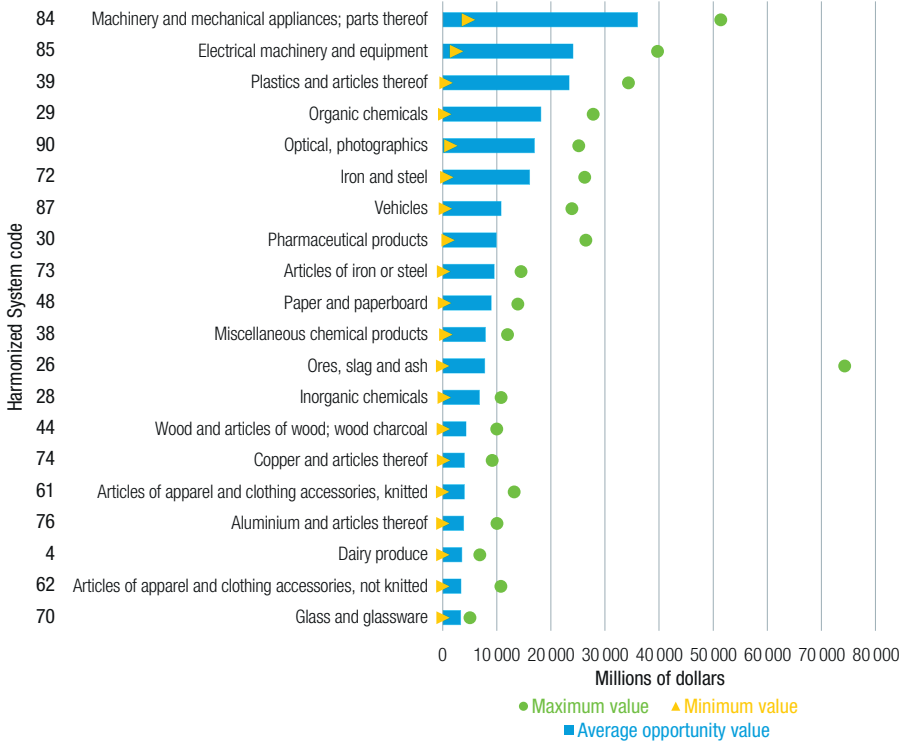
The potential sectors of product diversification vary widely across countries, based on their current productive capabilities and position in the product space. Nevertheless, there are some common sectors with vast new export opportunities across African countries. Owing to their potential for upgrading, large unit values and favourable market conditions, the sectors with the best prospects for new export opportunities in value are machinery and mechanical appliances (HS 84), electrical machinery and equipment (HS 85), plastics and articles thereof (HS 39) and organic chemicals (HS 29) (see figure 17). Though in different products and unit values, an assessment of feasible product diversification opportunities reveals that all countries have some potential for export diversification into all these sectors through relatively small jumps.²² Importantly, the values reported in figure 17 refer to the global increase in imports of the products, explaining the large opportunity values of export diversification. Hence, other countries that produce those goods also compete for the same expanding market. Nevertheless, the large demand for these goods provides new export opportunities for African countries and firms. Currently, the largest demand for potential new products provided by African countries is generated by Asia, followed by Europe and America. Since the product diversification opportunities considered here are based on 2018–2019 export demand, Africa plays a minor role (2.3 per cent of all diversification opportunities). However, with regard to future diversification, economic and population growth, the opportunities for the African market are expected to increase, underpinned by the benefits of intraregional trade and the potential role of the African Continental Free Trade Area (section 1.4).

²¹ These countries are Algeria, Benin, Cameroon, Côte d'Ivoire, Egypt, Ethiopia, Ghana, Kenya, Mauritius, Morocco, Namibia, Nigeria, Senegal, South Africa, Tunisia and the United Republic of Tanzania.

²² In the ores, slag and ash sector, Benin is an outlier with a market opportunity of \$74 billion. The potential could be realized by exporting iron ore concentrate, which is in high demand in countries such as China.

Figure 17

Product diversification export opportunities to the world, by top 20 sectors, country average, maximum and minimum values in millions of dollars



Source: UNCTAD calculations, based on data from the United Nations Commodity Trade Statistics database and Freire (2017).

Note: The assessment of feasible product diversification export opportunities uses the product space methodology, taking into account product opportunities with above-average complexity (using a revised product complexity index) and presented by their highest demand in the world.

1.3.1 Agricultural-based export diversification

Given the large share of agriculture in employment in Africa, it is important to consider diversification opportunities based on the agricultural sector. New agro-industry sectors would increase the demand for agricultural produce. For example, in processed foods, 28 per cent of value added is sourced from domestic agriculture. Such new sectors

would also create incentives for expanding productivity in the agricultural sector. For agricultural-commodity-dependent countries, value addition to their commodities could be the main path for diversification, at least in the medium term (African Continental Free Trade Area Secretariat and United Nations Development Programme, 2021). Opportunities for new product diversification in agriculture and agro-based industries account for roughly 8.1 per cent of total product diversification export opportunities. The largest potential for new products, based on market conditions, is in dairy products (15 per cent), edible fruits and nuts (13 per cent), preparations of meat and fish (9 per cent) and cereals (7 per cent).

To foster diversification and structural transformation based on the agricultural sector, it is essential to add value to basic agricultural products through processing, packaging and exporting (Hausmann and Chauvin, 2015). A common means of promoting agriculture value chains are non-tariff barriers related to sanitary and phytosanitary measures and technical barriers to trade. In addition, trade policy uncertainties are also hampering efficient export diversification. For instance, owing to poor harvests in 2021, Zambia banned exports of soya and sunflower meal, which not only raised the price and made access to inputs difficult, but also made it impossible for Zambian manufactures to serve the regional supply of inputs to Kenya, Malawi, Mozambique, Namibia and South Africa (African Continental Free Trade Area Secretariat and United Nations Development Programme, 2021). According to the Zambian think tank Centre for Trade Policy and Development, the ban discourages agriculture investments and boosts informal trade, causing a loss of export duties and taxes. Further, the ban reduces domestic production and efficiency in the long run, hence potentially increasing food insecurity (Lusakatimes.com, 2021).

Based on the empirical findings discussed in chapter 1.2, access to intermediates through lower tariffs and services should be ensured to promote diversification. Services, in particular ICTs, can play an important role in the agricultural sector to deal with an eventual climate crisis and raise productivity. Some examples include the Hello Tractor and iCow platforms in East Africa, which aim to connect farmers with providers of inputs and financial services and other business services (Kaplinsky and Kraemer-Mbula, 2022). Local and regional linkages to small businesses and cooperatives provide better access to inputs (for example, seeds and fertilizer), technology and extension services (Dihel et al., 2018). For instance, distribution services add 16 per cent of value added to processed foods, highlighting the importance of services in tapping into agroprocessed value chains. The example of Viet Nam suggests a balanced mix of public and private interventions in successfully achieving diversification (Box 6).

Box 6

The role of small and medium-sized enterprises and services in successful agriculture-based export diversification in Viet Nam

Viet Nam started at diversification levels similar to those of the least developed countries in Africa today and was able to expand production from agriculture to low value added manufacturing and subsequently, into high value added digital clusters. The country's success in achieving diversification can be explained by several factors. First, increases in agricultural productivity were reached by redistributing the land, removing price controls, subsidizing the irrigation system and lowering trade barriers. This allowed Viet Nam to become one of the world's largest rice exporters. Second, scaling down government monopolies and opening small service industries to individuals strongly benefited private sector development. Third, trade integration under the Association of Southeast Asian Nations, the end of the United States embargo in 1994 and openness to FDI reduced trade and transaction costs and promoted investment. A devaluation of the exchange rate also improved competitiveness of domestic enterprises. The energy sector has a priority in public investment, benefiting from official development assistance and government support to private sector financing, for example, through import duty exemptions and tax reductions. In addition, the improvement of public services, such as the use of one-stop shops, decreased transaction costs for businesses and contributed to diversification and a market-oriented economy.

Source: UNCTAD, based on Baum, 2019; Freire, 2021a; Malesky et al., 2014; United Nations Human Settlements Programme, 2015.

The regional market plays a vital role in overcoming the challenges in exploiting comparative advantage in the agricultural products sector and developing the agroprocessing industry. First, tastes and preferences tend to be more similar within continents. Second, the impact of climate change requires a regional approach to close supply and demand gaps and mitigate risks. Recent droughts, for example in Madagascar and countries in East Africa, are causing a decline in agricultural output and severe food insecurity. Productivity increases and commodity-based diversification will not be successful without effective climate change adaptation and mitigation strategies that can be implemented through international support, most importantly, financial support. Third, a harmonization of customs procedures at the continental level through the African Continental Free Trade Area is important to reduce trade costs, especially for time-sensitive agricultural products. Liberalization

of tariffs under the African Continental Free Trade Area is also expected to provide better access to intermediates and final products, and unlock trade opportunities. In 2019, the intra-African simple average of applied tariffs on raw agricultural products (HS 1–15) and processed foods (HS 15–24) remained at about 6 and 9.7 per cent, respectively. Chapter 1.4 elaborates on the opportunities for product diversification with high demand in Africa.

1.3.2 Mining-based export diversification

Mining products serve as inputs in several value chains, which is why the mining and mining capital equipment industry remains an important, even strategic, sector, to promote value chain development, for example, under the Southern African Development Community Industrialization Strategy and Roadmap (UNCTAD, 2021e). Although the mining industry is capital intensive, there are several backward linkages to metal fabrication and manufacturing of parts and components. For instance, African Continental Free Trade Area Secretariat and United Nations Development Programme (2021) shed light on the lithium-ion battery value chain, which uses lithium, copper, manganese, cobalt, nickel and titanium. Mining capital equipment can also be used in engineering and can spur technological innovation. For example, in Zambia, after some mining companies suspended mining operations after the 2008–2009 global financial crisis, engineering companies moved into the construction, forestry and utilities sectors.

In line with the product space assessment conducted in this chapter and global demand, the most promising opportunity for product upgrading and diversification based on mining commodities appears to be in iron and steel (\$16 billion), articles of iron and steel (\$9.5 billion), copper and articles thereof (\$4.1 billion), and nickel and articles thereof (\$3.2 billion). Different value chain characteristics affect the opportunities for value addition and most be further explored on a country-by-country basis. Some processing activities, for instance, in aluminium smelting or steel production, depend heavily on cost-effective access to inputs such as energy. Structural barriers, such as access to electricity, must be overcome to successfully move up the value chain that is based on mining products. Distribution services, advisory and after-sale services (repair and maintenance) are important to improve companies' access to capital and knowledge (Economic Commission for Africa, 2013). There are few examples where mining commodity-dependent countries have managed to diversify their export basket. The examples of Australia and Chile are outlined in box 7.

Box 7**How Australia and Chile diversified through the extractives industries**

Australia. The only developed country that is dependent on mining products is Australia. The country has a Theil index of 4.7 (average 2018–2019), indicating a relatively large concentration of exports, compared with other developed countries, despite a similarly large number of export lines; primary products accounted for 63 per cent of total exports. The expansion of domestic manufacturing after the establishment of the Commonwealth of Australia in 1901 was supported by the increased use of agriculture machinery (technological change), and rural expansion, as well as the protection of the manufacturing sector, coupled with compensatory measures for farmers. Although a local steel industry had emerged and the beginnings of an automobile industry could be discerned, the take-off of manufacturing came only after the Second World War, owing to better access to technology and growing FDI. The real boost in structural change, with an increase in the share of manufacturing in exports from 9 per cent in 1983 to 19 per cent in 2004, was supported by a range of State interventions. These interventions increased efficiencies of firms by improving access to foreign finance and resulted in the floating of the Australian dollar, deregulation of the financial system, progressive elimination of protective measures, tax reform, privatization and deregulation of the transport and telecommunications sector. The increase in manufacturing was accompanied by a broad expansion of services – consulting, financial advice, accounting and legal services. Despite these improvements and the diversification of the country as a whole, diversification is lacking at the local level, owing to an historical concentration of investments to exploit resources and establish access to transport.

Chile. In the past decades, Chile has gradually reduced its dependence on copper exports. On one hand, the country has increased value added in the copper industry and exported more processed products; on the other hand, it has expanded its exports of high value added agricultural products and subsequently, industrial goods. Some of its top exports are linked to its natural resources (processed copper and converted paper) but most of its manufactured products are not (vehicle components, telecommunications products, machinery and medicaments). A structural fiscal surplus rule made it possible to save rents from mineral extraction and accumulate wealth when prices were high. The amounts of savings were then re-invested in skills upgrading and support for start-up firms, for example, venture capital provision.

Sources: UNCTAD, based on Jones and Tee, 2017; Lebdioui, 2019; Organisation for Economic Co-operation and Development and World Trade Organization, 2019; Salinas, 2021.

Attempts of African countries to promote commodity-based industrialization in the mining sector have not been successful. In the United Republic of Tanzania, for example, the aim to develop backward linkages from gold mining through its mineral policy (1997) and the 2010 Mineral Act lacked clear targets and strong incentives, leaving the development of such linkages to market forces. However, the competitiveness of local firms remains low due to high import costs of services and inputs to smelting and refining activities (Economic Commission for Africa, 2013; Mjimba, 2011). In addition, refining copper requires large-scale economies to be commercially viable but the volumes produced in the United Republic of Tanzania might not be sufficient (Scurfield, 2017).

Botswana, again, is an interesting case. Attempts to diversify through mining commodity beneficiation have proven successful in the short term but have failed to promote diversification and industrialization in the long term. Some of the efforts to diversify include the 2012 relocation of De Beers' diamond sorting and aggregation centre to Gaborone, which emphasizes the need to involve the leading firm in the respective value chain. Although it fostered value addition, it caused exchange rate pressure because of the increasing demand for diamonds. Export diversification is again high on the agenda in Botswana due to an expected depletion of easily accessible diamond reserves in the near future. Barczikay et al. (2020) argue that there has been a real exchange rate appreciation in some bilateral trade relations that contributed to the failure to diversify.

As metal refining presents high economies of scale, a larger regional market under the African Continental Free Trade Area is instrumental in exploiting economies of scale and selling value added mining products locally and regionally (Economic Commission for Africa, 2013). In addition, the Africa Mining Vision presents a regional initiative to promote linkage development (Economic Commission for Africa, 2013; UNCTAD, 2020a).

1.3.3 Promoting industrial sectors through targeted policies

In focus: Chemicals and pharmaceutical sectors

The potential for diversification in the chemicals sector is large, due to growing demand for pharmaceuticals, cosmetics, soap and washing preparations. However, chapter 1.1 (Figure 7) showed that product diversification is lowest in that sector.

Several constraints require active government interventions to promote the chemicals sector, especially pharmaceuticals: First, the pharmaceutical sector is characterized by high fixed production costs and requires stronger government intervention to attract investment. Owing to the importance of large-scale research and development and

technology, broader support to large firms will be necessary, as SMEs are usually at a disadvantage in the sector (Kaplinsky and Kraemer-Mbula, 2022).

Second, structural barriers to develop a competitive chemicals and pharmaceutical industry in Africa are unreliable energy, water and transport infrastructure, and fragmented distribution networks. Energy accounts for 13 per cent of value added in exports of chemical products, and distribution services, 24 per cent. Again, this highlights the importance of retail services in linking suppliers to consumers.

Third, the pandemic revealed the inadequacy of international regulation of intellectual property rights and of the Agreement on Trade-Related Aspects of Intellectual Property Rights to address a global health crisis and encourage access to pharmaceuticals. Pharmaceuticals should be central to phase 2 African Continental Free Trade Area negotiations on intellectual property rights (Economic Commission for Africa, 2021; Ncube, 2022; UNCTAD, 2021d).

Fourth, a review of tariffs on pharmaceutical and chemical ingredients is necessary to enable local firms to produce at competitive prices (Nelson Mandela School of Public Governance, 2021). For instance, the average tariff on intra-African trade in 2017–2019 is almost 12 per cent in soap and washing preparations (HS 34), and 14 per cent in oils and cosmetics (HS 33).

High tariffs on consumer goods disincentivize diversification. Although the African Continental Free Trade Area is expected to liberalize tariffs, some sensitive or excluded products from tariff liberalization could reduce access to intermediates, as well as incentives to diversify, owing to limited market access. Regional value chain development provides opportunities to increase access to main inputs. Therefore, pharmaceutical and medical products should not be included on the tariff schedule lists of sensitive or excluded items. The African Continental Free Trade Area could be used as a platform to prioritize investment for capacity development, harmonize regulatory frameworks and expand pooled procurement (Banga et al., 2020; Economic Commission for Africa, 2021).

A major hindrance to exploiting market opportunities of potential export diversification paths is that most African countries are latecomers when it comes to new products. Most of the products and product variations already exist and are exported by other more advanced countries. African countries need to adopt a selective approach to promote diversification towards more complex products such as chemicals. As emulation of existing products could be a feasible pathway for diversification in African countries, targeted policies or less stringent intellectual property right regimes at

the global level would increase the opportunities for emulation for African countries. For instance, in combination with the Industrial Property Act, 2001, Kenya built a domestic pharmaceutical manufacturing industry (Economic Commission for Africa and TradeMark East Africa, 2020). Holding 64 per cent of active export lines of tariff lines within the HS section chemical sector, Kenya is the second most diversified African country in that sector, after South Africa (89 per cent). Flexibilities under the Agreement on Trade-Related Aspects of Intellectual Property Rights of the World Trade Organization, such as voluntary licenses or waivers, can help contribute to development goals. For example, in response to the limited access to COVID-19 vaccines and low vaccination rates in developing countries, India and South Africa proposed at the World Trade Organization that intellectual property rights on COVID-19 vaccines be waived for three years, in an attempt to boost global vaccine manufacture. After more than two years into the pandemic and with several vaccines developed and manufactured by leading pharmaceutical companies, only 14 per cent of people in low-income countries have received at least one dose, compared with 78 per cent in high-income countries (Global Change Data Lab, 2022). Such flexibilities around intellectual property rights could enable Africa, which currently imports about 99 per cent of its vaccines, to manufacture and roll out COVID-19 vaccines. The continent should acquire access to the latest-generation technologies (for example, messenger ribonucleic acid and immunotherapy) with the potential to help address some of its long-standing health challenges (UNCTAD, 2020c; World Health Organization, 2022).

For countries that have reached a certain level of diversification, a two-way approach through the emulation of existing products and the promotion of innovative new-to-the-world products should be targeted. To foster innovation, spending in research and development is key. Some products might be specific to the African market and may not find specific inputs or demand outside the continent. A continental approach to encouraging investments in development can cut costs and foster spillovers. Based on the latest assessment of the Agenda 2063 targets, however, the share of research and development expenditures recorded at 0.45 per cent of GDP fell short against the 1 per cent target (African Union Commission and African Union Development Agency–New Partnership for Africa’s Development, 2022).

1.3.4 Promoting regional value chains through diversification

The dominance of leading firms in global value chains and the difficulty of many African countries to upgrade within global value chains have strengthened the emphasis on South–South integration to generate economies of scale, create employment and

foster diversification (UNCTAD, 2021e). Regional trade and regional value chains seem to be easier or more accessible for more small exporting firms than extraregional trade. Although intraregional exports only contributed 14.4 per cent to total exports in 2019, the number of exporters exporting to Africa is larger than those exporting to outside the continent, with a more equal distribution of export earnings across exporters (UNCTAD, 2021d). There are already some encouraging examples of regional value chains, such as the clothing value chain in Southern Africa and the expansion of the textile industry of Mauritius to operations in Madagascar (UNCTAD, 2021e). Further opportunities can be grasped by increasing the volume of currently exported products (intensive margin of diversification) and the complementarities of regional trade through product diversification (extensive margin of diversification).

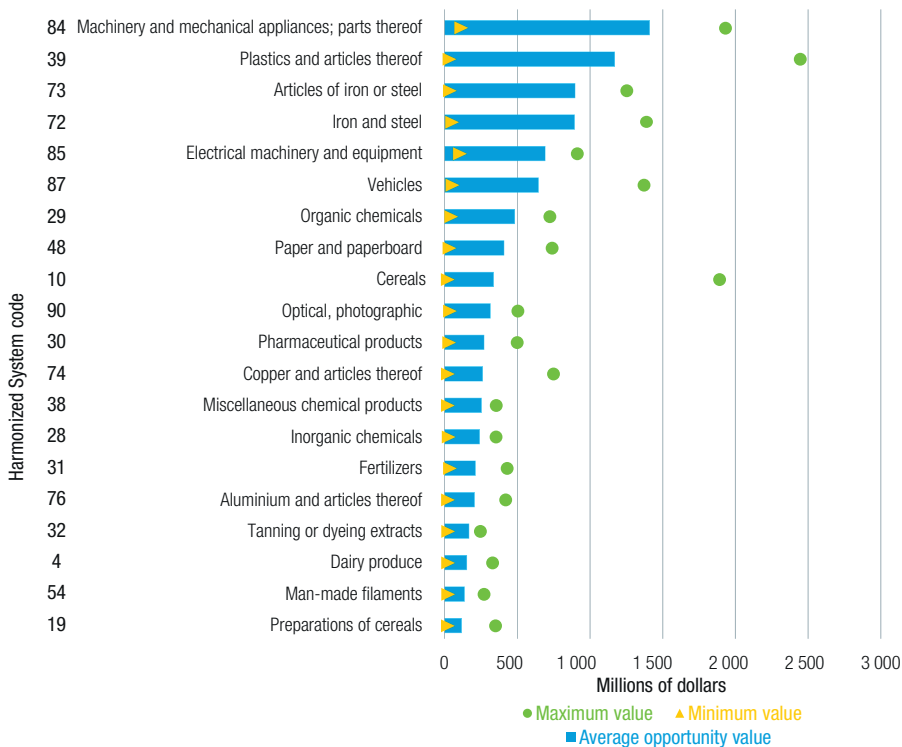
The sectors with vast export diversification opportunities and those in highest demand are illustrated in figure 18. While machinery and mechanical appliances is still the leading sector, plastics and articles thereof seems to be the second highest in demand, followed by articles of iron and steel. Many iron and steel products are essential for construction projects such as railways. Importantly, all countries have some potential for product diversification into light manufacturing (machinery and mechanical appliances; electrical machinery) and processed base metal products (articles of iron and steel). As identified in UNCTAD (2021d), articles of electrical machinery, iron and steel, and plastics are main inputs to the vehicles and other manufacturing sectors, pointing to the potential of possible diversification paths for building regional value chains.

With regard to agroprocessing regional value chains, UNCTAD (2021d) identified the preparation of cereals and sugar and sugar confectionery as sectors with high export opportunities, owing to the rising demand for processed food. Similarly, African Continental Free Trade Area Secretariat and United Nations Development Programme (2021), as well as UNCTAD (2021e) find that there is scope for regional value chain development in soya and sugar confectionery based on sugar and cocoa endowments. For the example of the East African Community, Si Tou (2021) confirms the potential of leveraging the regional market to promote product diversification that is conducive to structural change. A large share of products covers types of fibres, indicating potential for developing a regional textile industry, as well as agroprocessing products and chemical products (especially soaps and essential oils with higher complexity).

Similarly, the product diversification potential of organic (HS 29) and inorganic chemicals (HS 28) can promote the formation of a regional pharmaceutical value chain (African Continental Free Trade Area Secretariat and United Nations Development

Figure 18

Product diversification export opportunities to Africa by sector, average value in millions of dollars, top 20 sectors



Source: UNCTAD calculations, based on data from the United Nations Commodity Trade Statistics database.
 Note: The average value of product diversification export opportunities at the country-two-digit level is the sum of the export values at the HS six-digit unit value level.

Programme, 2021). The diversification of input providers is important to avoid over-reliance on a few suppliers. Tariff liberalization through the African Continental Free Trade Area agreement benefits access to various ingredients to produce vaccines; however, some inputs such as sodium chloride are expected to be excluded from tariff offers. The machines and equipment to manufacture vaccines will also benefit from tariff liberalization, and many of these inputs are also used in the production of other vaccines.

To unlock these opportunities and leverage the regional market for diversification, it is essential to identify and address current frictions to bilateral trade, such as difficulties to comply with regulatory requirements, the lack of market information and business contacts or the misalignment of price or quality with demand. The provision of market intelligence can increase supply and demand linkages and unleash untapped trade opportunities in Africa. For instance, the Asian Development Bank initiated supply-chain mapping to identify sources of vaccines and other critical goods. The mapping tool has helped businesses explore new market opportunities and diversify supply (Asian Development Bank, 2021).

1.4 Leveraging the role of the African Continental Free Trade Area for export diversification

The role of the regional market and regional integration in furthering export diversification was highlighted throughout this chapter. This section delves deeper into the role of the African Continental Free Trade Area in moving African economies away from commodity dependence.

The empirical findings discussed in section 1.2 of this chapter show that shorter distances between markets, common borders and common language are key drivers of geographical diversification. In addition, smaller countries face structural challenges to diversify due to small domestic markets but regional integration through the African Continental Free Trade Area will provide a larger market and can spur export diversification. UNCTAD (2021d) calculated the untapped export potential of regional trade at \$21.9 billion, based on products that a country already exports.

The African Continental Free Trade Area is expected to promote export diversification by increasing access to markets; providing a framework for coordinated and harmonized policies in investment, competition and intellectual property rights; facilitating more efficient logistics through investment in customs and transport infrastructure; fostering the economic empowerment of women and youth; and supporting coordinated regional production.

Access to intermediate inputs, services and output markets

Countries agreed to remove tariffs on 90 per cent of goods, gradually liberalize trade in services and eliminate other non-tariff barriers (African Continental Free Trade

Area Secretariat, 2022). In 2019, the simple average intra-African tariff rate stood at 5.25 per cent; the highest tariffs were in textiles and apparel and processed food, and the lowest, in mineral products. There remains considerable room for tariff liberalization, especially between African countries that are not members of the same regional economic community. Additional trade opportunities of \$9.2 billion could be unlocked through tariff liberalization (UNCTAD, 2021d). The implementation of the online mechanism for reporting non-tariff barriers, various subcommittees on non-tariff barriers and non-tariff measures, as well as an effective dispute settlement mechanism, hold promise for the reduction of non-tariff barriers.

Coordinated and harmonized policies in investment, competition and intellectual property rights

If investments are channelled towards sectors with diversification potential, away from commodity dependence, they can be an important driver of export diversification. The investment protocol of the African Continental Free Trade Area will cover all aspects of international investment policymaking, namely, investment facilitation, promotion and protection. Further, it is expected to include innovative provisions on investor obligations and the right of host countries in Africa to regulate in the public interest. While investors will still be guided by market opportunities, the level of integration and the business environment of host countries (Trade Law Centre, 2021), the joint investment protocol, which is expected to facilitate intracontinental cross-border investment, will address overlapping and sometimes contradictory regulatory investment frameworks within regional economic communities. There must be legally binding investment commitments, including environmental protection, consumer protection, labour protection and financial reporting standards (Trade Law Centre, 2021). These provisions are especially relevant in the mining and fuel sectors, which may be subject to adverse environmental and social impacts without adequate compensation.

Considering the discussed barriers to market entry and survival, a joint approach to competition policy is necessary to protect consumers and SMEs across borders from the anticompetitive behaviour of large firms, while maintaining efficiency and the supply of affordable products.

The African Continental Free Trade Area provides an opportunity to utilize the flexibilities of the Agreement on Trade-Related Aspects of Intellectual Property Rights on a continental scale. The free trade area could also be used to strengthen the ability of Africa as a bloc to ensure that such flexibilities are fully used to enable local production and access to essential medicines (South Centre, 2021).

In addition, the protocol on intellectual property rights of the African Continental Free Trade Area overcomes divergent and overlapping regional intellectual property rights regulation, and the two African intellectual property organizations, namely the African Intellectual Property Organization and the African Regional Industrial Property Organization, can be leveraged to implement a strong continental regime (Trade Law Centre, 2019).

Market information, customs and transport infrastructure

Greater economic cooperation under the African Continental Free Trade Area can be leveraged to address infrastructure bottlenecks through the joint provision of cross-border infrastructure under the Action Plan for Boosting Intra-African Trade. Moreover, the five operational instruments under the African Continental Free Trade Area, namely with regard to the elimination of non-tariff barriers, the online tariff negotiating forum, the harmonization of the rules of origin, the Pan-African Payment and Settlement System and the African Trade Observatory, are expected to unlock trade opportunities across countries.

Economic empowerment of women and youth

Gender equality has a positive impact on export diversification (Belasen and Angiello, 2018; Nguyen, 2021). The African Continental Free Trade Area and its protocol on women and youth has the potential to increase the trade shares of women, youth and locally owned enterprises by reducing the costs to trade across borders. UNCTAD (2021d) stated that women entrepreneurs and women-owned businesses are largely underrepresented and are likely to miss out on opportunities under the African Continental Free Trade Area without strengthening their economic position. Programmes and policies that target women and youth must ensure access to finance and financial products, inputs, technology and know-how, and stamp out gender discrimination and violence (UNCTAD, 2021d; United Nations Entity for Gender Equality and the Empowerment of Women, 2021).

Coordinated regional production

Trade policies and industrial policies are closely interlinked. Therefore, regional cooperation in industrial policies is necessary to reap equal benefits from the African Continental Free Trade Area. It is vital to ensure that industrial policies do not promote the same products for different countries in a regional integration system. Otherwise, as noted by Odijie (2019), neighbouring countries will end up with exclusion lists against each other in the same products, undermining national industrial policies. The author gives the example of West Africa, where Nigeria had selected cement as a sensitive

product because of industrial policies on cement. This prompted regional neighbours Benin, Burkina Faso, Côte d'Ivoire, Ghana, Sierra Leone and Togo to also apply industrial policies in cement production.

The Action Plan for the Accelerated Industrial Development of Africa, as well as regional industrialization strategies, could serve as building blocks to a coordinated continental industrialization strategy. For instance, the East African Community Industrialization Strategy was adopted in 2011, focusing on the following subsectors: agroprocessing, agro-chemicals, mineral processing, pharmaceuticals, petrochemicals and biofuels. Similarly, the Industrialization Strategy and Roadmap (2015–2063) of the Southern African Development Community prioritized six sectors: agroprocessing, mineral beneficiation, pharmaceuticals, consumer goods, capital goods and services (UNCTAD, 2021e). The Economic Community of West African States launched the West African Common Industrial Policy in 2010 (Economic Commission for Africa, 2015). The example of the Association of Southeast Asian Nations and its industrial cooperation scheme (Box 8) explains how resource pooling and knowledge sharing can help build regional value chains and achieve diversification, for example, in the electronics and automotive industries, while also pointing out challenges, such as a lack of broad industrialization and SME development.

To support the implementation of a regional industrial policy, national efforts to promote certain sectors should be harmonized and complement each other. What is more feasible and can be promoted through the African Continental Free Trade Area is a negotiated division of labour that assigns productive rights to develop certain products and exports for the regional market. As a starting point, an industrial development forum could provide a platform for collaboration in finding solutions to industrial development challenges in Africa.

Box 8

Experience of the Industrialization Strategy of Association of Southeast Asian Nations

Regionally coordinated industrial policies can boost regional value chain development and diversification. The 1997 Asian financial crisis led to a stronger focus on regional production networks to attract investment and reduce exposure to external shocks. The Association's first industrial development project (1976) which sought to encourage firms to form joint ventures, was

limited in its success because of political differences between members and institutional constraints to implementation at the national level. In 1981, the Industrial Complementation Arrangement of the Association, later known as the Brand-to-Brand Complementation Scheme, involved the division of different production stages of vertically integrated industries among member countries. Although this scheme was somewhat successful in the automotive industry, it did not succeed in deepening regional value chain development and industrialization on a broad scale. The authors argue that the lack of some kind of reward system, such as export subsidies, can explain the limited success of the industrial policy schemes for local SMEs to achieve upgrading and diversification.

Sources: UNCTAD, based on Djafar and Milberg, 2020; Shimizu, 1998.

1.5 Conclusion

While diversification mainly took place at the extensive margin by the addition of new products, there has been an increased concentration of export volumes in few sectors. The empirical evidence on determinants of geographical diversification shows that structural factors such as long distances to countries with large economies, high tariffs on intermediate inputs and a low share of services in the economy are key constraints to diversification. Value chain and market entry barriers, especially into higher value added activities, are another limitation but could be reduced through the active provision of market intelligence and business services. Further, an assessment of the services sector's backward and forward linkages reveals the extent to which services are facilitating complexity and diversity of African exports through intermediate inputs.

Many of the less diversified countries would not be able to rely on market conditions for driving the decision of entrepreneurs towards more productive activities. Governments need to strategically create targeted incentives to push entrepreneurs in import-replacement economic activities towards potential new products with above average complexity. This chapter identified some feasible product diversification potential that can guide policymakers and development partners in identifying industrialization strategies and productive capacity needs. While this chapter has provided a static analysis, there is a need for a dynamic assessment of changing regional production structures, a topic for future research.

