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## **Linking Southern Africa into South Africa's global value chains**

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**Abstract:** This study explores the potential for South Africa to become an engine for intra-regional trade and industrial development by linking other Southern African countries to its global value chains and, in the process, improving its global trade competitiveness. The study identifies ‘lead products’ exported by South Africa, and then uses revealed comparative advantage and unit cost analysis to identify intermediate inputs in which Southern African countries have competitiveness to export that is currently untapped due to a lack of supply capacity or other factors. Such products are potential areas where regional investments could lead to the successful creation of regional value chains. The study also identifies ‘new markets’ for agricultural lead products exported by South Africa, which could open new opportunities for Southern Africa to supply intermediate agricultural inputs.

**Key words:** regional integration, regional value chains, Southern Africa, South Africa, global value chains

**JEL classification:** F10, F15

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## 1 Introduction

Rapid globalization, together with the increasing fragmentation and unbundling of production processes, has resulted in significant changes to the dynamics of global trade. These changes are reflected in a proliferation of internationally joined-up production networks, often spanning multiple countries. Such networks are typically orchestrated by multinational corporations, acting as 'lead firms' and sourcing products from across the world (Viviers and Strydom 2015).

The global unbundling of production has made it possible for countries to specialize in the production of components and parts, rather than having to develop whole industries or sectors. This presents new opportunities for firms in Southern Africa, and elsewhere on the continent, to join transnational value chains, at either the regional or the global level, through backward integration (by sourcing inputs from abroad to produce products for export) or forward integration (by providing inputs for use in the production of another country's exports).

Evidence from theoretical and empirical studies suggests that participation in global or regional value chains (GVCs and RVCs) can generate a range of benefits. Allard et al. (2016) argue that GVC integration is consistently associated with higher levels of productive activity and income growth over time. A study by the OECD (2015) presents evidence that higher levels of backward integration into value chains lead to greater per capita domestic value addition in exports, through access to high-quality and competitively priced imported intermediate products and services which have a positive impact on productivity and competitiveness. The same study also shows that higher levels of backward integration into value chains are associated with the production of more-sophisticated exports and greater export diversification over time. Recognising these benefits, Engel (2016) suggests that integration into GVCs can play an important role in helping developing countries to improve their competitiveness and to industrialize.

Within Africa, Southern Africa is the region most integrated into GVCs, accounting for 40 per cent of the continent's overall GVC participation (AfDB et al. 2014; UNECA 2015). Even so, the value added captured by this participation is low, and most Southern African countries remain at the margins of international production networks (AfDB et al. 2014; Farole 2016). High levels of foreign ownership among firms participating in GVCs may be one defining factor, with the control exerted by foreign lead firms preventing suppliers in some cases from moving beyond basic production and into more-sophisticated products with higher levels of value addition. For instance, Banga (2017) analyses the case of Indian manufacturing and finds that captive GVC firms in India produce significantly less-sophisticated goods. The author identifies captive firms as those whose shares of skilled labour and supplier competence fall below the median level in the industry. Such firms are expected to exhibit high lead firm control over the production process. Where Southern African countries are integrated into GVCs, it is generally in the upstream segments of specific value chains, although there is significant heterogeneity across countries and there are some important exceptions—such as Botswana in the diamond value chain or Lesotho's involvement in final-stage apparel assembly (Engel 2016).

In some instances, benefits from integration can be amplified, or are more accessible, through RVCs. Participation in RVCs boosts opportunities for local producers, including small and medium-sized enterprises, to access regional markets (Conde et al. 2015). Integration into RVCs may better support upgrading, since intra-regional markets are often less dominated by a small number of lead firms (Keane 2015a). RVCs are also easier to organize and often have lower administrative burdens (e.g. in terms of rules of origin or requirements related to product

traceability) (UNECA 2015). In Southern African countries, developing RVCs offers an opportunity to broaden the manufacturing base and expand productive capacity (UNCTAD 2013).

South Africa holds a unique position among countries in the region in terms of its scale of participation in GVCs (UNCTAD 2013). This cuts across a range of sectors, from agriculture and mining to automobiles and finance. As a result, South Africa is well placed—boasting the necessary efficiency and scale of production—to drive the formation of cross-country value chains within Southern Africa.

South Africa already dominates trade within Southern Africa; it is a major source of intermediates for other Southern African countries, and enjoys a sizeable trade surplus in the region (Engel 2016). In the Southern African Customs Union (SACU), for instance, South Africa accounts for 60 per cent of the foreign value added imported into Botswana, Namibia, and Eswatini (known as Swaziland until 2018) (Engel 2016). Across the whole region, South Africa's forward integration into Southern African value chains continues to increase steadily. The value of intermediates imported from South Africa embedded in the exports of other Southern African countries grew five times over from US\$675 million to nearly \$3.5 billion between 1995 and 2011 (AfDB et al. 2014). Based on 2011 data, as much as 10 per cent of the intermediates imported by Botswana, Namibia, Eswatini, Zambia, and Zimbabwe are sourced from South Africa (AfDB et al. 2014). At the same time, the level of South Africa's backward integration into Southern African value chains has grown significantly since the end of apartheid. According to calculations by the AfDB et al. (2014), there was a nine-fold increase in value in South Africa's use of intermediates imported from other Southern African countries between 1995 and 2011, rising from US\$78 million to \$686 million.

Roughly 97 per cent of all trade in the region involves South Africa (Farole 2016), and the country acts as the *de facto* 'headquarter' economy in the region (Keane 2015a), playing a leading role in driving the few existing RVCs. It is a large exporter of processed food and consumer goods within the Southern African Development Community (SADC) region, and dominates supermarkets throughout Southern Africa (das Nair and Chisoro-Dube 2016). In the textile and apparel industries, strong (albeit short) RVCs have also been developing in recent years, with increasing pressure on producers based in South Africa to lower production costs combined with the growing scale of the regional retail market (Farole 2016). Although no co-ordinated regional poultry value chains exist in Southern Africa (Ncube et al. 2017), existing poultry production in the region has been led by large vertically integrated firms, predominantly from South Africa (Bagopi et al. 2014). South Africa is also a major non-oil investor in the region, and commercial enterprises are a key driver of the country's regional engagement (Games 2017).

Looking ahead, Farole (2016) focuses on the SACU region and argues that there is potential to develop a 'Factory Southern Africa' model, built around South Africa as a manufacturing hub, to replicate the successful Factory Asia manufacturing model in South East Asia. He contends that South Africa boasts capabilities on par with a number of South East Asian nations on a range of factors central to production competitiveness, including logistics capabilities, the strength of institutions, and human and financial capital. Moreover, he argues, there exist strong complementarities in the capabilities of South Africa and other SACU countries (Botswana, Lesotho, Namibia, and Eswatini) that are amenable to a hub-and-spoke type of model in which RVCs (led by South Africa) link into GVCs.

In this context, the main objective of this study is to identify South Africa's 'lead products', for which it has formed its own GVCs, and, based on those highlighted, to identify intermediate products that can enable other Southern African countries to link into South Africa's GVCs by

supplying inputs more competitively than existing sources. The study also estimates the potential market share that other Southern African countries can capture in South Africa's market.

The primary data source is export-import data from the World Integrated Trade Systems (WITS) data set from UN Comtrade.<sup>1</sup> Inputs that are currently being sourced domestically (i.e. from within South Africa) have not been included in the analysis, in order to leave the existing domestic supply chains intact. Only those inputs that are currently being imported as inputs into the production of South Africa's lead products are examined, and Southern African countries that can link into South Africa's GVCs by supplying these inputs are identified. In doing this, we also consider potential policy interventions to support other Southern African countries to integrate successfully into these value chains.

The objectives of the study are two-fold:

1. First, it identifies the existing lead products of South Africa, in which South Africa forms its own GVCs, and estimates the potential market share that Southern African countries could capture in South Africa's markets by supplying intermediate inputs for these lead products. This provides a basis for selecting products for potential investment to increase regional integration in Southern Africa.
2. Secondly, narrowing the analysis to the agricultural sector—a key regional priority sector with immense potential for industrial growth and large-scale employment—the study identifies existing agricultural lead products in South Africa, and the 'new markets' to which South Africa can export. This is intended to highlight products in which South Africa can expand its existing GVCs to new markets and potentially increase regional integration.

Section 2 presents the dynamics of value chain integration in Southern Africa across broad sectors. Following this, Section 3 provides a description of the policy environment supporting regional trade and value chains in Southern Africa. Section 4 presents the data and methodology used in the study to identify potential RVCs and new markets for South Africa. Section 5 presents and discusses the results. Finally, Section 6 concludes and suggests policy interventions to support further integration around RVCs in Southern Africa.

## **2 The dynamics of integration in Southern Africa**

Most Southern African countries are trading at levels above those which would be predicted from their income levels alone (Engel 2016). However, much of this is biased towards commodity exports and consumption imports, especially among the SACU countries, where the shares of intermediates in exports and imports are lower for the region as a whole compared with a selection of peer countries (Engel 2016).

The nature of Southern Africa's integration into international value chains to date suggests that there is ample room for improvement. The further development of intra-regional trade and RVCs can be a useful starting point. Existing levels of intra-regional trade in Southern Africa are low and have not increased substantially. For instance, previous estimates have suggested that roughly 90 per cent of total SADC trade remains with countries outside the region (Tralac 2017). This is

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<sup>1</sup> <https://comtrade.un.org>.

markedly lower, for instance, than the level of intra-regional trade among South East Asian nations (24 per cent) (Tralac 2017).

## **2.1 Which sectors exhibit higher regional integration?**

Outside of the apparel sector, which involves a short value chain centred around cut-make-trim operations and mostly relies on inputs imported from outside the region, RVCs in Southern Africa remain underdeveloped and are largely limited to consumer-oriented products (e.g. cocoa, dairy products, detergents, plastics, soap) rather than industrial goods (Farole 2016; Keane 2015a).

Where value chains have emerged that span multiple Southern African countries, they tend to be dominated by South Africa. Some integration within the region has been structured through supermarket supply chains—led by South African supermarkets—which has helped to drive regional trade in processed foods and household consumables. But this trade is generally heavily skewed in favour of South Africa (from which many of the products are imported for sale in other Southern African countries) and a range of barriers, particularly those related to requirements and standards, constrain the participation of local firms looking to supply the large supermarket chains (das Nair and Chisoro-Dube 2016).

In the clothing sector, multi-country production in the region has again been led predominantly by South Africa. From 2006 onwards, in the face of challenges in the domestic industry, South African apparel manufacturers opted to relocate some or all of their operations to Lesotho and Eswatini in order to benefit from lower labour costs and duty-free access to the South African market through SACU (Balchin and Calabrese 2019; Godfrey 2015). This gave rise to triangular manufacturing arrangements in which orders were received from South African retailers, designs and fabrics were sent to Lesotho or Eswatini for garment assembly, and the final products were exported back to retailers in South Africa (Godfrey 2015). The result has been a delocalization within the value chain, driven by South African retailers.

Outside of these sectors, some studies note the existence of a type of production network in metals within the region. Some metal products are exported by South Africa to other SACU members, which re-export them back to South Africa (Keane 2015b). However, these products do not feature within South Africa's major extra-regional exports. In some Southern African countries, such as Botswana and Namibia, the metal sector also ranks high in terms of growth in total foreign value added (Farole 2016).

South Africa is also dominant in other sectors, such as agro-processing. Although there are few examples of integrated regional agro-processing supply chains, there are some chains in which processors have established facilities across the region to capitalize on the respective countries' competitive advantages and produce for export markets (Grobbelaar and Meyer 2017).

Despite progress in these sectors, challenges remain to further value chain integration in Southern Africa. Principal among these is the considerable asymmetry in size and productive capacity between South Africa and the other countries in the region (Farole 2016). This makes it difficult for other Southern African countries to supply inputs to South Africa competitively and in accordance with the required volumes and standards. In addition, although progress has been made in liberalizing intra-regional trade (discussed below), there remain significant trade barriers in the region. These include a range of non-tariff barriers; the persistence of infant industry protection, quotas and bans, and licensing requirements; and a lack of harmonization of standards and labelling (Farole 2016).

## **2.2 The policy environment for regional integration and value chains in Southern Africa**

Good progress has already been made in liberalizing intra-regional trade in Southern Africa. The SADC Protocol on Trade paved the way for a staged tariff reform process—starting from 1 January 2000—following an agreed annual tariff phase-down schedule that allowed for product and country differentiation in the level and pace of liberalization (Balchin et al. 2016a).<sup>2</sup> In recognition of the different levels of development across SADC countries, there was significant heterogeneity in the rates at which participating SADC Member States committed to reducing their tariff lines on certain products (Balchin et al. 2016a).

Similarly, the SACU trade regime has undergone notable liberalization in recent decades, especially over the period from 1990 to 2006. Discussions are ongoing to further liberalize trade and boost regional integration, including through wider trade agreements that span multiple regions in Africa, such as the Tripartite Free Trade Area and the African Continental Free Trade Area (AfCFTA).

Aside from the overarching agreements for liberalizing intra-regional trade, there is ongoing policy prioritization for deepening regional integration, including through a range of regional frameworks to support integration, facilitate linkages between economies, and support efforts to produce higher value-added goods in SADC. For instance, the SADC Industrial Upgrading and Modernization Programme (adopted in 2009) aims to reinforce institutional support for improving productivity and competitiveness in order to enhance beneficiation and value addition (UNECA 2017). This is focused around nine priority sectors: agro-food processing, fisheries, wood and wood products, textiles and garments, leather and leather products, beneficiation of mineral products, pharmaceuticals and chemicals, machinery and equipment, and services.

SADC's *Revised Regional Indicative Strategic Development Plan (RISDP) 2015–2020* (SADC 2015a) seeks to advance economic diversification within the region through the promotion of industrial linkages between countries and increased value addition. The plan places industrialization at the forefront of SADC's integration agenda. Linked to this, the *SADC Industrial Development Policy Framework* (SADC 2014) was devised to implement the RISDP. Its overarching goal is to develop an integrated industrial base in Southern Africa by exploiting regional synergies in value-added production and enhancing export competitiveness (UNECA 2017).

Much of this is given practical expression through the *SADC Industrialization Strategy and Roadmap 2015–2063* (SADC 2015b), which outlines a long-term action plan to link the SADC industrialization push to the African Union's Agenda 2063. The *Roadmap* prioritizes regional integration and industrialization. This is to be achieved in three phases, with the first—running from 2015 to 2020—looking to front-load industrial development and market integration. This phase includes emphasis on the provision of related infrastructure and services to support industrialization. The second phase, running from 2021 through to 2050, focuses on diversifying SADC economies and enhancing productivity and competitiveness. Finally, the third stage (2051–63) targets innovation through the adoption of advanced technologies and improvements in business sophistication. The importance of integrating SADC economies into RVCs and GVCs to spur industrialization is emphasized across all three phrases.

In addition to these SADC-wide policy frameworks, the SACU countries are also in the process of devising a regional industrial development policy for the customs union. Importantly, this

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<sup>2</sup> Certain products that already attracted low or zero tariffs were placed in Category A and earmarked for immediate liberalization, whereas Category B products, identified as important sources of customs revenue, were to be liberalized gradually over an eight-year period. A further group of products (Category C), deemed to be of critical economic importance to SADC Member States, were to be eliminated between 2008 and 2012. The latter grouping was limited to a maximum of 15 per cent of each Member State's intra-SADC merchandise trade (Kalenga 2009).

process has identified the agro-processing and automotive sectors as priorities for cross-country collaboration. Regional co-operation in these sectors is regarded as offering significant potential for Botswana, Lesotho, Namibia, and Eswatini to access larger GVCs.

These multi-country policy frameworks are complemented by individual national industrial policies, many of which focus on beneficiation and value addition. Among these, South Africa's industrial policy includes emphasis on regional dimensions. Specifically, the country's industrial policymakers regard integration into RVCs as a means to promote both South Africa's and the region's economic development.

More generally, the broader continental integration efforts in motion can help to drive the development of RVCs in Southern Africa and beyond. The first phase of negotiations towards the AfCFTA focused on trade in goods; trade in services; and rules and procedures in the settlement of disputes. The second phase, currently underway, covers investment, intellectual property rights, and competition policy. The economic integration envisaged under the AfCFTA process are intended to provide the tariff liberalization, trade facilitation, and trade policy coherence necessary to support the development of RVCs in Southern Africa and elsewhere on the continent.

Even with the extensive array of policy frameworks promoting regional integration and the forward-looking continental integration initiatives, more could be done at the regional level to support value chain development. The nature and scope of non-tariff barriers (NTBs) in Southern Africa is very complex and includes, among other things, weak transport and logistics; customs delays; restrictive rules of origin; import bans, quotas, and levies; technical barriers; import permits and licensing; and export restrictions. The World Bank's Logistics Performance Index (World Bank 2018) shows that, barring South Africa and Botswana, Southern African countries perform relatively poorly on logistics. Substantial efforts are required, especially in areas such as customs and border procedures, transport infrastructure, and the availability and quality of logistics services.

There has also been limited progress to date in generating agreement at the regional level on key factors to facilitate RVCs, including in relation to services trade and the movement of natural persons, intellectual property rights, and corresponding investment agreements. For instance, using the Services Trade Restrictiveness Index (STRI), ECA-SA (2018) finds that while the SADC average STRI is not too far from the world average in most services sectors, in telecommunications it is twice as restrictive as the world average. In some services sectors, such as retail, banking, and insurance, licence fees remain prohibitively high, while in professional services, domestic regulations on entry remain a key impediment to regional trade. There are major skills shortages in engineering and IT services as well as accounting and legal services across Southern African countries.

The global trading environment is currently undergoing rapid transformation as a result of the adoption of digital technologies such as big data, cloud computing, and robotics. Appropriate and forward-looking policies need to be developed to leverage these digital technologies for boosting regional integration. On the production side, these technologies can generate productivity and product sophistication gains (Banga and te Velde 2018a), creating new opportunities for firms to further integrate into the global and regional economy. For example, Banga and te Velde (2018b) put forward the case of Funkidz, a children's furniture manufacturing enterprise in Kenya that has invested heavily in digital machinery. Adopting digital technologies in production has allowed this firm to produce mass quantities of good-quality furniture to exact specifications, and as a result the firm has expanded into the regional markets of Uganda and Rwanda. On the transaction side, the use of big data, digital payments, e-commerce, and digital customs holds immense potential to boost regional trade and integration through the creation of efficiencies in logistics and delivery, and through reductions in transaction costs and trade barriers. Regional harmonization of



intellectual property, and monitoring/tracking of patent and trademarks through digital databases, can also facilitate greater regional integration (Banga and te Velde 2018b).

SADC has put in place a Digital 2027 agenda, aimed at consolidating regional telecommunications networks, transport and postal infrastructures, e-services development, and ICT infrastructure development (SADC 2012). The Common Market for Eastern and Southern Africa also has plans underway for the implementation of a Digital Free Trade Area (DFTA)—an online platform for trade facilitation through electronic trade, e-logistics, and e-legislation (Hope 2018).

To effectively leverage the digital economy to boost regional integration, UNCTAD (2018) proposes a ten-point agenda for South–South digital co-operation. While the sequencing and prioritizing of the policies will depend on country-specific characteristics such as the level and pace of digital development, the agenda calls for regional blocs to (i) build a data economy; (ii) develop cloud computing infrastructure; (iii) strengthen broadband infrastructure; (iv) promote e-commerce in the region; (v) promote digital payments; (vi) ensure progress on a single digital market in the region; (vii) share experiences on e-government; (viii) forge partnerships for building smart cities; (ix) promote digital innovations and technologies; and (x) build statistics for measuring digital progress (UNCTAD 2018). The report further acknowledges the role of large countries within a region—such as South Africa in the case of Southern Africa—as a driver of regional digital growth.

### **3 Data and methodology**

To identify potential products through which Southern African countries can link into South Africa’s GVCs, this study draws closely on the methodology developed by Commonwealth Secretariat (2016) for linking least-developed countries into India’s GVCs. For a product to form its own GVC, it is important that it is a finished product and ready to be consumed by consumers, or is a capital good to be consumed by industry. Such products provide an opportunity for South Africa to form its own competitive GVCs, and for Southern African countries to link into these value chains.

#### **3.1 Identifying South Africa’s lead products**

In the first step, product-level export data is collected for South Africa from the WITS database at the Harmonized System (HS) six-digit level (2012 classification) for the years 2015–17. The analysis is based on average trade flows over three years to avoid any year-to-year fluctuations.

The finished products are identified on the basis of the United Nations’ Broad Economic Categories (BEC), as capital goods for industry consumption or household consumption goods. A concordance is undertaken at the six-digit level of HS 2012 with the BEC classification to identify intermediate and final exports by South Africa. The study then selects the top ten finished consumer and capital products (lead products) being exported by South Africa.

#### **3.2 Identifying imported intermediate inputs in the lead products**

Using concordance matrices, the study matches each of the ten lead products (at HS six-digit level) identified through the approach outlined in Section 3.1 with the BEC classification category to identify the intermediate inputs used in their production. For example, for the lead product HS 870421 (vehicles, for transport of goods), intermediate inputs are those classified under the BEC

category 53 (transport equipment for industry). Identification of intermediate inputs is further validated through input-output tables.

From within these intermediate products, the study identifies those inputs that South Africa is currently importing from other countries but that could be sourced more cost-competitively from Southern African countries. Only those inputs that South Africa is already importing are considered—hence the analysis in this study does not impact the existing domestic supply chains in South Africa. The average import value (over the period 2015–17) is calculated for each intermediate product imported by South Africa, and the top 20 imported intermediate inputs are selected for analysis. These inputs are classified under the following BEC intermediate input categories: 53 (parts and accessories of transport equipment); 42 (parts and accessories of capital goods); 121 (processed foods and beverages, mainly for industry); and 111 (primary foods and beverages, mainly for industry).

### 3.3 Comparing the competitiveness of Southern African countries in the identified intermediate inputs

The concept of comparative advantage is rooted in conventional trade theory and is widely deployed in modern economic literature to evaluate the trade and specialization patterns of countries. There are different methods available to measure comparative advantages of countries across products; this study uses the revealed comparative advantage (RCA) index introduced by Balassa (1965)—the most commonly used indicator in empirical work.

For each of the top 20 identified intermediate products, the study calculates the bilateral RCA for each country exporting to South Africa. It then identifies which Southern African countries have a higher RCA in a particular intermediate input compared with the main markets from which South Africa is currently importing the product.

The bilateral RCA for country  $i$  in product  $k$  is calculated as:

$$RCA_{ik} = \frac{X_{ikSouth\ Africa}}{X_{ikWorld}} \bigg/ \frac{X_{iSouth\ Africa}}{X_{iWorld}}$$

where  $X_{ikSouth\ Africa}$  refers to exports of country  $i$  in product  $k$  to South Africa,  $X_{ikWorld}$  refers to exports of country  $i$  in product  $k$  to the world, and  $X_{iSouth\ Africa}$  and  $X_{iWorld}$  refer to total exports of country  $i$  to South Africa and to the world respectively. Exports are averaged over 2015–17 to deal with yearly fluctuations. A ratio greater than 1 implies that the country is competitive in the product; the higher the RCA in a particular product, the higher the country's competitiveness in that product.

Some studies have criticized Balassa's RCA index for having poor empirical distribution characteristics (De Benedictis and Tamberi 2004) and for taking only exports into consideration while ignoring imports (Cai and Leung 2008). Since export unit values do not capture additional costs such as freight or transport costs, the study complements RCA analysis by comparing import unit values for South Africa importing these products from different countries. By doing this, the study is able to identify Southern African countries that not only are more competitive in a particular product but also export the product to South Africa at a lower unit cost (which represents another dimension of overall competitiveness). Import unit value is calculated as export unit value (export value/export volume) for each country in each of the 20 products exported to South Africa plus the cost, insurance, and freight (CIF) charges borne by South Africa when it

imports. These CIF-FOB (free on board) margins are taken at the four-digit level from the International Transport and Insurance Costs of Merchandise Trade (ITIC) data set.<sup>3</sup>

### 3.4 Estimating additional potential market access for Southern African countries in South Africa’s market

The scope for additional market share of a Southern African country in South Africa’s market for a particular intermediate input is calculated as the sum of the exports of its competitor countries that not only have a lower comparative advantage in the product (lower bilateral RCA than the Southern African country) but also have a higher import unit value in South Africa’s market. This calculation helps to identify countries within the Southern African region that have the potential to supply these inputs more cost-effectively than do current suppliers. If it is determined that the Southern African countries are currently unable to supply the inputs to South Africa due to a lack of capacity, then those inputs will be identified as potential products for regional investments.

### 3.5 Finding new markets for South Africa’s lead products

The above methodology will help to identify products for which there is potential to form or strengthen RVCs. In this final step, we narrow down the analysis to focus on the agricultural sector—a priority sector for regional integration in Southern African—and identify new markets for South Africa’s agricultural lead products (finished agricultural products for household consumption). To identify these new markets, the study follows the methodology developed in the Commonwealth Secretariat’s (2017) study on export diversification in Jamaica.

We first identify South Africa’s top agricultural lead products currently being exported, using data averaged over the period 2015–17. To identify new markets for South Africa, the study (i) identifies the top ten global importers of the product (by value); (ii) identifies which importers, within the top ten, are not importing from South Africa; and (iii) compares South Africa’s competitiveness with that of existing exporters to these markets using global RCA.

The global RCA for country  $i$  in product  $k$  is calculated as:

$$RCA_{ik} = \frac{X_{ik}}{X_{worldk}} \bigg/ \frac{X_i}{X_{World}}$$

where,  $X_{ik}$  refers to exports of country  $i$  in product  $k$  to the world,  $X_{Worldk}$  refers to exports of the world in product  $k$ , and  $X_i$  and  $X_{World}$  refer to total exports of country  $i$  and the world respectively. Exports are averaged over 2015–17. A ratio greater than 1 implies that the country is competitive in the product; the higher the RCA in a particular product, the higher the country’s global competitiveness in that product.

## 4 Identifying products for potential regional value chains in Southern Africa and new markets for South Africa

### 4.1 Potential regional value chains for Southern African countries

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<sup>3</sup> [https://stats.oecd.org/Index.aspx?DataSetCode=CIF\\_FOB\\_ITIC#](https://stats.oecd.org/Index.aspx?DataSetCode=CIF_FOB_ITIC#).

As described above, the study identifies lead products as final consumer goods or capital goods for consumption using the BEC classification. Using this definition, South Africa's top exported lead products are (broadly) identified in Table 1 as vehicles for the transport of goods; machinery for filtering gases; wine; medicaments; cosmetic preparations; food preparations; containers; telephones; and cigarettes.

Table 1: Top ten lead products exported by South Africa (average 2015–17)

Product code (HS 2012)	Description of the lead product	Exports (in million US\$)
870421	Vehicles, for transport of goods	2,333
842139	Machinery; for filtering or purifying gases	1,497
220421	Wine; still, in containers holding 2 litres or less	465
300490	Medicaments; consisting of mixed or unmixed products, for therapeutic or prophylactic uses, packaged for retail sale	265
330499	Cosmetic and toilet preparations; for the care of the skin	214
220429	Wine; still, in containers holding more than 2 litres	202
210690	Food preparations; n.e.s. in item no. 2106.10	176
860900	Containers; (including containers for transport of fluids) specially designed and equipped for carriage by one or more modes of transport	166
851712	Telephones for cellular networks or for other wireless networks	155
240220	Cigarettes; containing tobacco	140

Note: Exports are averaged over 2015–17; n.e.s. = not elsewhere specified.

Source: Authors' construction based on UN Comtrade (BEC data).

In order to identify which Southern African countries can link into South Africa's existing exports of the lead products, we trace the existing value chains for the identified lead products and identify the top 20 imported inputs. For each of the 20 imported inputs, we calculate the bilateral RCA of countries in South Africa's market and estimate the import unit value at which South Africa is importing these products from other countries.

Table 2 identifies Zambia, Botswana, Mozambique, Namibia, and Zimbabwe as cost-competitive sources of inputs for South Africa compared with the existing sources of those inputs. Overall, potential intermediate products that Southern Africa can provide in South Africa's GVCs include parts and accessories of vehicles, printing machinery, telephone sets, machinery for handling ores and earth, reception and transmission apparatus, data and digital processing automatic units, and wiring sets; and pneumatic rubber tyres. The table lists potential product-country pairs of the Southern African partners identified, along with their potential market access in South Africa.

Table 2: Identifying potential regional value chains in Southern Africa

HS six-digit input	Intermediate Input	Final product being exported by South Africa	Less-competitive countries SA is currently importing inputs from (examples)	Southern African countries with potential to export	Potential Exports (1,000 US\$)	Current exports to SA (1,000 US\$)	Current exports to the world (1,000 US\$)
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844399	Printing machinery; parts and accessories	Medicaments for retail	Lithuania, Ireland, Malaysia, Thailand, Lithuania, Ireland, Japan, China	Zambia	35	15	17	
				Botswana	163,828	22	23	
				Mozambique	35	41	41	
				Namibia	151,691	10.5	18	
843149	Machinery; parts of machines handling earth, ores	Vehicles for transport of goods	France, Sweden, Belgium, Sweden, Cameroon, Germany, Bulgaria, Saudi Arabia	Zambia	48,656	6,896	9,916	
				Botswana	86,559	5,562	7,173	
		Containers for carriage		Namibia	34,375	1,529	3,248	
				Mozambique	1,785	378	1,283	
851770	Telephone sets and other apparatus; transmission, reception; parts	Telephones for cellular networks or for other wireless networks	New Zealand, Denmark, Malaysia, Germany, Denmark	Zambia	6,770	9	49	
				Namibia	66,648	12	18	
870829	Vehicles; parts and accessories, of bodies, other than seat belts	Vehicles for transport of goods	Brazil, Thailand, Germany, Hungary, Indonesia, Belgium, Netherlands, Morocco	Zambia	627,631	48	77	
				Botswana	12,656	105	319	
				Namibia	22	9	24	
852990	Reception and transmission apparatus	Telephones for cellular networks or for other wireless networks	Malaysia, Indonesia, Spain, Singapore, Denmark, Belgium, Benin, Malaysia, China	Zambia	66,990	4	7.5	
				Botswana	27,329	14	36	
				Namibia	38,070	29.5	46	
870899	Vehicles; parts and accessories,	Vehicles for transport of goods	Poland, Norway, USA, Chile, Poland, Norway, Senegal, Peru, Finland	Zambia	78,031	483	1,627	
				Botswana	83,646	919	2,297	
		Containers for carriage		Zimbabwe	504	351	373	
848180	Taps, cocks, valves, and similar appliances; for pipes, boiler, or the like	Machinery for filtering or purifying gases	Germany, Sweden, France	Zambia	208,069	466	604	
				Botswana	197,365	220	273	
				Mozambique	110,367	88	113	
				Namibia	186,799	24.5	52	
880330	Aircraft and spacecraft; parts of aeroplanes/helicopters	Vehicles for transport of goods	Belgium, Denmark, Madagascar, Tanzania	Zambia	81,599	619	3,293	
				Botswana	5,295	202	1,023	
		Containers for carriage						

401120	New pneumatic rubber tyres, used on buses or lorries	Containers for carriage	Indonesia, Netherland	Namibia	312,465	125	302	
				Zimbabwe	311,602	761	863	
847330	Machines; parts and accessories of automatic data and digital processing units	Telephones for cellular networks or for other wireless networks	UK, Denmark, France, Norway	Mozambique	95,494	24	30	
				Namibia	95,485	34	61	
				Botswana	87,792	147	828	
				Zimbabwe	36,738	162	213	
401110	New pneumatic tyres, of rubber, used on motor cars	Vehicles for transport of goods	Japan, China, Germany, Korea	Botswana	188,567	85.5	181	
870830	Parts and accessories of motor vehicles, brakes and servo-brakes; parts thereof	Vehicles for transport of goods	Peru, Finland, Austria	Zambia	20	162	190	
854430	Ignition wiring sets and other wiring sets used in vehicles, aircraft, or ships	Vehicles for transport of goods	USA, France, UK	Botswana	22,953	50	327	
853710	Boards, panels, etc. for electric control/distribution of electricity	Telephones for cellular networks or for other wireless networks	Germany, China, USA, Malaysia, China, Thailand, France	Zambia	293,051	65	103	
				Botswana	94,473	53	277	
				Mozambique	3.5	28.5	76.5	
840999	Engines; parts for internal combustion piston engines	Machinery; for filtering or purifying gases	Vehicles for transport of goods	USA, Netherlands, Thailand, Belgium, India, Japan	Zambia	159,205	155	283
					Botswana	124,506	158.5	301
					Mozambique	83,961	44	104.5
					Namibia	111,128	97	208
					Zimbabwe	9,331	214	220
842199	Machinery; centrifuges, parts for filtering or purifying liquids or gases	Machinery for filtering or purifying gases	Germany, Japan, Thailand, Sweden, Norway	Botswana	107,273.5	7.6	9.6	
				Zambia	2,469	33	170	

Notes: Some Southern African countries such as Malawi are excluded from the unit cost analysis because CIF margins are not available for them in the ITIC database. Potential exports in some cases may denote an estimate

of the lower interval for the same reason. Examples of less-competitive countries included above are in most cases those countries that have the highest value of exports to South Africa.

Source: Authors' construction based on UN Comtrade data.

Consider the case of medicaments for retail—one of the top lead exports of South Africa. Using RCA and unit cost analysis, the study identifies printing machinery, parts, and accessories (used for printing labels on medicaments), as one of the key inputs which certain Southern African countries (Botswana, Mozambique, Namibia, and Zambia) can supply to South Africa. These Southern African economies have a higher bilateral RCA and lower import unit value than some of the current exporters of this product to South Africa. For instance, Zambia and Mozambique are more competitive than Lithuania and Ireland; Botswana is more competitive than Malaysia and Thailand; and Namibia is more competitive than Japan and China.

Based on the sum of current exports to South Africa from less-competitive exporters (in terms of both unit cost and comparative advantage), the study calculates the potential exports for each Southern African country. In the case of printing machinery, Zambia is currently exporting US\$15,000 to South Africa but has the potential to capture an additional market access of \$35,000 (the sum of total of exports of Lithuania and Ireland). Since its potential exports to South Africa are greater than what Zambia is currently exporting to the rest of the world, this indicates that Zambia may lack capacity to supply the product in greater volumes, suggesting a need for regional investments to boost productive and export capacity, including from South Africa. Since this product is currently being sourced from less-competitive suppliers, South Africa will also benefit from facilitating market access for Southern African countries.

Similarly, consider the case of telephones exported by South Africa. As per Table 2, both Zambia and Namibia can provide parts of telephone sets and other apparatus for transmissions (HS 851770) more competitively than some countries, such as Denmark, from which South Africa is currently importing.

An interesting point to note is that many of these competitor countries are currently supplying these intermediates to South Africa in the absence of a trade agreement. In this sense, Southern African countries have an additional advantage in the form of preferential market access through the SACU (Botswana, Namibia) or SADC (Mozambique, Zambia, Zimbabwe) trade agreements.

#### **4.2 New markets for South Africa in agricultural lead products**

Section 4.1 identified key industrial inputs that Southern African countries can supply to South Africa to link into its existing GVCs. SADC has earmarked agro-processing as one of the key regional priority value chains, whose global competitiveness needs to be boosted to spur industrial development in Southern Africa. The sector has immense potential to contribute to not only food security, large-scale employment, and income, but also industrial growth through global integration. The SADC region is endowed with an abundance of labour and raw materials, and therefore has a comparative advantage in production of agricultural commodities such as livestock, oilseeds, and sugarcane.

South Africa has the potential to become a growth pole for Southern Africa's agriculture sector. In order to identify potential RVCs in agriculture, we first identify new markets for South Africa's identified agricultural products. Increased demand for these products will enhance South Africa's capacity and need to develop RVCs in these products.

Of the top 20 agricultural lead products exported by South Africa, Table 3 identifies new markets for frozen hake, mixed juices, margarine, sunflower seed or safflower oil, solid sucrose, sweet

biscuits, meat, and edible offal. These markets consist of the top ten importers of the product (in terms of value) which are importing the lead product from other countries, but not from South Africa, despite it being globally competitive in the product. In the case of cereals, while South Africa is not globally competitive, new markets are those that are importing from countries which are less competitive than South Africa in cereals. For example, Bangladesh is importing cereals from China, Japan, and Korea, which have a lower global RCA in cereals than South Africa.

Table 3: New export markets for South Africa's top agricultural lead products

HS lead product	Product description	Product-level exports to the world (1,000 US\$)	New markets for export
30366	Fish; frozen, hake ( <i>Merluccius</i> spp., <i>Urophycis</i> spp.)	40,520	Serbia, Ukraine
200990	Juices; mixtures of fruits or vegetables, unfermented, not containing added spirit, whether or not containing added sugar	83,009	Russia
151710	Margarine, excluding liquid margarine	35,187	Germany, Finland, France, Hungary, Italy, Saudi Arabia, USA
151219	Vegetable oils; sunflower seed or safflower oil and their fractions, other than crude, whether or not refined, but not chemically modified	72,287	Belgium, Belarus, Germany Italy, Jordan, Lebanon
170199	Sucrose; chemically pure, not containing added flavouring or colouring matter, in solid form	83,587	China, Sri Lanka, Saudi Arabia, Sudan
190531	Sweet biscuits	39,371	Italy, Saudi Arabi
20714	Meat and edible offal; of fowls of the species <i>Gallus domesticus</i> , cuts and offal, frozen	36,450	China, Germany, France, UK, Hong Kong, Japan, Saudi Arabia
100630	Cereals; rice, semi-milled or wholly milled, whether or not polished or glazed	44,304	Bangladesh, China, Côte d'Ivoire, Japan, Malaysia, Saudi Arabia

Source: Authors' construction based on UN Comtrade data.

Tracing the value chains in these agricultural lead products and carrying out analysis based on RCA reveals selected inputs in which Southern Africa can integrate regionally. Table 4 identifies six South African value chains (existing or new) that Southern African countries can link into: margarine; cosmetic and toilet preparations; solid sucrose; wine; mixed juices; and sweet biscuits. This can be done by increasing exports to South Africa in two key intermediate inputs—palm oil and cane sugar in solid form. While Botswana can provide palm oil to South Africa more competitively than the countries currently exporting to South Africa, cane sugar can be sourced from Zimbabwe, Zambia, and Botswana.



Table 4: Linking Southern Africa into South Africa's existing and new agricultural value chains

Lead products exported by South Africa	New markets that South Africa can export to	Intermediate inputs that South Africa can import from Southern Africa	Countries South Africa is currently importing from	Southern African countries which can provide input more competitively
Margarine	Germany, Finland, France, Hungary, Italy, Saudi, USA	Vegetable oil; palm oil	Portugal, Indonesia, Malaysia, Sri Lanka, France, Costa Rica, Hungary, Cameroon, Netherlands, Spain	Botswana
Cosmetic and toilet preparations		Vegetable oil; palm oil	Portugal, Indonesia, Malaysia, Sri Lanka, France, Costa Rica, Hungary, Cameroon, Netherlands, Spain	Botswana
Sucrose; chemically pure, solid	China, Sri Lanka, Saudi Arabia, Sudan	Sugars; cane sugar, raw, in solid form, no added flavouring	Germany, India	Zimbabwe, Zambia, Botswana
Wine		Sugars; cane sugar, raw, in solid form, no added flavouring	Germany, India	Zimbabwe, Zambia, Botswana
Mixed juices	Russia	Sugars; cane sugar, raw, in solid form, no added flavouring	Germany, India	Zimbabwe, Zambia, Botswana
Sweet biscuits	Italy, Saudi Arabi	Sugars; cane sugar, raw, in solid form, no added flavouring	Germany, India	Zimbabwe, Zambia, Botswana

Source: Authors' construction based on UN Comtrade data.

## 5 Conclusions and policy implications

### 5.1 Summary

The study identifies lead products exported by South Africa, and then uses RCA and unit cost analysis to identify intermediate inputs in which Southern African countries have potential competitiveness to export to South Africa which is currently untapped. The study also identifies new markets for agricultural lead products exported by South Africa, which can open new opportunities for Southern Africa to supply agricultural intermediate inputs.

The products we have identified in this study for potential regional investments in Southern Africa are summarized in Table 5.

Table 5: Identified products for potential regional investments and integration of Southern Africa into South Africa's GVCs

Southern African country	HS code	Intermediate input	South African GVCs in which intermediate product can be used
Zambia, Botswana, Mozambique, Namibia	8443	Printing machinery	Medicaments for retail
Zambia, Botswana, Namibia, Mozambique	8431	Parts of machinery handling earth	Vehicles for transport of goods
Zambia, Namibia	8517	Telephone sets and other apparatus; parts	Telephones
Zambia, Botswana, Namibia	8708	Vehicles; parts and accessories	Vehicles for transport of goods
Zambia, Botswana, Namibia	8529	Reception and transmission apparatus	Telephones for cellular networks or for other wireless networks
Zambia, Botswana, Mozambique, Namibia, Zimbabwe	8481	Taps, valves, and other appliances	Machinery for filtering gases
Zambia, Botswana	8803	Parts of aircrafts	Vehicles for transport of goods
Zambia, Botswana, Mozambique, Namibia, Zimbabwe	8409	Piston engines; parts	Vehicles for transport of goods
Zambia, Botswana	8421	Centrifuges; parts	Machinery for filtering gases
Namibia, Zimbabwe, Botswana	4011	Pneumatic rubber tyres	Containers for carriage; vehicles for transport of goods
Mozambique, Namibia, Botswana, Zimbabwe	8473	Parts and accessories of automatic digital and data processing units	Telephones for cellular networks or for other wireless networks
Botswana	1511	Vegetable oil; palm oil	Margarine; cosmetic and toilet preparations
Zambia, Zimbabwe, Botswana	1701	Raw cane sugar	Wine; mixed juices; sweet biscuits

Source: Authors' construction based on UN Comtrade data.

## 5.2 Conclusions

Our identification of the top ten lead products exported by South Africa, and the associated intermediate inputs used in their production, corresponds fairly well with the priority sectors in the *SADC Industrialization Strategy and Roadmap 2015–2063*. The SADC-wide strategy emphasizes agro-processing, beneficiation, and manufacturing value added, targeting six main value chain clusters: agro-processing, mineral beneficiation, pharmaceuticals, other consumer goods (including leather, leather goods, and footwear; and clothing and textiles), capital goods (machinery and equipment, particularly for automobiles), and services. Among the top ten lead products exported by South Africa, the capital goods (e.g. vehicles), machinery (e.g. for filtering or purifying gases), pharmaceutical (e.g. medicaments), consumer goods (e.g. cosmetics and toiletries), and agro-processing (e.g. wine, food preparations) sectors are all represented. This suggests that there is a strong policy foundation and an associated level of political commitment within the region to support value chain development in these areas. Moreover, the areas of alignment between the priority value chains in the SADC industrialization strategy and the lead products identified in this study provides a clear point of reference from which to prioritize regional interventions. Those lead products falling within these broader value chains already benefit from specific regional policy commitments.

Our analysis further finds that, of the Southern African countries, Botswana, Namibia, Zambia, and, to a lesser extent, Mozambique repeatedly emerge as potentially competitive suppliers of

intermediate inputs in the production of the top lead products exported by South Africa. These countries appear to be best placed, at present, to link into RVCs led by South Africa, suggesting that there is a degree of concentration of capacity within the region.<sup>4</sup> Attention will need to be directed to enhancing productivity and competitiveness in the countries that are not currently capable of serving as competitive suppliers of intermediates into value chains for South African lead products, to ensure that these countries are not excluded entirely from the development of RVCs in Southern Africa.

While we have identified specific Southern African countries with the potential—in terms of unit values and RCA at the product level—to supply intermediate inputs for use in the production of South Africa’s top lead products, our analysis reveals little about why these countries remain poorly integrated. A possible reason includes a lack of capacity within these countries to produce the inputs: global exports of Southern African countries in the identified inputs are in most cases lower than the estimated potential exports in South Africa’s markets. For example, we have identified parts and accessories of motor vehicles as key inputs that Botswana can supply to South Africa more cost-effectively than can South Africa’s current import partners; however, very limited manufacturing activity has taken place in Botswana since the closure of the Hyundai vehicle assembly plant in the 2000s. More recently, some manufacturing operations have taken place, including the setting up of a wire harness manufacturer in Botswana contracted to supply German original equipment manufacturers in South Africa (Farole 2016). Focusing on how the supplier base for the South African automotive cluster can be further expanded into SACU markets may be important for boosting regional integration (Farole 2016). Investment is needed in areas where Southern African countries have competitiveness but lack supply capacity. Both regional and extra-regional investments need to be attracted to these products in order to successfully create RVCs.

Another reason for the low level of integration of Southern African countries into South Africa’s GVCs is the lack of harmonization in standards and an inability to meet the required quality. For instance, we identify vegetable oil and raw cane sugar as products that South Africa can source from some Southern African countries more cost-competitively than it can from its current import partners. However, to develop agro-processing RVCs in Southern Africa, asymmetries in both scale and standards will need to be addressed.

Future research could make an important contribution by unpacking why South African firms are not currently importing from suppliers of these products in other Southern African countries, and by developing a better understanding of existing supply capacity and constraints in these countries.

### **5.3 Policy implications**

It is difficult to highlight targeted policy interventions without a detailed understanding of the specific capacity and competitiveness constraints affecting Southern African countries’ ability to supply the identified intermediate products. These constraints are likely to be both product- and country-specific. It is therefore important to validate these potential RVCs, and the associated challenges, with industry consultations. Future research focused on identifying specific constraints at the product and country level could form the basis for targeted interventions to support the development of RVCs around each of the identified lead products exported by South Africa.

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<sup>4</sup> Zambia and Mozambique are also among the countries identified by Balchin et al. (2016b) as good candidates for attracting foreign direct investment (FDI) into export-oriented manufacturing—Zambia was ranked first out of nine countries on the authors’ Manufacturing FDI Potential Index.

Nevertheless, at a more general level, the development of RVCs centred on these lead products can be supported by interventions focused in three main areas: (i) supplier capacity development; (ii) supporting regulations and policy frameworks; and (iii) complementary investments.

First, in the area of supplier capacity there may be scope and appetite for firms currently producing the lead products to initiate or support supplier development or business linkage programmes in Southern Africa, particularly given the evidence presented in this study that certain inputs could be sourced more competitively from selected Southern African countries. This could be facilitated by lead South African firms mentoring selected regional suppliers with direct support to meet product quality standards and volume requirements, with a view to developing supplier capacity gradually. More-general capacity-building efforts could concentrate on interventions to develop skills and well-trained human capital resources, or on the creation of specialist centres of excellence or knowledge and innovation hubs at the national and/or regional levels to support research and development and the enhancement of productive capacity.

Second, on the regulatory front, support could be directed to help firms in Southern African countries to meet and demonstrate compliance with the standards, quality assurance, and technical requirements necessary to supply inputs into the production of lead products in South Africa. Depending on the product or sector in question, this could be focused on strengthening national and regional standards, quality assurance, accreditation, or metrology infrastructure and systems. Developing common principles and harmonized regional standards frameworks can support these efforts, along with targeted capacity building for national standard bureaus and other agencies tasked with certification and accreditation. Focus should also be directed to improving sanitary and phytosanitary infrastructure and supporting institutions across Southern Africa.

Third, complementary investments can play a major role in the development of the identified RVCs. South Africa, as the headquarter economy in the region and exporter of an array of lead products linked into GVCs, is well placed to anchor the RVCs and channel extra- and intra-regional productive investments into other Southern African countries. There are existing examples within the region where these types of investments have been successful, such as the case of South African investment in garment assembly operations in Lesotho (ODI 2009). In this role, South African firms producing the lead products can be local champions, leading a regional network of production and taking a central role in initiating technology and knowledge spillovers. This can support upgrading and productivity improvements in suppliers located in other Southern African countries.

South Africa and interested investors need to focus efforts in transferring skills and technology to the region to make labour more competitive, and in capacitating small and medium-sized enterprises to enter potential value chains. For products that are relatively more technology-intensive, such as machinery, electrical appliances, and motor vehicles, emphasis should be placed on developing design and engineering skills and capacity within regional suppliers, and on providing these firms with access to more-advanced technology. Additionally, South Africa can advise other SADC countries on how to develop their own components and assembly operations to be more competitive (Markowitz 2016). Deepening regional integration in services markets is also important, particularly in markets for business and professional services, which are key inputs to other sectors. Labour mobility within the region can be facilitated by expediting the implementation phases of the Protocol on Movements of Persons.

For such investments to be successful, however, an appropriate intra-regional investment framework is required that provides adequate incentives. Similarly, there is a need to support business environment improvements in individual Southern African countries; enhanced mobility of skills, capital, and firms across the region; convergence in intellectual property rights and

competition policies; and harmonization of regulations and standards, including through regional policy frameworks.

At the same time, complementary support is required to ensure the efficient operation of RVCs and intra-regional trade. This should include the provision of enabling infrastructure (hard and soft) to address national and regional impediments to industrialization and regional integration in Southern Africa, with targeted emphasis on what is most needed to support intra-regional trade in the identified products (e.g. warehouse infrastructure for agro-processing). This sort of infrastructure provision could be supported regionally through a regional development fund or appropriate regional financing mechanisms.

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## Appendix

Table A1: Identifying the top 20 imported inputs in South Africa's top ten lead products

Lead product	HS six-digit product	Intermediate input product description	South Africa's imports of intermediates (million US\$)
Medicaments for retail	844399	Printing machinery; parts and accessories	387.70
Food preparations; n.e.s.	100199	Cereals; wheat and meslin, other than durum wheat, other than seed	367.76
Machinery; for filtering or purifying gases	843149	Machinery; parts of machines handling earth, minerals, or ores and n.e.s. in heading no. 8431	338.39
Telephone for cellular networks or for other wireless networks			
Vehicles, for transport of goods			
Telephones for cellular networks or for other wireless networks	851770	Telephone sets and other apparatus for the transmission or reception of voice, images, or other data, via a wired or wireless network; parts	314.05
Medicaments	151190	Vegetable oils; palm oil and its fractions, other than crude, whether or not refined, but not chemically modified	287.66
Cosmetic and toilet preparations			
Vehicles for transport of goods	870829	Vehicles; parts and accessories, of bodies, other than safety seat belts	279.43
Telephones for cellular networks or for other wireless networks	852990	Reception and transmission apparatus; for use with the apparatus of heading no. 8525 to 8528, excluding aerials and aerial reflectors	271.23
Vehicles for transport of goods	870899	Vehicles; parts and accessories, n.e.s. in heading no. 8708	260.28
Containers for carriage			
Machinery for filtering or purifying gases	848180	Taps, cocks, valves, and similar appliances; for pipes, boiler shells, tanks, vats or the like, including thermostatically controlled valves	243.01
Vehicles for transport of goods	880330	Aircraft and spacecraft; parts of aeroplanes or helicopters n.e.c. in heading no. 8803	228.52
Containers for carriage	401120	New pneumatic tyres, of rubber, of a kind used on buses or lorries	217.23
Telephones for cellular networks or for other wireless networks	847330	Machines; parts and accessories of automatic data processing, magnetic or optical readers, digital processing units	199.35
Telephones for cellular networks or for other wireless networks	854140	Electrical apparatus; photosensitive semiconductor devices; (LED)	194.78
Vehicles for transport of goods	401110	New pneumatic tyres, of rubber, of a kind used on motor cars	181.2473
Vehicles for transport of goods	870830	Parts and accessories of the motor vehicles of headings; brakes, and servo-brakes; parts thereof	173.31
Vehicles for transport of goods	854430	Ignition wiring sets and other wiring sets used in vehicles, aircraft, or ships	149.53
Containers for carriage			
Telephones for cellular networks or for other wireless networks	853710	Boards, panels, consoles, desks, cabinets, and other bases, for electric control or the distribution of electricity	137.20
Machinery; for filtering or purifying gases			
Wine, in containers, more or less than 2 litres	170113	Sugars; cane sugar, raw, in solid form, not containing added flavouring	133.81



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Vehicles for transport of goods Containers for carriage	840999	Engines; parts for internal combustion piston engines (excluding spark-ignition)	125.41
Machinery for filtering or purifying gases	842199	Machinery; centrifuges, parts for filtering or purifying liquids or gases	123.35

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Note: n.e.s. = not elsewhere classified.

Source: Authors' construction based on UN Comtrade (BEC data).