Working paper

Firms and Value Chains in Southern Africa

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Abstract

The emergence of the mainstream literature on Global Value Chains (GVCs) is an acknowledgment of the increased importance of intra-firm trade in global trade, which is an unprecedented phenomenon. This trend is a result of the fragmentation of global production across countries, as they have become integrated within the global trading system through trade and finance linkages. This paper explores the policy implications of the new GVC literature for Southern Africa, including with regard to the expected, as well as actual, differences between intra- and extra-regional trade patterns amongst South African Customs Union (SACU) countries. The paper also explores firm-level performance to date, particularly with regard to the achievement (or not) of economic and social upgrading, or other upgrading as highlighted by the GVC literature, and relationship with end markets and buyers.

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Executive Summary

Despite lots of new descriptions of Global Value Chains (GVCs) and new databases, there remains rather more limited discussion as to what the implications of this increased phenomenon really entail. This is particularly so regarding discussions on the promotion of intra-regional trade. Some uncertainty stems from the clear tensions apparent within the new wave of GVC literature. On the one hand, more recent additions to the GVC case-study based literature suggest that intra-regional trade may be more amenable to some types of upgrading (such as moving from one function to another) compared to extra-regional markets (because marketing and retailing nodes are controlled by lead firms). On the other hand, given the degree of global fragmentation of production, it must be recognised that powerful new trade opportunities exist for countries that lack nascent industrial structures. This is because they can now specialise in a particular 'task' within a value chain, rather than a complete chain. As a result of engaging with lead firms, rapid economic and social upgrading at nodes of production may ensue, even if a change in the functional position of producers does not.

The case-study based GVC literature emphasises how the relative merits of participating in one value chain compared to another essentially depend on how trade is managed and governed. Attention is drawn in this literature to the drivers of GVCs and the nature of relationships between firms that operate across borders; this is in addition to identification of the scope for governments to influence these structures so as to achieve upgrading. Although entering into GVCs may upgrade producers at a point in time and enable access to global markets, there is rather more limited evidence on how to sustain productivity growth overtime. Debates on the achievement of learning by exporting at the firm-level are still relevant. This discussion is amplified somewhat regarding discussion on the relative merits of the facilitation of intra- compared to extra-regional trade flows.

In order to provide empirical evidence that either supports or rejects propositions regarding the relative merits of trading on an intra- or extra-regional basis in terms of firm-level upgrading trajectories, this paper develops a research methodology which integrates the World Bank Enterprise Surveys and trade data. Our research objective is to provide evidence on the relative merits of exporting on an intra- or extra-regional basis for firms in Southern Africa, and hence, to draw policy relevant implications. These include in relation to trade-related interventions, including those which may be operationalised at the intra-regional, rather than country level. We identify a number of indicators of interest within the World Bank Enterprise Survey which are relevant in terms of understanding how firms participate in GVCs. We move beyond the usual use of these surveys in terms of interpretation of doing business indicators across countries, and instead identify relevant indicators relating to entering and accessing GVCs. Our intention is to better integrate firm-level analysis into GVC analysis. Although input:output tables have provided new insights regarding country participation in GVCs, we have more limited information regarding the characteristics of firms involved. Overall, we present new evidence on firm-level heterogeneity across different types of value chains, including intra- and extra-regional value chains.

This study is organised as follows. In Section 1 we summarise the new literature on GVCs and refer to evidence on the degree of participation in Southern Africa with vertically fragmented trade. We then discuss the tensions that exist within the literature and here refer to the more recent additions to the GVC case-study based literature. We then proceed to introduce our methodology in Section 2. Here we set out the research questions to be addressed, which to the best of our knowledge have not yet been tackled in the Southern African region. We introduce the data used to explore our research questions and methodology. We acknowledge some of the limitations with our methodology, which is a pragmatic one. These are essentially two-fold: first, they arise because of data limitations within

the firm-level surveys and our inability to compare all indicators of interest across countries; and second, because of the need to match products listed within these surveys with trade data (both datasets use different codes).

In Section 3 we provide an overview of trade flows on an intra- and extra-regional basis. We expected different products to be traded within intra- and extra-regional markets. Our identification of products traded mainly on an intra-regional basis substantiates the findings of others such as Stevens et al. (2013) in this regard. However, there does seem to be evidence of a type of production network in operation within the region, as different types of metal products are exported by South Africa to other SACU members, which also in turn export them back to South Africa. They do not however, feature within South Africa's major extra-regional exports. Despite this, the links between these products and the automotive industry deserve further attention. The only evidence we have of vertically fragmented vertical trade within the region relates to the textiles and clothing industry. Otherwise, in terms of regional value chain development (with consumers and producers being located within the region) we have the most evidence related to more consumer orientated producers. To some extent this is surprising given the high share of foreign ownership within firms operating within the region. The extent to which these findings support the multi-chain upgrading hypothesis within the case-study based GVC is questionable.

In Section 4 we use a logistic regression model to explore the degree of association between selected GVC participation and upgrading indicators on firms choice of marketing channel: domestic, intra- or extra-regional for Southern African firms. We identify a significant association for a limited number of firm-level indicators with firms subsequent choice of end market. Overall, the results of the analysis suggest that:

- SACU firms are highly likely to experience major or severe customs and trade regulations compared to most other regions. As major and severe customs and trade regulatory barriers are experienced, the more likely it is that Southern African firms export on an intra- rather than an extra-regional basis.
- Firms with more experienced managers are less likely to export on an intra-regional basis and more likely to export to extra-regional markets. We cannot control, however, for the nationality of firm managers.
- Firms exporting on an extra-regional basis are more likely to be foreign owned compared to intra-regional exporters. Hence, investment may be a substitute for accumulated knowledge and skills. Put another way, a change in firm ownership and a new type of relationship with lead firms may be necessary in order to access some types of GVC. The strength of this result overall is driven by the fact that all exporters in South Africa have a share of foreign ownership.
- The more likely firms find an inadequately trained workforce as a major or severe barrier to their operations, the less likely they supply intra-regional markets. The reasons for this deserve further investigation.
- Firms supplying intra- rather than extra-regional markets seem more likely to provide formal training to their workers, though this result is not significant.it is to some extent suggestive of particular constraints for local firms supplying regional markets in terms of recruiting and retaining skilled workers, despite being more likely to provide formal training.

Table 1: Summary of Results: Odds Ratios

Indicator	SACU	SACU Intra	SACU Extra	Global Enterprise Survey	AFR	EAP	EECA	LAC	SAR
Ownership Dummy	50.247**	29.599**	64.115**	3.389**	3.892**	5.818**	4.348**	2.820**	1.595*
Managers Experience (years)	0.986	0.978**	1.022**	1.010**	1.026**	1.019**	1.020**	1.002	1.014**
Firm age (years)	1.014**	1.006	0.985	1.007**	1.002	1.000	1.019**	1.009**	0.993*
Customs, TradeReg Dummy	1.768*	1.917**	0.257**	1.207**	1.000	1.389**	1.747**	1.535**	0.986
LabourReg Dummy	1.152	1.477	1.328	1.070	0.641**	1.300*	1.349**	0.961	1.219
Workforce Dummy	0.721	0.401**	1.108	0.868**	1.390	0.679**	1.003	0.895	1.049
Formal Training Dummy	1.298	1.332	1.124	1.308**	2.959**	0.656**	1.537	2.083**	1.730**

*Note: ** denotes significant at 5 percent level; * denotes significance at the 10 percent level. There are differences in the goodness of fit indicators for the model as applied to each region and these are discussed in Section 4. We have excluded discussion of multicollinearity and residual analysis.*

Source: World Bank Country Enterprise Surveys and Global enterprise Surveys; UN Comtrade.

In order to further substantiate these results we integrate our results for SACU firms within an African sample, and make use of the World Bank Global Enterprise Surveys. This means we are able to compare the results we have obtained for Southern Africa to other African firms. Finally, we compare our results for Southern Africa, and Africa to those of other regions including: East Asia Pacific, Latin America and Caribbean, South Asia, and Europe and Central Asia. These results are summarised in Table 1. The odds ratio presents us with a measure of association rather than causation. Although we are unable to identify the causal relationship, and direction of causality, we can say there is a significant association. We also note though, that this association could be spurious. This caveat applies to all of the logistic regression analysis presented in this paper. Despite this caveat it is fair to say that the results overall indicate a level of heterogeneity across firms included in the Enterprise Surveys according to the type of GVC they export to (domestic; export; intra-regional exports; extra-regional exports).

Our identification of products traded mainly on an intra-regional basis substantiates the findings of others, such as Stevens et al. (2013). However, there does seem to be evidence of a type of production network in operation within the region, as different types of metal products are exported by South Africa to other SACU members, which also in turn export them back to South Africa. These products do not however, feature within South Africa's major extra-regional exports (within the same product heading). Despite this, the links between these products and the automotive industry deserve further attention. The only evidence we have of vertically fragmented vertical trade within the region relates to the textiles and clothing industry. Otherwise, in terms of regional value chain development (with consumers and producers being located within the region) we have the most evidence related to more consumer orientated products. To some extent this is surprising given the high share of foreign ownership within firms operating within the region. The extent to which these findings support or reject the multi-chain upgrading hypothesis within the case-study based GVC is questionable at the current time. The multi-chain hypothesis posts that domestic firms may have more opportunities to launch their own manufactured and branded products within their home market or in neighbouring markets, with similar levels of development. The types of lead firms driving intra-regional value chains as conventionally understood (with consumers and producers within the region) and their relationships with foreign investors within SACU could be further explored.

Some generic as well as specific policy recommendations arise from this analysis. Comparing the results for SACU to other African exporters, as well as other regions included in the Enterprise Survey, we can see that exporters are more likely to experience high or severe barriers to exporting in terms of customs and trade regulations, and this increases the odds of exporting more on an intra-compared to extra-regional basis. Non-tariff barriers applied in the region are already known to affect intra-regional exporters to a greater extent than intra-regional exporters (Keane et al., 2010). It is important to note that our quantitative analysis is underpinned by the assumption that firms have a choice in relation to their export market, and that this applies equally to intra- or extra-regional markets. In practice however, we know this choice is not equally weighted and the more qualitative and case-study based GVC literature emphasises such aspects as power, rents and barriers to entry, in this regard. Understanding input:output processes at the firm-level and value added processes at this level could help to shed further light on the constraints of domestic firm's integration with GVCs, and promote further dialogue with the lead (global) firms that drive these. We not explored the role of imports into production from extra-regional suppliers, although we know these sources have grown relative to African suppliers. This aspect of research deserves further attention.

.Overall the exploratory analysis presented in this Working Paper could be improved in a number of ways. Although we have described the theory which suggests differences in firm-level upgrading trajectories depending on the end market, and provided some empirical evidence which substantiates this view, case-study analysis would help to substantiate further the findings presented in this paper. Panel data analysis for countries with the available data may be more revealing. The distinction between intra- and extra- regional exporters for other regions included in the Global Enterprise surveys could also be undertaken in the future. Finally, the robustness of results could be improved, with some variables excluded from analysis so as to sharpen the results.

1 The new wave of GVC literature

The emergence of the mainstream literature on GVCs is an acknowledgment of the increased importance of intra-firm trade in global trade, which is an unprecedented phenomenon. This trend is a result of the fragmentation of global production across countries, as they have become integrated within the global trading system through trade and finance linkages. The new trade literature, which revealed firm-level heterogeneity, has touched upon these issues, but the GVC approach to analysis provides a more receptive and less abstract means of conceptualisation for policy makers.

The latest wave of GVC literature has been accompanied by new descriptive analyses, and datasets, which are introduced briefly in the following sub-sections. However, as we emphasise, there remain some major shortcomings regarding analysis of sub-Saharan Africa's (SSA's) participation in current GVCs. Other tensions are glossed over. These include regarding economic power, and governance - aspects emphasised by the 1990s wave of GVC literature as influencing firm-level upgrading opportunities. This literature which is based on case-study analysis rather than input:output tables question the emphasis on GVCs, compared to regional and domestic value chains.

This is because of evidence that suggests upgrading, and learning, opportunities for domestic firms serving domestic and regional value chains (or multi-chains) may be more forthcoming than within GVCs, driven by lead firms. Trading within GVCs characterised by hierarchical governance structures, may offer domestic firms rapid product and process upgrading, but the ability to obtain more functions within the value chain over time may be more limited. Despite this, even if upgrading processes are limited to nodes of production, entering into GVCs may help to expand formal employment opportunities for low-skilled workers. This applies to countries which would otherwise be unable to expand domestic production. These aspects have not been explored to the best of our knowledge in the Southern Africa region.

In this Section, we first briefly review the new wave of GVC literature, and highlight the new insights it offers, as well as shortcomings. We discuss generally why GVCs matter for regions, countries and firms. We then discuss some of the recent findings for the Southern African region and members of the South African Customs Union (SACU). We then elaborate upon the posited links between GVC development and regional value chains in terms of upgrading opportunities and challenges. Here we make the link to the firm-level literature. Finally, we discuss why governance structures matter, in terms of influencing upgrading trajectories for firms trading within different types of value chains: global, regional, or national. Hence, we discuss how and why better supporting regional value chain development may assist integration processes with GVCs.

1.1 Why GVCs matter for regions, countries and firms[1]

The term GVC has become wax lyrical in recent years. This includes within different schools of thought and methodological perspectives. Although originating from a sociological perspective and rooted within world systems theory, it has subsequently become used by business analysts so as to better understand processes of value creation and sources of comparative advantage and how to maximise these (e.g. Porter 1985). Managing linkages within value chains effectively can increase profit margins. Support services such as infrastructure, human resources, technology development and procurement became just as important as core business activities. The trade community became alerted to just how integrated supply-chains are because of the effects of the global financial crisis of 2008 and the synchronised global trade collapse which occurred. Since then GVCs have been used to reinvigorate the trade policy debate (e.g. countries need to import before they export) and have focused attention on behind the borders issues. For example, Hoekman and Jackson (2013) argue that trade policy makers need to "think supply chains" and recognise the integrated and interconnected nature of global trade patterns. This literature tends to focus on intermediate goods trade, or vertically fragmented trade.

More qualitative development economists became interested in GVCs from around the early 1990s as developing countries became more deeply integrated into the global economy. This literature was concerned about notions of economic power and asymmetries in trading relations. It is derived from Global Commodity Chain analysis and world systems theory, which emphasises how economic relationships are constructed over time, rather than emerging spontaneously (Wallerstein, 1974). The term GVC was used in the 1990s as analysis shifted towards understanding how value creation can be influenced by local processes (Gereffi, 1999). Different GVC governance structures were identified based on where economic power resides within the value chain. Within this literature, there are some commonalities towards the analysis of value chains across sectors including manufactured, agricultural and extractive-industries (Kaplinsky and Morris, 2001).

Despite these differences, all perspectives recognise that global trade patterns have never been so interconnected. Moreover, that trading success within increasingly integrated global markets means entering and upgrading within GVCs. The ability of countries to do so depends on many of the policy measures applied at their borders, as noted by the traditional trade literature, as well as considerations related to institutions and geography. However, success also requires consideration of new issues and beyond the border measures, such as the effective management of foreign direct investment (FDI).

New Trade Opportunities
As discussed by the WTO (2013) multilateral, regional and unilateral trade liberalisation has greatly increased market access and, together with sharply falling transportation and communication costs, this has facilitated the emergence of value chains. Production that once was primarily located close to sources of major suppliers of inputs (or near consumers in final markets) is now increasingly carried out wherever the necessary skills and materials are available at competitive cost and quality.

This fragmentation process has created new opportunities for developing countries to enter global markets as components or services suppliers, without having to build the entire value chain. By providing access to networks, global markets,

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[1] This section of the report is drawn from Keane (2014a).

capital, knowledge and technology, integration in an existing value chain can provide a first step to economic development – a path that is often easier to travel than building a complete value chain (OECD, 2013).

Shares in Intermediate Goods Trade

Latest estimates suggest that around 80% of all trade takes place within the international production networks of transnational corporations (TNCs), around one-third of which is intra-firm trade – that which occurs within the ownership structure of a single firm, or TNC (UNCTAD, 2013). Intermediate goods trade accounts for 60% of global trade (*ibid*). Developing countries now account for around half of global trade flows: developing economies accounted for only 34% of world merchandise exports in 1980, but by 2011 their share had risen to 47%, or nearly half of the total (WTO, 2013).

At the current time around 85 percent of trade in value added – or intermediate goods trade – takes place in and around three hubs and the three regional blocks of East Asia, Europe and North America (AfDB et al., 2014; 127; Baldwin, 2012). SSA's level of participation in this new wave of trade is worryingly low. It has increased which suggests that the continent as a whole is engaging more with this new wave of intermediate goods trade. But, the share of African suppliers' in the continents imports has been declining compared to imports sourced from outside Africa; these flows have grown twice as fast as exports (OECD, 2014; 74). In sum, these results suggest particular changes for African producers in entering into GVCs and upgrading within them.

Table 2: Share of Trade in Value Added by Region, 1995 and 2011 (percentage)

Region	1995	2011
Europe	57.5	50.9
East Asia	14.4	16.2
North America	13.1	11.8
Southeast Asia	6.0	6.8
Latin America	3.2	4.2
Middle East	2.0	3.0
Africa	1.4	2.2
Russia and Central Asia	0.9	2.0
South Asia	0.7	1.7
Oceania	0.9	1.3

Source: AfDB et al. (2014), calculated based on UNCTAD-EORA GVC database

The Economics of GVCs

The cost considerations that underpin the fragmentation process of production have been analysed by trade economists. For example, Baldwin and Venables (2013) explore the technological characteristics of products and economic geography considerations; they emphasise the presence of centripetal forces that bind some activities together – a process that differs across products, and depends on the co-location of certain activities.2

They make a distinction is made between 'snakes' production processes compared to 'spider' processes. In the snake production process a physical entity follows a linear process with value added at each stage, e.g. cotton production to yarn to fabric to t-shirts manufacture. On the other hand, in the case of 'spiders', production process may be many limbed. This is where parts from different sources come together in one place for assembly; this may not be the final destination, as any part of a spider might be attached to any part of a snake (e.g. buttons).

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2 See Keane (2014b) for discussion of recent new slants old phrases with economic geography connotations.

They recognise that there are recognised tensions between the comparative costs that create the incentive to unbundle compared to the co-location or agglomeration forces that may bind some parts of a process together. The fragmentation of stages of the production process is therefore determined by opposing forces of international cost differences and the benefits of co-location of related stages. The end result will depend on the technological relationships between stages of production.

Given recent trends on the proportions of trade controlled by TNCs one assume that increasingly complex and technologically sophisticated products are being produced in fragmented chains, but that control by lead firms remains high (through FDI), either because domestic capabilities in recipient countries remain low, or because the benefits of co-location and agglomeration forces remain weak relative to costs (since governing value chains costs lead firms). Both of these aspects - cost differences and benefits of co-location – could therefore assist in explaining Africa's current participation in GVCs characterised by intermediate goods trade.

1.2 GVCs in SSA and SACU

Despite the headline figures for SSA, there are some reasons for optimism, and this is particularly the case in the Southern African region. Intra-African trade in value added manufactured goods - or intermediate goods trade - has grown, and more rapidly than flows destined for the rest of the world (AfDB et al., 2014). The Southern African region is a key driver of these trends as we discuss below.

South Africa as a driver

South Africa is seemingly playing the role of headquarter economy in the region: its share of intermediates from other economies in the region increased nine-fold between 1995 and 2011 (from USD78million to USD686million); South African intermediates embedded in the exports of other economies increased five-fold over the same period (from USD675million to USD3,487million).[3] According to the OECD (2012) and their estimates of GVC participation, South Africa performs better than China (Figure 1). Their GVC participation index measures the relative importance of imports and intermediate exports in total exports, or the extent to which countries are involved in vertically fragmented production[4]

Figure 1: Participation in global value chains
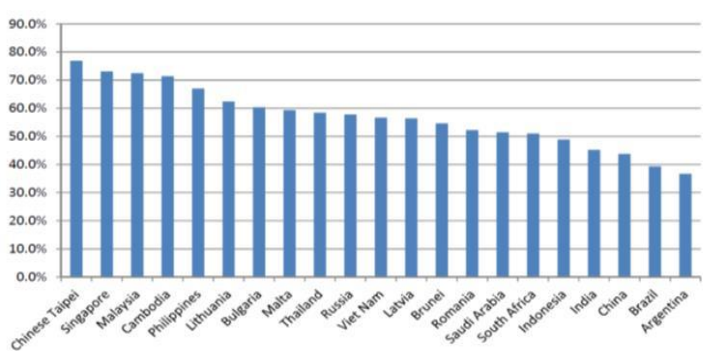
Source: OECD/WTO TiVA database (2012)

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[3] See AfDB et al. (2014).
[4] This is approximated by the sum of (i) the value of imported inputs in the overall exports of a country and (ii) the percentage of exported goods and services used as imported inputs to produce other countries' exports. The shares added describe the participation of a country in GVCs, both as a user of foreign inputs and as a supplier of intermediate goods and services used in other countries' exports.

Regional Dynamism

It is estimated by the AfDB et al. (2014) that Southern Africa, accounts for 40% of Africa's total GVC participation, one third of which is through backward integration: the share of foreign value added embedded in a country's exports. Although overall, Europe and Asia are found to be the main sources of foreign value added embedded in African exports, this trend is bucked in Southern Africa. The reasons for the concentration of GVC participation in Southern Africa compared to other regions in Africa are not explored further. The data created by the AfDB et al. (2014) in their backward integration matrix suggests that other regional partners contribute a range of between 0.01 - 0.1 percent of imported value added into South Africa's exports. On the other hand, South Africa provides more than 10 percent of intermediate goods in Botswana, Namibia, Swaziland, Zambia and Zimbabwe.

Although useful information is provided by the AfDB et al. (2014) the types of products, sectors, and lead firms driving these value chains is not discussed in detail. Moreover, the link to trade policy tends to be rather prescriptive, e.g. simply corresponding to the current mainstream discourse of the need to import before exporting, or describing how the penalties for infant industry protection are higher now than in the past (because countries specialise in tasks rather than complete value chains). Although it is acknowledged that African participation in GVCs is limited to lower value activities within GVCs, no particularly innovative policies are identified to overcome this.

1.3 Upgrading: Why it matters, and link to GVC Governance

The increased phenomenon of intra-firm trade essentially translates into more trade within hierarchical GVC governance structures (Keane, 2012). Although the hierarchical type of GVC governance is posited to result in rapid product and process upgrading, the route to functional upgrading – moving towards a higher position within the value chain – is posited to become more difficult. This is essentially, because this route towards upgrading is blocked by lead firms who control more lucrative nodes of production (Tijaja, 2012; Kamau 2009; Navas-Aleman, 2011).

A typology of a GVC governance structures articulated by Gereffi et al. (2005) is briefly described in Box 1 below. A hierarchical GVC governance structure as defined in this framework (and so widely referred to within the GVC literature), means that lead firms exert a high degree of control on their suppliers; this includes through ownership and backward vertical integration. It is important to note that this typology of governance was developed on the basis of case-study analysis, and has not been subject to much more empirical scrutiny. Although hierarchical structures of governance have received much attention within North-South trade analyses, it is fair to say that other types of governance structures have received less attention; this includes more relational types of governance which may exist within South-South value chains.

Box 1: Governance of Global Value Chains

The types of GVC governance identified by Gereffi et al. (2005) are derived from country case-study analyses. The typology is useful as it highlights the degree of explicit coordination within a GVC, which is a function of the producers' capabilities, the complexity of the transactions and the extent to which they can be codified.

Market governance is typical where transactions are relatively simple, information on product specifications is easily transmitted, and suppliers can make products with minimal input from buyers. Trade takes place through arms-length exchanges which require little or no formal cooperation, for example, carried out in auction houses or other spot markets, or other over-the-counter transactions.

Modular governance occurs when complex transactions are relatively easy to codify. Suppliers in modular chains make products to a customer's specifications. Information technology and standards for exchanging information are both key to the functioning of modular governance, which means greater control over transactions relative to the market-based governance.

Relational governance occurs when buyers and sellers rely on complex information that is not easily transmitted or learned. This results in frequent interactions and knowledge sharing between parties. Lead firms specify what is needed, and exert some level of control over suppliers but relational linkages take time to build, so the costs and difficulties required to switch to a new partner tend to be high. This type of governance is typically associated with contract manufacturing, but offshore contractors may source inputs.

Captive governance is a feature of chains where small suppliers are dependent on one or a few buyers that often wield a great deal of power. Such networks feature a high degree of monitoring and control by the lead firm. The power asymmetry in captive networks forces suppliers to link to their buyer under conditions set by, and often specific to, that particular buyer. Some cases of contract farming or types of commodity trade can exhibit this type of governance, given low supplier competence and complex transactions.

Hierarchical governance usually occurs when product specifications cannot be codified, products are complex, or highly competent suppliers cannot be found. This type of governance is typically associated with industries where all stages of production are carried out 'in house' as production is offshored rather than outsourced.

Source: Adapted from Gereffi et al. (2005).

Firm Ownership Structures

The more recent additions to the case-study GVC literature now draw particular attention to the concept of social embeddedness, and why firm ownership matters (Kaplinsky and Wamae, 2010; Staritz and Morris, 2013; Morris and Staritz, 2014). This perspective on the motivations of investors and their embeddedness, the destination end markets and subsequent influence on upgrading trajectories is also shared by Goto et al. (2009). Generally, the emerging literature on the motivations of investors relates these to potential upgrading trajectories, either at the node of production, or across. For example, depending on the relationship developed with investors and lead firms, there may be greater learning opportunities and possibilities of technology transfer. But this depends on investors' motivations and the extent to which these have progressed from merely efficiency or resource-seeking but towards relationship building.

These concerns are clearly similar to the literature on FDI spillovers. Farole and Winkler (2014) discuss these issues within the context of GVCs. They argue that FDI's spillover potential—the productivity gain resulting from the diffusion of knowledge and technology from foreign investors to local firms and workers— is one of the most valuable inputs to long-run growth and development. Their conceptual framework is built around an understanding of the mediating factors that shape the nature and extent of spillovers, specifically: the spillover potential of foreign investors (particularly in the context of investments within GVCs); the absorptive capacity of local agents (firms and workers); and how these two factors interact within a specific host country institutional environment. Clearly, these are similar areas to those included in the GVC governance framework developed by Gereffi et al., (2005).

Box 2: Market and Investor Diversification

With reference to the development of the textiles and clothing industry in Cambodia, Goto et al. (2009) conclude that exporting to the Japanese market rather than the US market might facilitate more efficient technology transfer for firms in the Cambodian garment industry. This is because the approach of investors and nature of relationships between firms is qualitatively different. Figure 1a presents the market segmentation for Cambodian garments developed by Goto et al. (2009).

Figure 1a: Market Segmentation Classification for Cambodian Garments
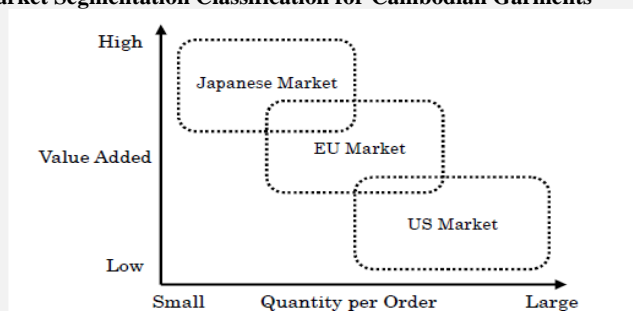
Source: Goto et al. (2009)

It is notable, however, that the regional trade policy dimension is not explicitly referred to in this study. The reasons for this are not clear, although we know that Cambodia is a late industrialiser to the Asia Pacific region, where the 'flying geese' model of recycling comparative advantage and integration of countries within regional production networks - referred to in detail by IDE-JETRO (2011) - has driven economic development.

Making the link to firm-level performance matters, because although within the qualitative GVC analysis, the ownership of firms, investors' motivations and end markets are receiving greater attention, it is fair to say the link to actual firm-level data remains weak and based mostly on a descriptive rather than a quantitative analysis. Where quantitative analysis of employment within GVCs has been undertaken, it has resulted in some very broad-brushed statements on the superior performance of GVC integrated - or FDI driven firms - and employment outcomes (e.g. Shepard and Stone, 2013).

Firm-level Performance

Generally, firm-level studies continue to explore the existence or not of learning by doing effects; it is fair to say that the trade and growth literature has come full circle because of the results. The recent debate on trade and growth at the level of the firm not only posits that the most productive firms within an industry export, but also that such firms are likely to have been the most productive firms within an industry *before* exporting, i.e. exporters self-select into markets. This is in part due to the high sunk costs for firms to enter markets.[5] Moreover, some studies find that productivity typically increases to a greater extent before firms export, as opposed to after firms enter export markets (Clerides et al., 1998; Bernard and Jensen 2004; Greenaway and Kneller, 2007).

New trade theory is distinguished from old new trade theory by its focus on the firm as opposed to the industry; it focuses more on internal economies of scale to the firm as opposed to external economies to the industry which may result from the clustering of firms (for example, as in new economic geography models). That is, it is more in line with models of monopolistic competition that incorporate heterogeneous firms and the theory of the multinational enterprise. However, as opposed to considering all firms as homogenous exporters it introduces firm heterogeneity: some firms export, others don't, some firms are larger and more

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[5] Because of external economies of scale: established patterns of specialization may persist even though they run counter to comparative advantage (e.g. Swiss watch producers compared to Thai).

productive than others. For example, Antras and Helpman (2004) explore the implications of firm heterogeneity for the boundaries of the firm and strategies for outsourcing and insourcing of activities. Markusen and Venables (2000) develop a monopolistic competition model of trade in which the presence of trade costs changes the pattern of trade, creates incentives for factor mobility which may lead to an agglomeration of activity in a single country and may therefore lead to multinational firms.

Further to the recent contributions by Melitz (2003), Helpman et al. (2004) and Bernard, Eaton et al. (2003), which reconsiders how firms participate in international markets, the set of firm characteristics analysed has been extended to include: size, age, human capital, capital-intensity and ownership. However, it is noted by Greenaway and Kneller (2007:42-44) that: "Although the evidence unambiguously points to the crucial role played by sunk costs, little research has focused on what these are and how agglomeration, exchange rates and policy changes affect them…other evidence is much less conclusive, such as that relating to learning by exporting."

Some of the few GVC studies that integrate firm-level analyses and make reference to the effect of governance structures on firm-level productivity include Pietrobelli and Saliola (2008). These authors engage with the issue of causality and the learning by exporting hypothesis; they find that the governance of value chains affects the productivity of suppliers in domestic value chains to a greater extent than for firms supplying MNEs or exporters. They note that this result may be explained by the different nature of information and knowledge being exchanged, and by the larger gaps in knowledge and capabilities between the domestic leader and its suppliers.[6] Essentially, the case-study GVC literature describes how domestic firms must collaborate with lead firms in order to access and export to global markets. Given recent trends on the extent of intra-firm trade and that which takes place within the networks of MNEs, this means engaging with hierarchical GVCs which are driven by a few lead firms. Strategic alliances can be sought to achieve mutually beneficial outcomes. Policies can influence firm-level upgrading trajectories.

Developing Upgrading Indicators

Given the theoretical and empirical developments within the more macro and case-study GVC literature, and integration of firm-level analyses, there have been increased efforts to untangle just exactly what it means to upgrade within GVCs.[7] Because of these efforts have been made to assign quantitative indicators to the qualitative GVC upgrading typology (Kaplinsky and Morris, 2001; Humphrey and Schmitz, 2004) which include the following:

- **Product upgrading**: performing certain tasks better and improving quality of products.
- **Process upgrading**: improving efficiency and quantities through improving production processes.
- **Functional upgrading**: acquiring skills that enable movement towards another node of production, e.g. from production to marketing.
- **Inter-sectoral upgrading**: using skills acquired to move into another sector, e.g. moving from clothing production to motorcycle manufacture.

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[6] As found by Pietrobelli and Saliola (2008) firms that service the domestic, rather than export market, can also benefit considerably from engagement with lead firms operating within GVCs.

[7] However, some challenges remain since movement from one functional position can only be known through detailed case-study and data analysis over time.

In addition to this, Bernhardt and Milberg (2011) distinguish between economic and social upgrading. Within the framework they develop, economic and social upgrading are defined as follows:

- **Economic upgrading: trade performance, as indicated by export unit values and market shares.**
- Social upgrading: employment and wage growth.

The economic upgrading indicators are essentially adapted from Kaplinsky and Santos-Paulino (2005). Moreover, the analytical approach is essentially limited to linking economic and social upgrading to a particular node of production as opposed to viewing the movement of labour (and investors) across and into new functions.[8] Although the results from this research endeavour are insightful, the ability to monitor these processes over time remains challenging. Movement from one functional position can only be known through detailed case-study analysis, and data analysis over time, and this upgrading strategy is excluded from their framework.

Multi-Chain Upgrading

There is an emerging literature on "multi-chain" upgrading. This relates to the greater learning opportunities available to firms serving multiple markets. In particular, domestic firms may have more opportunities to launch their own manufactured and branded products on domestic or neighbouring markets, with similar levels of development. This literature draws on the experience of producers in the textiles and clothing industry in Kenya (Kamau 2009) and furniture and footwear industry in Brazil (Navas-Aleman, 2011).

Participation in multiple value chains provides the possibility of "leveraging competencies": different value chains create different possibilities for learning, and what is learned in one value chain can be applied in others (Lee and Chen, 2000). A focus on domestic markets leads manufacturing firms to broaden the scope of their activities (i.e. functional upgrading) into design, marketing, and branding. This may be because they have a better understanding of home markets than foreign markets, or it may be because domestic customers are not as powerful or concentrated as their counterparts in global value chains (Brandt and Thun, 2010).

The variance of governance types in end markets is related to buyer as well as consumer demands. Hence, some aspects of the Gereffi et al. (2005) framework (which is based on Northern markets) may be relevant, notably relations with lead firms. However, one limitation of the 'multi-chain' literature is that it obscures how and why FDI can be a substitute for domestic capabilities. For countries that with extremely limited productive capabilities, attracting FDI and entering into GVCs at a particular stage of production in order to begin capital accumulation and assimilation processes, remains an important new trade opportunity. Overall though, this literature concurs with our hypothesis that value chain governance types vary according to end markets and this affects firm-level productivity, and hence subsequent upgrading processes.

1.4 The link between regional and global value chains

Given the opportunities as well challenges which are acknowledged within the literature regarding engaging with GVCs, particularly more tightly controlled and hierarchical types, our hypothesis is that regional markets and value chains may be more conducive to some types of upgrading processes by domestic firms, than

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[8] See: http://www.capturingthegains.org/

tightly controlled global markets. Hence, we expect there to be differences in firm-level characteristics according to whether firms export products on an intra-region compared to extra-regional basis.

These aspects have been discussed briefly in Stevens et al., (2013) with regards to the development of African value chains. However, with regards to Africa more generally, the case-study based GVC literature tends to either:

- remain focused on the effect of the Asian drivers on African producers (Fu et al. 2012; Kaplinsky, 2010), or
- refer to new demand patterns driven by the BRICS, including South Africa, with reference to sectors that are already well covered by the literature such as textiles and clothing (Morris et al. 2014; Staritz and Morris, 2013).

Where reference is made to building local and regional value chains in Africa and within a GVC context, the implied logic seems to be so as to prepare firms to subsequently export globally. For example, UNCTAD (2013) notes that "local and regional value chains have vital roles to play in broadening the manufacturing base of African economies, expanding productive capacity and boosting intra-African trade" (UNCTAD, 2013:92). Furthermore that:

"Regional value chains present opportunities for improving productivity…both for domestic firms with export potential and those that produce goods predominantly demanded at the national and regional levels. For domestic firms…"regional value chains give them the opportunity to upgrade and achieve international competitiveness, thereby making it easier to connect with GVCs" (UNCTAD, 2013:92).

Hence, from this perspective, regional markets are understood to provide the environment through which producers may learn and develop their productive capabilities and capacity *before* integrating with GVCs. Demand factors as well as competitiveness considerations are emphasised by UNCTAD (2013). Despite this recommendation, it must be recognised that some countries (in particular the LDCs) may have such limited domestic capabilities that attracting regional FDI and situating this within an FDI-led development strategy might in practice be the most viable strategy, at initial stages of economic development. The source of FDI and investor motivations would therefore need to be carefully scrutinised, and integration processes carefully managed. Getting data on investment in Southern Africa, however, can be even more challenging that obtaining accurate trade data.

RI and GVCs: Theory and Practice
As developed by Viner (1950) in his model of a customs union, regional integration can create trade diversion and enhance the supply of less competitive regional firms that are now protected by a common external tariff at the expense of competitive international supply. Much stronger statements are made regarding the development of more producer-driven[9] GVCs and regional integration processes by others. For example, Humphrey and Memedovic (2003) find the emergence of regional production systems in the automotive industry itself *resulted* in regional integration. They make reference to these processes as driving regional integration process with reference to the Triad regions: North America; the European Union

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[9] Those where the economic power resides in control at the node of production.

(EU), and Japan.[10] These processes can be seen to continue with a self-reinforcing dynamic, as most trade in value added remains within these regions.

It is well known that the history of European regional integration was driven by a single industry: coal and steel. In comparison, open regionalism in Asia was very much driven by the trade within the regional economic communities of intermediate goods, without the use of regional apparatus such as a free trade agreement or customs union. Instead, the regional integration process was driven by the private sector. This included through the use of more bottom-up initiatives that first defined, and then focused on the removal of barriers for priority products that mattered for regional production networks and GVC integration.

In the case of Latin America and in particular Mercosur, Ciravegna (2003) finds that both regional and global value chain integration seem to have provided positive stimuli for product and process upgrading. As predicted by the GVC governance framework, inserting a production unit in a global chain introduces pressures to upgrade. However, the typical negative implications that may arise when inserting an economic unit into a GVC did not manifest themselves. The hierarchical structure of GVC governance was mediated, and the headquarter firms did not absorb more links of the value chain. Instead, in view of the Mercosur treaties, a concerted effort was undertaken to ensure that the Brazilian plant acquired certain links of the chain, such as product development, and some decisional autonomy. This study therefore highlights the importance of regional integration and interventions that can be designed at this level.

As we are acutely aware the motivations for deeper regional integration in Southern Africa are substantially different to other regions such as Asia, or the EU: SADC, with a membership of 15 countries, was originally conceived as a bulwark against apartheid South Africa and, by extension, the Southern African Customs Union (SACU). SACU itself is not a Common Market, nor an Economic Union. Four out of the five members of SACU operate within a Common Monetary Area comprising Lesotho, Namibia, South Africa and Swaziland, but excluding Botswana, which has its own currency. This is not a common monetary area in the conventional sense: the currencies are pegged at par against the South African Rand and not convertible outside their territories; i.e. basically all these countries use the Rand. The SADC Trade Protocol was established in 1996, and since 2000 members have started to implement their commitments; a free trade agreement was launched in 2008. All SACU members are also members of SADC.

The new evidence on GVC participation in the region as elaborated upon by AfDB et al. (2014) suggests that South Africa is a key driver of regional value chains, both as a supplier of inputs and as a destination market for exports. But we don't know much about the nature of integration of other economies within SACU or types of products traded. Nor do we know much about the relative merits in terms of firm-level upgrading trajectories of supplying intra- compared to extra-regional markets. We intend to shed further light on these aspects in the following sections of this report.

1.5 Concluding Remarks

The more macro descriptive GVC analysis, and the case-study GVC literature, introduced in the preceding sections has so far failed to critically engage with the intra-regional trade debate, particularly in Southern Africa. This brief literature

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[10] See:
http://www.unido.org/fileadmin/user_media/Publications/Pub_free/Global_automotive_industry_value_chain.pdf

review has demonstrated why we should expect differences in firm-level performance indicators according to the value chain served: intra- or extra-regional. We expect different products to be traded within these markets; these will be associated with different GVC governance structures and hence, subsequent upgrading opportunities. The research methodology deployed to explore these aspects next is introduced in the following Section.

2 Methodology: Firm-level evidence on value chain participation

The World Bank Enterprise Survey data contain a number of indicators of interest to this study. There are some limitations, however, in terms of the availability of all indicators of interest across SACU members. Despite this, these surveys are the most representative across the region to date, and are also publicly available. We therefore make use of them in order to better link GVC to firm-level analyses, though we remain somewhat cautious in terms of interpretation of our results in some instances.

Despite lots of new input:output tables to describe GVC participation between countries, the link to firms and their characteristics remain rather weak (in spite of recent trends in intra-firm trade). Although our primary interest is to research potential and actual differences between intra- and extra-regional value chains, we also compare firms included in the Global Enterprise Survey in general. This is so as to draw out differences in the GVC participation related indicators we identify as being of interest, and as introduced in the following sub-Sections

2.1 Use of Enterprise Surveys

The indicators used for the descriptive and quantitative analysis were identified based on their relevance to the research questions, as well as data availability. Because of data limitations we have not been able to include in the analysis additional indicators such as use of website to connect with clients.

The surveys record firm-level information for those operating in the manufacturing sector, as well as retail and services.[11] For the purposes of this analysis we are particularly interested in the manufacturing sector for the reasons discussed in the previous section. Other sectors such as retail are inevitably involved in trade as importers, but not necessarily as exporters. Although the tourism sector, which is included in the services data, trades it doesn't trade in specific products and services exported by firms are not recorded. Hence it will not be possible in this instance to link exports to specific ISIC codes, which is necessary so as to distinguish between extra and intra-regional exporters and subsequently so as to explore performance differences between firms.

Data are available for at least one period for all SACU countries, and two periods for Botswana (however, we make use only of the most recent year):

- Botswana, 2010;
- Lesotho, 2009;

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[11] Sector: Food, Garments, Other Manufacturing, Retail, Other Services, Rest of [firm] Universe.

- Namibia, 2006;
- South Africa, 2007; and
- Swaziland, 2006.

The total number of firms surveyed for each of the countries of interest is summarised in Table 2 below.

Table 3: Firms included in Enterprise Survey

Country	Total Firms Surveyed	Data Utilised
Botswana	268	268
Lesotho	151	151
Namibia	106	106
South Africa	1,057 firms in the Southern African sample;937 in the Global Enterprise Survey	1,057
Swaziland	70 (Manufacturing); 307 (All: Global Enterprise Survey)	70
		1652

Note: Survey data are available for two periods in the case of Botswana (2006 and 2010) though we make use of the nearest years' data. There are some slight differences in the availability of data included in the country and global survey results for South Africa and Namibia. We use the country surveys in order to explore differences in firm-level characteristics for intra- and extra-regional exporters. We then use the Global Enterprise Survey to compare all regions.

Although information on end markets recorded in the Enterprise Surveys, it is patchy. Firm ownership is an indicator of GVC participation because we expect foreign-owned firms to be more deeply integrated in GVCs (intra-firm trade). Firms' uses of imports are also recorded. The enterprise surveys do contain some information on the nationality of firms' major owners, which we make use of to the extent possible. The data therefore enables us to identify firms according to their market orientation and ownership structure as follows:

- **Exporter Type**: Direct sales = 10% or more of sales are exported
- **Ownership Type**: Domestic, 10% or more foreign ownership

Data on specific descriptive as well as performance indicators are provided for firms differentiated by these characteristics across the broad categories collected by the World Bank Enterprise Surveys, which include:

- Biggest Obstacles reported by firms;
- Corruption;
- Crime;
- Finance;
- Firm Characteristics;
- Gender;
- Informality;
- Infrastructure;
- Innovation and Technology;

- Performance;
- Regulations and Taxes;
- Trade; and
- Workforce.

Table A1 Appendix reviews the data included in the Enterprise surveys across SACU members and identifies those indicators which are of interest to this study. This is undertaken if they meet at least one of the following three conditions:

- indicative of GVC participation: e.g. firm ownership (share of foreign equity) is a strong indicator of GVC participation.
- related to the expected outcomes of GVC participation including regarding the achievement of social and economic upgrading: e.g. formal training provided by firms can improve workers skills.
- related to a policy/institutional constraint that can directly affect GVC participation and connection to external markets (intra and extra-regional) and be addressed through regional integration efforts: e.g. days to clear imports through customs could limit GVC participation.

Through reviewing the Enterprise survey data in this way we were able to identify specific indicators of interest. We then checked their availability across SACU countries; this process meant we were unable to use many of the selected indicators simply because of lack of availability. Table 4 summarises the indicators we were able to utilise. Missing variables in the case of the numeric indicators - Age, Size, and Manager's experience - were coded as '1'. In the case of categorical variables any missing variables were coded as '0'.

Table 4: Data Utilised and Availability

Indicator	Botswana		Lesotho		Namibia		South Africa		Swaziland	
	No.	n/a	No.	n/a	No.	n/a	No.	n/a	No.	n/a
Ownership	268	0	151	0	106	0	1057	0	70	0
Age	266	2	150	1	106	0	1056	1	68	2
Size (no. employees)	268	1	147	4	105	1	1047	10	70	0
Licence	-	-	-	-	-	-	680	377	-	-
International Quality Certification	263	5 (don't know)	151	0	106	0	936	121	70	0
Length of Relationship with Suppliers	-	-	-	-	-	-	1055	2	-	-
Managers experience	267	1	150	1	105	1	1055	2	70	0
Education level of manager	-	-	-	-	-	-	1057	0	-	-
Formal training (l10)	268	0	151	0	106	0	1056	0	70	0
Workforce education: obstacle?	268	0	151	0	106	0	1057	0	70	0
Labour market regulations: obstacle?	268	0	151	0	106	0	1057	0	70	0
Customs and trade regulations: obstacle?	268	0	151	0	106	0	1057	0	70	0

Note: - means not available.

The purpose of the analysis carried out in this paper is intended to focus attention on the soft infrastructure of regional integration (policy and institutional development) as opposed to hard aspects such as the facilitation of access to electricity or transportation systems. We are interested in indicators beyond those normally reviewed as part of the "doing business" assessments. Nevertheless, we still checked the availability of indicators such as connection to websites and use of

the internet to connect with customers. Because of limited data we have been unable to incorporate these indicators into the analysis. Table 4 presents the indicator we have had to exclude from our analysis.

In relation to the use of direct imports, data are extremely patchy, and so we do not make use of them. The responses are a bit better regarding the use of inputs: foreign and domestic. However, there are still coding issues which mean we have to exclude these indicators from our analysis. This is also the case regarding information on wages. Because we cannot include analysis of wages in our analysis, we are essentially limited to analysis of social upgrading. It is for this reason, we also explore recent trends in unit values and market shares for the major products trade don intra- and extra-regional markets for SACU countries.

Table 5: Data Not Utilised

Indicator	Botswana		Lesotho		Namibia		South Africa		Swaziland	
	No.	n/a	No.	n/a	No.	n/a	No.	n/a	No.	n/a
Percent of firms identifying access to finance as a major constraint	268	0	151	0	106	0	1057	0	70	0
Proportion of working capital financed by supplier credit (%) -	-	-	-	-	-	-	-	-	-	-
Percent of firms having their own website (do you have internet connection C23)	268	0	0	0	0	0	1057	0	0	0
Percent of firms using email to interact with clients/suppliers c24c – do you use the internet to deliver services	194	74	0	0	0	0	153	904	0	0
Real annual sales growth (%) -	-	-	-	-	-	-	-	-	-	-
Annual employment growth (%) Annual labour productivity growth (%) -	-	-	-	-	-	-	-	-	-	-
Days to obtain an import licence j11	20	228	25	81	23	83	57	1000	14	56
Days to clear imports from customs d14	0	268	74	77	73	33	680	377	35	35
Days to clear direct exports through customs –d4	22	246	36	115	27	79	921	136	26	44
Proportion of foreign inputs that are of foreign origin d12b	87	181	151	0	106	0	800	257	70	0
Number of temporary workers l6	268	0	151	0	106	106	937	120	70	0
Proportion of unskilled workers l4b	87	181	0	0	105	-	680	377	70	0
Monthly compensation (production)*	0	268	151	0	106	2	1057	0	70	0

*Note: - means not available' * similar data availability for monthly compensation levels for professionals and managers.*

As has already been noted in Section 1, the term 'GVC' is becoming almost synonymous with FDI. However, as we have argued, direct ownership of firms through FDI is only one type of GVC and would constitute those characterised by the deepest form of integration - intra-firm trade - and by a hierarchical style of governance. Firms may still participate in GVC trade, but not necessarily through the means of direct ownership and FDI. The first step in our analysis was therefore to prepare the SACU dataset organise firms according to whether or not they export, and then to explore differences in our indicators of interest.

Questions are asked in some of the enterprise surveys regarding the origin of foreign investors, as well as their ethnicity. However, analysis becomes difficult in terms of comparing the results across SACU members because of differences in the exact questions asked across the enterprise surveys. Not all of the enterprise surveys asked questions on the ethnicity of owners (e.g. Botswana does, South Africa just asks if African or not, similarly in the case of Lesotho). Despite these limitations, the majority of investors in Lesotho are of other African origin, followed by Other Asian. In the case of Botswana, most investors are "African", followed by European and Asian investors.

A shortcoming of the questionnaire in the Enterprise Survey, as it currently stands, is that it does not ask questions related to the nationality of firm managers. As we will see later in the report this becomes important as the experience of managers is identified as a significant variable in the quantitative analysis undertaken. This result is interesting because within the new trade/new growth literature, firm manager's play an important role in diffusing knowledge and creating knowledge spillovers.

In brief, although we have expressed interest in many of the indicators included within the World Bank Enterprise surveys. But due to data limitations we are limited in our ability to make full use of all of these. We first undertook an exploratory and descriptive analysis of the data for firms in SACU and then compared these to the results of firms in other regions included in the Global Enterprise Survey. These results are discussed in Chapter 3 which follows. Table 6 below provides information on the availability of the indicators of interest for other regions. We dealt with missing data in the same way as we did for SACU countries (coding categorical variables as 0 and numerical data as 1).

Table 6: Availability of Indicators in the Global Enterprise Survey

Region	Dom./ Foreign	Export Dummy	Managers Exp.	Age of firm	Customs and trade regs.	Labour regs.	Workforce Educ.	Size	Formal Training
Africa exc. Southern Africa									
Total	13958	13958	13958	13958	13958	13958	13958	13958	13958
Missing	0	0	348	313	0	0	0	194	0
Africa inc. Southern Africa									
Total	15950	15950	15950	15950	15950	15950	15950	15950	15950
Missing	0	0	361	325	3	3	3	203	4817
East Asia Pacific									
Total	8644	8644	8644	8644	8644	8644	8644	8644	8644
Missing	25	202	327	153	1	1	0	18	1647
Eastern Europe Central Asia									
Total	15682	15682	15682	15682	15682	15682	15682	15682	15682
Missing	161	143	523	153	6	6	5	120	1867
Latin America and Caribbean									
Total	25587	25587	25587	25587	25587	25587	25587	25587	25587
Missing	1180	61	1066	259	8	17	20	82	4536
South Asia									
Total	4345	4345	4345	4345	4345	4345	4345	4345	4345
Missing	10	129	49	37	295	64	61	15	7

Note: Because we only made use of the most recent years survey data this means we excluded the following in Africa: Angola (2006), Botswana (2006), DRC (2006), DRC (2010), Kenya (2007), Mali (2007), Rwanda (2006), Tanzania (2006), Uganda (2006), Zambia (2007); in Latin America we excluded: Argentina (2006), Bolivia (2006), Chile (2006), Colombia (2006), Ecuador (2006), El Salvador (2006), Guatemala (2006), Honduras (2006), Mexico (2006), Nicaragua (2006), Panama (2006), Paraguay (2006), Peru (2006), Uruguay (2006), Venezuela (2006). In Eastern Europe Central Asia we excluded: Albania 2007, Armenia 2009, Azerbaijan 2009, Belarus 2008, Bosnia and Herzegovina 2009, Bulgaria 2007, Bulgaria 2009, Croatia 2007, Macedonia 2009, Georgia 2008, Kazakhstan 2009, Kosovo 2009, Kyrgyz Republic 2009, Latvia 2009, Lithuania 2009, Moldova 2009, Romania 2009, Russia 2009, Serbia 2009, Slovenia 2009, Tajikistan 2008, and Ukraine 2008. In South Asia we excluded: Afghanistan 2008, Bangladesh 2007, and Nepal 2009.

For our quantitative analyses we were only able to use of the following:

- Firm-level characteristics and GVC participation indicators: ownership, age, size
- Social and Economic upgrading indicators: manager's experience, workforce education
- Policy and institutional barriers: labour market regulations, customs and trade regulations.

Obviously the indicators included in these categories are debateable. For example, some may prefer size (number of employees) to be included as an indicator of social upgrading. However, we have organised the data in this way based on the results of our literature review, e.g. new trade theory posits that only the largest and most productive firm's export to global markets. We then used a logit model to explore the influence of firm level indicators on the subsequent choice of marketing channel: domestic or export; we then further distinguished between intra-regional exports and extra-regional exports. Underpinning our model specification are the following major hypotheses, which are informed by Section 1 and the results presented in the above sub-sections, namely that that:

H1: Alternative: there are significant differences in the selected indicators on firm's decisions (odds ratio) or not to export to intra-regional markets compared to extra-regional.

This is because exporting to intra-regional markets may offer domestic firms opportunities to achieve functional upgrading, whilst exporting to extra-regional market may result more in product and process upgrading at the node of production.

H0: Null: there are no significant differences in the effect of the above indicators on firm's decisions (odds ratio) or not to export to intra-regional markets compared to extra-regional.

This is because similar firm-level capabilities are required to export to either market, and firms that export to both have achieved a type of multi-chain upgrading.

We test this model across the whole sample of firms and the following marketing channels:

- o Domestic market;
- o Export market;
- o Intra-regional market;
- o Extra-regional market.

We specify γ as a dichotomous outcome variable, coded as = 1 if firms produce and export, and use π to denote the probability that firms export the said good. The probability of an alternative marketing channel being selected is therefore $(1 - \pi)$ and hence the model is specified as:

$$logit\ (\pi) = \alpha +\ \beta 1\ \text{ownership} + \beta 2\ \text{age}\ + \beta 3\ \text{managers experience} + \beta 4\ \text{size}$$
$$+ \beta 5\ \text{customs, trade reg dummy} +\ \beta 6\ \text{labour reg dummy}$$
$$+ \beta 7 \text{workforce dummy} + \beta 8 \text{training dummy} + \varepsilon$$

We explore the influence of firm-level characteristics on the odds that firms select a particular marketing channel and present our results in the following sub-sections. This analysis is necessary so as to answer following sub-research questions and hypotheses. These have all been derived from the theory discussed in Chapter 1.

GVC participation indicators: How do GVC indicators differ between firms that export products mostly to intra- or extra-regional markets?

H1.1. Firms that export to extra-regional markets will be more likely foreign owned

H0 1.1: There are no significant differences in the influence of firm ownership between intra- and extra-regional exporters

H 1.2: Firms that export to extra-regional markets will be more likely larger (employees)

H0 1.2: There are no significant differences in the influence of firm age between intra- and extra-regional exporters

H 1.3: We posit that older firms may be more likely to supply intra-regional markets. The age of a firm is typically used as an indicator of learning by doing in the firm-level literature. This is because in order to access extra-regional markets alliances will lead firms must be sought, and FDI may be a substitute for accumulated knowledge and experience.

H0 1.3: There are no significant differences in the influence of firm age between intra- and extra-regional exporters

Social upgrading indicators: How do social upgrading indicators differ between firms that export products mostly to intra- or extra-regional markets?

H1.4: Firms that export to extra-regional markets employ managers with more experience than those that export to intra-regional markets because accessing export requires accumulated tacit knowledge

H0 1.4: There are no significant differences in manager's experience between firms that supply intra- or extra-regional markets

H1.5: Firms that export to extra-regional markets are more likely to find lack of workforce education a challenge compared to firms that export on an intra-regional basis

H0 1.5: There are no significant differences in the extent to which firms consider an inadequately educated workforce as a major or severe constraint

Policy and institutional barriers: How do policy and institutional barriers affect extra- and intra-regional exporters?
H1.6: Firms that export to extra-regional markets are more likely to find customs and trade regulations as a major or severe constraint

H0 1.6: There are no significant differences in the extent to which intra- or extra-regional exporters experience customs and trade regulations as major or severe barriers

H1.7: Firms that export to extra-regional markets are more likely to find labour market regulations a major or severe constraint

H0 1.7: There are no significant differences in the extent to which firms that export mainly on an intra- or extra-regional basis find labour market regulations a major or severe constraint

We then tested this model specifying 1 as our marketing channel of interest. Finally, we integrated the results of the Global Enterprise Surveys in order to compare and contrast with the results of SACU countries which for ease we simply refer to as Southern Africa.

Translating Product to Trade Codes
The second step in our analysis was to organise firms according to whether they export on more of an intra or extra-regional basis. We use these terms to refer to intra-*African* and extra-*African* markets. This second step was hampered by two major (and one smaller) methodological difficulties. Whilst we were able to find a

way around them, they do mean that the results must be treated with great caution as suggestive pointers to further field research rather than definitive statements.

The first major methodological problem is that the goods produced by the survey respondents are classified according to the International Standard Industrial Classification (ISIC) whilst the trade data needed to observe direction of trade is recorded in the Harmonised System (HS).The second major difficulty is that the trade data show the direction of exports for all SACU firms whilst the survey covered only a limited sub-set of firms. This second problem was exacerbated by the first: the ISIC categories are much broader than those of the HS so the latter had to be aggregated into groups (Table 7) that will have included many goods that are not actually produced by the Survey respondents.

The enterprise survey describes the economic activity that the firm is engaged in and its main product produced; it then provides a corresponding ISIC code. We have only made use of the main product reported in the enterprise survey (Product 1) and no others (including Product 2), though from a scan of the data most firms produce goods that fall within the same ISIC code though we have not analysed patterns in detail. Table 7 below provides an overview of the number of corresponding HS codes for each ISIC recorded for firm in our SACU sample.

Table 7: First Product Produced by Firms that Export

ISIC	ISIC description of economic activity	# of corresponding HS6 codes
1511	Production, processing and preserving of meat and meat products	80
1512	Processing and preserving of fish and fish products	70
1514	Manufacture of vegetable and animal oils and fats	52
1520	Manufacture of dairy products	24
1531	Manufacture of grain mill products	26
1533	Manufacture of prepared animal feeds	2
1541	Manufacture of bakery products	6
1543	Manufacture of cocoa, chocolate and sugar confectionery	12
1549	Manufacture of other food products n.e.c.	33
1554	Manufacture of soft drinks; production of mineral waters	4
1711	Preparation and spinning of textile fibres; weaving of textiles	358
1721	Manufacture of made-up textile articles, except apparel	59
1722	Manufacture of carpets and rugs	23
1729	Manufacture of other textiles n.e.c.	60
1810	Manufacture of wearing apparel, except fur apparel	232
1920	Manufacture of footwear	29
2022	Manufacture of builders' carpentry and joinery	6
2109	Manufacture of other articles of paper and paperboard	33
2211	Publishing of books, brochures, musical books and other publications	8
2221	Printing	7
2411	Manufacture of basic chemicals, except fertilizers and nitrogen compounds	489
2412	Manufacture of fertilizers and nitrogen compounds	32
2413	Manufacture of plastics in primary forms and of synthetic rubber	72
2421	Manufacture of pesticides and other agro-chemical products	5
2422	Manufacture of paints, varnishes and similar coatings, printing ink and mastics	20
2424	Manufacture of soap and detergents, cleaning and polishing preparations, perfumes and toilet prepara	38
2429	Manufacture of other chemical products n.e.c.	116
2519	Manufacture of other rubber products	46
2520	Manufacture of plastics products	68
2693	Manufacture of structural non-refractory clay and ceramic products	9
2695	Manufacture of articles of concrete, cement and plaster	13
2710	Manufacture of basic iron and steel	205
2720	Manufacture of basic precious and non-ferrous metals	168
2811	Manufacture of structural metal products	8
2893	Manufacture of cutlery, hand tools and general hardware	72
2899	Manufacture of other fabricated metal products n.e.c.	122
2913	Manufacture of bearings, gears, gearing and driving elements	18

2930	Manufacture of domestic appliances n.e.c.	51
3110	Manufacture of electric motors, generators and transformers	33
3120	Manufacture of electricity distribution and control apparatus	19
3130	Manufacture of insulated wire and cable	9
3140	Manufacture of accumulators, primary cells and primary batteries	14
3190	Manufacture of other electrical equipment n.e.c.	41
3220	Manufacture of television and radio transmitters and apparatus for line telephony and line telegraph	11
3410	Manufacture of motor vehicles	30
3430	Manufacture of parts and accessories for motor vehicles and their engines	17
3610	Manufacture of furniture	23
3691	Manufacture of jewellery and related articles	20
3699	Other manufacturing n.e.c.	80

We piloted several approaches to minimising these problems and mismatch between HS/ISIC codes. Distinguishing *per se* between goods that are exported mainly inside and mainly outside Africa is not a problem. While there are many goods, of course, that are exported to both markets, a significant number of exports from SACU states are directed predominantly either to African or to non-African markets (see Stevens and Kennan 2013).

Our initial approach began by identifying all HS6 codes exported by a SACU state (in the same year as that state's Survey – so 2006 for Namibia and Swaziland, 2007 for South Africa, 2009 for Lesotho, and 2010 for Botswana) to a value of $1 million or more and identifying the ISIC codes to which they correspond. We then did a simple count of the 'qualifying' HS6 codes (i.e. those in which exports were valued at $1 million or more) within each ISIC code to determine how many were exported predominantly (50% or more of the value) to other African countries, and those which were exported predominantly outside Africa. This gave us three categories:

1. ISIC codes in which over 50% of exports in all of the qualifying HS6 heads were directed to Africa;
2. those in which over 50% of exports in all qualifying HS6 heads were directed outside Africa;
3. and those in which some of the qualifying HS6 heads were exported over 50% to Africa and others in which exports were mainly outside Africa.

Focusing our analysis on just categories 1 and 2 would have been fairly robust. In many cases, the proportion of exports in an HS6 head destined for either Africa or the rest of the world was substantially greater than the 50% threshold. Hence an ISIC group composed entirely of such cases could reasonably have been portrayed as being made up of goods destined primarily for the African or the non-African market. Unfortunately, of the country/ISIC code combinations actually cited in the Surveys fell into category 1 and some into category 2. The remaining 34 fell into category 3; in other words they contained a mix of some HS6 heads that were exported primarily within Africa and some exported primarily outside, and so this approach had to be amended.

The alternative from which the results in the next Section are derived omit the exclusion of HS6 heads that were exported to a value of less than $1 million. This brings into the net a large number of very small exports some of which, it would seem, are relatively important for the Survey respondents who reported themselves as exporters.

Unlike the first approach, the second approach classified an ISIC group as being 'predominantly intra' or 'predominantly extra' according to the aggregate value of all

covered HS6 exports rather than according to the number of HS6 codes that were exported predominantly within or outside Africa. We therefore calculated the total value of each SACU country's exports of each ISIC group in Table X (by aggregating the value of each component HS6 head) and then split the group into two according to whether 50% or more of the value of these aggregate exports was within or outside Africa.

This approach could have resulted in a misleading classification (for example if exports were split almost equally between intra- and extra-African markets such that an ISIC group in which 49.4% of the total was destined for Africa but the whole group was classified as 'extra-African'). But this did not happen. For example, in the case of South Africa, for 19 of the 29 ISICs for which Intra or Extra was clearly established the difference between the shares going to Africa and the rest of the world was over 40%; for only 1 was it less than 8% with a couple at 8% and the next smallest difference being almost 15%.

A third methodological problem was less serious because South Africa is the dominant source of the exports recorded. It is that data for intra-SACU trade is unreliable. An apparent South African export to Namibia, for example, might genuinely be destined for consumption in that state and hence, legitimately, be classified as intra-African. But it could equally be a product in transhipment to Walvis Bay/Namibia for onward shipment that has been erroneously classified (for a variety of reasons). In this case, since the ultimate destination is not known it is not possible to classify it as either intra- or extra-African.

Because we had based almost all of analysis on the first approach to classifying firms according to the main destination of their major good produced, and used these results to analyse trade performance in Chapter 3, we cross-referenced the results of a 90% threshold using our old approach and the results with our new approach (which uses a 50% threshold) and found the same products to feature. Hence, we still make use of some of these results in Chapter 3 of this report, though we emphasise that these should be interpreted cautiously and in broad-brush terms.

3 Extra and intra-regional trading patterns

In this Section we link firms to specific products exported, and identify those which are traded mostly on an intra and extra-African basis in line with the methodology described previously. We first present analysis of the types of products traded most on an intra- and extra-regional basis. We then apply our 50% and 90% threshold to identify those products mostly traded on an intra or extra-African basis.

3.1 Products Produced by Exporting Firms

Generally, the number of products that tend to be traded more on the extra-regional basis are less numerous and hence to some extent more concentrated. The main products exported mostly to extra-regional markets and produced by firms in the enterprise survey, as listed in Table 7, include: furniture, other manufacturing, processed fish and meat, apparel, car machinery.

Table 8: Exporting Firms, and Major Products Traded on an Extra-Regional basis (50% threshold)

Row Labels	Description	Lesotho	Namibia	Republic of South Africa	Grand Total
3610	Manufacture of furniture			17	17
2893	Manufacture of cutlery, hand tools and general hardware			16	16
1512	Processing and preserving of fish and fish products		8		8
1730/ 1810	Manufacture of wearing apparel, except fur apparel	6			6
1810	Manufacture of wearing apparel, except fur apparel			4	4
2411	Manufacture of basic chemicals, except fertilizers and nitrogen compounds			4	4
1511	Production, processing and preserving of meat and meat products			3	3
3220	Manufacture of television and radio transmitters and apparatus for line telephony and line telegraph			2	2
2022	Manufacture of builders' carpentry and joinery			1	1
2422	Manufacture of paints, varnishes and similar coatings, printing ink and mastics			1	1
2710	Manufacture of basic iron and steel			1	1
2720	Manufacture of basic precious and non-ferrous metals		1		1
2913	Manufacture of bearings, gears, gearing and driving elements			1	1
3110	Manufacture of electric motors, generators and transformers			1	1
3691	Manufacture of jewellery and related articles		1		1
Grand Total		6	10	51	67

Note: calculated using the methodology set out in Section 2; Swaziland is excluded because no products meet the threshold.

Source: World Bank Enterprise Surveys and UN COMTRADE database.

Some of these products are relatively well covered within the existing GVC case-study literature (e.g. furniture). However, more recent performance in export markets has not been explored to the best of our knowledge. Nor has the extent to which these products may be accompanied by regional production networks been explored.

Looking at the data another way, and applying a more stringent value, and destination market threshold, we can see that many of the same products listed in Table 8 above, also feature in Table 9 below. However, furniture no longer becomes the major extra-regional export from South Africa; similarly some of the motor vehicle components no longer feature within this threshold.

Table 9: Exporting Firms, and Major Products Traded on an Extra-Regional basis (90% threshold)

ISIC Code	ISIC description	Lesotho	Namibia	South Africa	Total
1511	Production, processing and preserving of meat and meat products			3	**3**
1512	Processing and preserving of fish and fish products		8		**8**
1730/ 1810?	Manufacture of knitted and crocheted fabrics and articles Manufacture of wearing apparel, except fur apparel	6			**6**
1810	Manufacture of wearing apparel, except fur apparel			4	**4**
2411	Manufacture of basic chemicals, except fertilizers and nitrogen compounds			4	**4**
2893	Manufacture of cutlery, hand tools and general hardware			16	**16**
2929	Manufacture of other special purpose machinery			1	**1**
3691	Manufacture of jewellery and related articles		1		**1**
	Grand Total	**6**	**9**	**29**	**43**

Note: calculated using the methodology set out in Section 2; Swaziland is excluded because no products meet the threshold.
Source: World Bank Enterprise Surveys and UN COMTRADE database.

3.2 Intra-Regional Products

Table 9 presents the product/country combinations for our intra-regional exporters, using the 50% value threshold. We can see that Swaziland features as an intra-regional exporter of ISIC1810 whilst only South Africa did as an extra-regional exporter. Other products feature such as: manufacture of cocoa (ISIC1543), manufacture of plastics (ISIC2520), and manufacture of other fabricated metal products (ISIC2899). We expect this latter product to feature within an intra-regional production network related to the automotive industry. However, we expect the first few products mentioned to be intra-regional value chains in the more conventional sense (producers and consumers are located within the region). We then moved on to apply our more stringent threshold. From Table 10 we can see that all of the same products feature.

Table 10: Intra-Regional Exports (50% threshold)

Row Label	Description	Botswana	Lesotho	Namibia	Republic of South Africa	Swaziland	Grand Total
1541	Manufacture of bakery products				18		18
1810	Manufacture of wearing apparel, except fur apparel	2				11	13
2811	Manufacture of structural metal products				12		12
2520	Manufacture of plastics products	3		2	1		6
1543	Manufacture of cocoa, chocolate and sugar confectionery			1	3	1	5
2424	Manufacture of soap and detergents, cleaning and polishing preparations, perfumes and toilet				5		5
2221	Printing				4		4
2429	Manufacture of other chemical products n.e.c.				4		4
1520	Manufacture of dairy products				3		3
1549	Manufacture of other food products n.e.c.				3		3
2899	Manufacture of other fabricated metal products n.e.c.	1		1		1	3
1531	Manufacture of grain mill products					2	2
1549 or 2925?	Manufacture of other food products n.e.c.		2				2
1721	Manufacture of made-up textile articles, except apparel	1				1	2
1729	Manufacture of other textiles n.e.c.					2	2
2109	Manufacture of other articles of paper and paperboard				1	1	2

Note: calculated using the methodology set out in Section 2.

Source: World Bank Enterprise Surveys and UN COMTRADE database.

Table 11: Intra-Regional Exports (90% threshold)

ISIC code	ISIC description	Botswana	Namibia	South Africa	Swaziland	Grand total
1520	Manufacture of dairy products			3		**3**
1543	Manufacture of cocoa, chocolate and sugar confectionery		1	3	1	**5**
1810	Manufacture of wearing apparel, except fur apparel	2			11	**13**
2424	Manufacture of soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations			5		**5**
2520	Manufacture of plastics products	3	2			**5**
2899	Manufacture of other fabricated metal products n.e.c.	1	1			**2**
	Grand Total10	**8**	**14**	**17**	**49**	

Note: calculated using the methodology set out in Section 2.

Source: World Bank Enterprise Surveys and UN COMTRADE database.

Some of the same products discussed in Stevens et al. (2013) as mostly exported on an intra-regional basis also feature in our analysis (which uses the same approach as our analysis of extra-regional exports presented above). These products include:

- ISIC 2520: manufacture of plastics;
- ISIC 2424: manufacture of soap and detergents.

These products were identified by Stevens et al. (2013) because there are several African exporters and because most of these products have relatively high regional shares of exports. In our analysis, we have been able to link these products to specific firms in Botswana, Namibia, and South Africa. Hence, we can confirm that these products are produced by firms included in the enterprise survey and are traded mostly on an intraregional basis, which substantiates the findings of Stevens (2013).12

It is likely that the products that we identify in the following sub-section also fall within one of these categories: being an intra-African value chain in the conventional understanding, or being part of a broader production network operating within a GVC. We therefore encounter similar methodological challenges to those discussed by Stevens (2013) which includes our inability to say:

- If these goods are regional value chains in the sense that some African producers supply African consumers – as industrial, or final consumers.
- or, instead these products feature as inputs to extra-regional exports.

It seems there are some types of production networks in operation within the region. The following products are exported by South Africa to other SACU members, which also in turn export them back to South Africa:

- Different types of manufactured metal products (relating to ISIC2899 and ISIC2811).

The links between these products and the automotive industry deserves further attention.13 In comparison, the following products are exported to South Africa by other SACU members, and feature within South Africa's extra-regional exports:

- Apparel (ISIC1810)

The following products are exported to South Africa by other SACU members, or vice versa but then not but then do not feature as subsequent exports according to our analysis, on an extra or intra basis. This suggests they may be more conventional regional value chains with consumers and producers based within the region (although they may utilise imported inputs):

- Dairy products (IS520);
- Manufacture of cocoa (ISIC1543);
- Soap, detergents etc. (ISIC2424);
- Manufacture of plastics products (ISIC2520).

Summary of results

This brief descriptive analysis has run through the main products and markets for the intra- and extra-regional exporters. The descriptive analysis presented thus far

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12 This is the most up to date analysis of intra-regional trade flows to the best of our knowledge.

13 For example Barnes and Kaplinksy (2000) discuss developments in the automotive components industry.

has shown us that different products tend to be traded more on an extra- compared to intra-regional basis. Moreover, those different types of value chain seem to be in operation. Some upgrading processes may be easier to achieve within intra-regional value chains, precisely because these markets are less dominated by a few lead firms. Hence, supplying processed (and branded?) chocolate may be possible for firms orientated to intra-regional markets, compared to extra-regional (where processed chocolate does not feature as a major export). Differences in the types of products traded within these alternate marketing channels may explain some of the differences we identify in terms of firm-level characteristics in the next Section.

3.3 Firm-Level Characteristics

Here we explore differences in firm-level characteristics for firms that export predominantly on an intra-regional compared to extra-regional basis. We only present some of the main descriptive results in this sub-section, which serves as an introduction to the next Section which applies our quantitative analysis.

3.3.1   SACU Exporters and Non-Exporters
Most of the firms included in the enterprise survey don't export (Table 11). Hence, analysis of "only exporters" reduces our sample size considerably, and is likely to be reduced further as we split the exporter sample defined by their end market: intra- regional or extra-regional.

Table 12: Summary of enterprise data for Southern Africa

Country	Sectors	Total	Ownership Type		Domestic		Foreign	
			Foreign	Dom.	Non-exporter	Exporter	Non-exporter	Exporter
South Africa	All	1,057	137	920	920	0	13	124
Namibia	Manufacturing	106	28	78	70	8	17	11
Botswana	All	268	129	139	126	13	111	18
Lesotho	All	151	50	101	101	0	22	28
Swaziland	Manufacturing	70	27	43	34	9	11	16
Total		1,652	371	1,281	1251	30	174	197

Source: World Bank Enterprise Surveys for each country, described in Section Two.

In broad terms what can be seen from Table 11 is that overall the proportion of foreign owned firms is smallest for the largest market (and producer) in the region – South Africa, followed by Namibia. However, all exporters in South Africa have a share of foreign ownership. Swaziland has the highest proportion of firms that export, followed by Namibia and Lesotho.

The results of comparative analysis across indicators of interest - GVC participation, social and economic upgrading, policy/institutional barriers - revealed some differences between firms that export compared to those that don't within the SACU sample.14 In brief the following points may be noted:

- **GVC participation indicators**
  - Firm age: no significant differences between exporting/non-exporting firms.
  - Firm size: no significant differences in the size of exporting/ non-exporting firms.
  - Exporters are generally more likely to have international quality certification, except in the case of Lesotho.

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14 See Appendix 2.

- o Exporting firms in Namibia and South Africa are the least likely to operate under sub-contracting arrangements, other countries seem to be more likely.
- o Non-exporters tend to have the longest length of relationship with their suppliers.

- **Social/economic upgrading indicators**
  - o Exporters generally employ a higher share of skilled workers – those with tertiary education.
  - o Exporting firms generally more likely to provide formal training, and pay more in terms of average wages for production workers (but not managers).
  - o Exporting firms have managers with the most amount of experience, particularly in South Africa.

- **Policy and Institutional Barriers**
  - o Exporters overall, and particularly within the smaller SACU economies, are more likely to experience barriers across all of the indicators we analysed, including:
    - Workforce education.
    - Labour market regulations.
    - Customs and trade regulations.

We compared these results to those of other regions included in the World Bank Global Enterprise Survey (Appendix 3). Further to this descriptive overview the following points may be noted:

- **GVC participation indicators:**
  - o Ownership: the proportion of exporting firms with foreign ownership is lower for other regions compared to SACU, e.g. proportionately lowest in South Asia and highest in Africa.
  - o Firm age: There is a range of between 19 (East Asia Pacific) and 34 (Latin America and Caribbean) years of operation for other regions compared to a low of 15 in Lesotho and a high of 27 in South Africa.
  - o Firm size (employees): The average size of firms is highest for Swaziland (412) and lowest for Botswana (116), which compares to a low in the Global Enterprise Surveys of Eastern and Central Europe (176) and a high of South Asia (517).
  - o International quality certification: The proportion of SACU exporter firms with international quality certification is comparable to other regions.

- **Social upgrading indicators:**
  - o Managers experience: The results for SACU exporters range from 9 years (Swaziland) to 19 years (Botswana) compare to a low of 13 for Africa overall and a high of 21 years (Latin America and the Caribbean).

- **Policy and institutional barriers:**
  - o Workforce education: Range of 6.7 (East Asia Pacific) to 24 percent (Latin America and Caribbean) compared to a range of 12 percent (South Africa) to 41.9 percent (Botswana) reporting high or severe barriers in SACU.

- o Labour market regulations: Range of 8 percent (East Asia and Pacific) to 29 percent (Africa) compared to 6 percent (Botswana) to 32 percent (Namibia) reporting high or severe barriers in SACU.
- o Customs, trade regulations: Range of 8 percent (East Asia Pacific) to 36.7 percent (Latin America and Caribbean) compared to a range of 2 percent (South Africa) to 39 percent (Botswana) reporting high or severe barriers in SACU.

3.3.2 Comparison between Extra- and Intra-Regional Exporters

Table 12 below shows the number of firms that we have been able to classify as either an intra- or extra-regional exporter, making use of our 50% threshold, discussed in Chapter 2.

Table 13: Intra-regional/extra-regional exporters

Country	Total exporters	Missing data/exporting less than £1mn	Intra-regional exporters (90%)	Extra-regional exporters (90%)
South Africa	124	11	62	51
Namibia	19	2	9	10
Botswana	31	19	12	0
Lesotho	28	13	9	6
Swaziland	25	0	25	0
Total	227	45	117	67

Source: World Bank Enterprise Surveys and UN Comtrade

Despite data limitations and given that we are unable to discuss results for 45 firms because of inability to categorise them as either producing goods traded on either an intra- or extra-regional basis, overall we can observe the following:

GVC participation indicators
- o Firm age: there are no significant differences between intra and extra-regional exporters.
- o Firm size: there are no significant differences between intra- and extra-regional exporters.
- o International Quality cortication: No major differences between intra- and extra-regional exporters.

Social Upgrading Indicators
- o Managers with more experience tend to be employed by extra-regional exporters.
- o But the share of tertiary education for managers seems to be higher for firms producing goods traded mainly on intra-regional markets compared to extra-regional ones (particularly in the case of South Africa).
- o There are no major differences between firms in terms of formal training offered to workers.

Policy/Institutional Barriers
- o Customs and trade regulations appear to be greater barriers for firms trading goods on an intra-regional basis.
- o Lack of workforce education tends to be more of a barrier for firms exporting goods traded mainly on an extra-regional basis.
- o Labour market regulations tend to be more of an obstacle for extra compared to intra-regional exporters, except in the case of South Africa.

Overall, the most interesting aspect of these results seem to reside in relation to the differences between intra- and extra-regional exporters in terms of social upgrading

indicators, and the extent to which policy/institutional barriers are a major or severe constraint to trade. We explore the extent to which these variables exert a significant influence on the likelihood of exporting to either intra- or extra-regional markets in the next Section.

4 Analysis of enterprise surveys

4.1 Methodology

Our objective is to explore whether or not there is any link between the indicators we have identified[15] - GVC participation, social/economic upgrading, and policy/institutional barriers - and the likelihood that a firm chooses one marketing channel compared to another. We undertake this analysis first for SACU exporters and non-exporters; we then compare SACU intra-regional and extra-regional exporters. Finally, we integrate the results of the Global Enterprise Surveys and compare Southern Africa to other regions.

We use a logistic model since the results from the analysis are more intuitive for those interested in GVC analysis. We are able to interpret the odds ratio for each dependent variable as either increasing, or decreasing the likelihood that a particular marketing route is chosen. We specify γ as a dichotomous outcome variable, coded as $= 1$ if firms produce and export, and use π to denote the probability that firms export the said good. The probability of an alternative marketing channel being selected is therefore $(1 - \pi)$ and hence the model is specified as:

$$\begin{aligned}
logit\,(\pi) = \alpha + \;&\beta 1 \text{ ownership} + \beta 2 \text{ age } + \beta 3 \text{ managers experience} + \beta 4 \text{ size} \\
&+ \beta 5 \text{ customs, trade reg dummy} + \; \beta 6 \text{ labour reg dummy} \\
&+ \beta 7 \text{workforce dummy} + \beta 8 \text{training dummy} + \varepsilon
\end{aligned}$$

Because of data limitations, we limit the variables we examine, as specified above. Underpinning our model specification are the following major hypotheses:

- H1: Alternative: there are significant differences in the effect of the above indicators on firm's decisions (odds ratio) or not to export.
- H0: Null: there are no significant differences in the effect of the above indicators on firm's decisions (odds ratio) or not to export.

The following sub-hypotheses and research questions may be noted.

GVC participation indicators: How do GVC indicators differ between firms that export products mostly to intra- or extra-regional markets?

H1.1. Firms that export to extra-regional markets will be more likely foreign owned.

H0 1.1: There are no significant differences in the influence of firm ownership between intra- and extra-regional exporters.

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[15] Which is also informed by data availability across SACU members.

H 1.2: Firms that export to extra-regional markets will be more likely larger (employees).

H0 1.2: There are no significant differences in the influence of firm age between intra- and extra-regional exporters.

H 1.3: We posit that older firms may be more likely to supply intra-regional markets. The age of a firm is typically used as an indicator of learning by doing in the firm-level literature. This is because in order to access extra-regional markets alliances will lead firms must be sought, and FDI may be a substitute for accumulated knowledge and experience.

H0 1.3: There are no significant differences in the influence of firm age between intra- and extra-regional exporters.

Social upgrading indicators: How do social upgrading indicators differ between firms that export products mostly to intra- or extra-regional markets?

H1.4: Firms that export to extra-regional markets employ managers with more experience than those that export to intra-regional markets because accessing export requires accumulated tacit knowledge.

H0 1.4: There are no significant differences in manager's experience between firms that supply intra- or extra-regional markets.

H1.5: Firms that export to extra-regional markets are more likely to find lack of workforce education a challenge compared to firms that export on an intra-regional basis.

H0 1.5: There are no significant differences in the extent to which firms consider an inadequately educated workforce as a major or severe constraint.

Policy and institutional barriers: How do policy and institutional barriers affect extra- and intra-regional exporters?

H1.6: Firms that export to extra-regional markets are more likely to find customs and trade regulations as a major or severe constraint.

H0 1.6: There are no significant differences in the extent to which intra- or extra-regional exporters experience customs and trade regulations as major or severe barriers.

H1.7: Firms that export to extra-regional markets are more likely to find labour market regulations a major or severe constraint.

H0 1.7: There are no significant differences in the extent to which firms that export mainly on an intra- or extra-regional basis find labour market regulations a major or severe constraint.

H1.8: Firms that export to extra-regional markets are more likely to find an adequately trained workforce a major or severe constraint.

H0 1.8: There are no significant differences in the extent to which firms that export mainly on an intra- or extra-regional basis find an adequately trained workforce a major or severe constraint.

We test this model across the whole sample of firms, and as differentiated by the end market as follows:

- ○ Domestic market orientated;
- ○ Export orientated;
- ○ Intra-regional market orientated; and
- ○ Extra-regional market orientated.

We explore the influence of firm-level characteristics on the odds that firms select a particular marketing channel and present our results in the following sub-sections. We then discuss the extent to which we should accept or reject the null and alternative hypotheses. The odds ratio Exp (B) can be interpreted in terms of the change in odds resulting from a unit change in the predictor(s). If the value is greater than 1 it indicates that as the predictor increases the odds of the outcome also increase (and the converse would apply if the value is less than 1).[16] Essentially, it is a measure of association between the response variable (marketing channel) and our explanatory variables. That is, the odds ratio tells us the probability of a particular marketing channel being selected depending on the explanatory variables.

The odds ratio presents us with a measure of association rather than causation. Although we are unable to identify the causal relationship, and direction of causality, we can say there is a significant association. We also note though, that this association could be spurious. This caveat applies to all of the logistic regression analysis presented in this paper. Despite this caveat it is fair to say that the results overall indicate a level of heterogeneity across firms included in the Enterprise Surveys according to the type of GVC they export to (domestic; export; intra-regional exports; extra-regional exports).

It is important to note – as we have stressed in our methodology section - that a significant and positive impact of high or severe barriers to production from customs and trade regulations on exports may indicate reverse causation; exporting firms tend to be more sensitive to the effect of trade regulations rather than sensitive firms tend to export more. It is possible that firms which export attract more foreign investment, as opposed to foreign ownership led to exportation. Finally, firms that export more on an extra-regional basis may simply find demand for skills is higher in these markets. All of these caveats should be borne in mind regarding interpretation of our results.

The Wald statistic which has a chi-square distribution tells use whether or not the coefficient for our predictors is significantly different from zero. In this sense it is analogous to the t-tests found in multiple regressions. In terms of goodness of fit, we refer to the Cox and Snell as well as Nagelkerke R square values. These statistics are referred to as a "pseudo-R" statistics. The former takes the sample size into account and can be interpreted as. It cannot however, reach a maximum of one. Hence, we also refer to the Nagelkerke R square values which adjust the Cox and Snell measure so that 1 can be achieved.17

4.2 Domestic and Export Orientated SACU Firms

The results for specifying specify γ as a dichotomous outcome variable, coded as = 1 if SACU firms only supply the domestic market are presented in Table 13. These suggest that older firms are less likely to supply domestic markets, similarly those that are foreign owned. Firms that select the domestic market are also less likely to encounter major or severe customs and trade regulations. Although the result of

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[16] The odds ratio is obtained by exponentiating the estimate of B.

[17] We also examine residuals using casewise listing, as well as obtain classification plots, though we do not present these results. Collinearity diagnostics were also undertaken through a review of variance inflation factors.

firm size is significant, its influence in terms of the odds ratio is ambiguous: it neither increases nor decreases the odds of firms selecting the domestic market.

Table 14: Orientated to Domestic Market

	B	S.E.	Wald	Sig.	Odds ratio Exp(B)
Ownership Dummy	-3.917	0.221	313.795	0.000**	0.020
Managers Experience (years)	0.14	0.009	2.424	0.119	1.014
Firm age (years)	-0.14	0.006	4.846	0.028**	0.987
Customs, TradeReg Dummy	-5.69	0.315	3.271	0.071*	0.566
LabourReg Dummy	-0.141	0.302	0.219	0.639	0.868
Workforce Dummy	0.327	0.243	1.802	0.179	1.386
Size (no. of employees)	0.000	0.000	5.659	0.17**	1.000
FormalTrainingDummy	-0.261	0.192	1.848	0.174	0.770
Constant	4.066	0.262	241.451	0.000	58.308

Note: N= 1,652. The labour reg, customs/trade reg, and workforce reg dummy variables take a value of 1 if firms report these policy and institutional variables to have either a severe or major (negative) effect on production. Goodness of fit indicators: Cox and Snell 0.281; Nagelkerke R Square 0.511.

**= significant at 5 percent level ; * = significant at 10 percent level.

Source: World Bank Enterprise Surveys and UN Comtrade.

The results for specifying specify γ as a dichotomous outcome variable, coded as = 1 if SACU firms export are presented in Table 14. We can see that the alternative hypothesis must be accepted in the case of the influence of the following GVC participation indicators: ownership; Firm age; and Firm size (no. of employees); and Policy and Institutional Barriers: The customs/trade/regulation dummy.

Foreign ownership of a firm exerts the strongest degree of association with a considerable increase in the odds (50 times) that a firm will export if it is foreign owned. Because the odds ratio increases so much as the firm ownership predictor variable does, it highlights the limited strength of association for the other predictor variables. This result is driven by the fact that all exporters in South Africa have a share of foreign ownership. However, because the Wald statistic is positive for the other predictor variables this means we must accept the related alternative hypotheses in these instances, although we acknowledge that odds ratio increases to a much lesser extent for these compared to firm ownership. Firms that export also tend to be larger, although the effect of firm size on the likelihood of exporting is ambiguous.

Table 15: Export Orientated

	B	S.E.	Wald	Sig.	Odds ratio Exp(B)
Ownership Dummy	3.917	.221	313.787	.000**	50.247
Managers Experience (years)	-.014	.009	2.426	.119	.986
Firm age (years)	.014	.006	4.849	.028**	1.014
Customs, TradeReg Dummy	.570	.315	3.274	.070*	1.768
LabourReg Dummy	.142	.302	.220	.639	1.152
Workforce Dummy	-.327	.243	1.801	.180	.721
Size (no. of employees)	.000	.000	5.668	.017**	1.000
FormalTrainingDummy	.261	.192	1.848	.174	1.298
Constant	-4.066	.262	241.458	.000**	.017

Note: N= 1,652. The labour reg, customs/trade reg, and workforce reg dummy variables take a value of 1 if firms report these policy and institutional variables to have either a severe or major (negative) effect on production. Goodness of fit indicators: Cox and Snell 0.280; Nagelkerke R Square 0.509.

**= significant at 5 percent level ; * = significant at 10 percent level.

Source: World Bank Enterprise Surveys and UN Comtrade.

4.3 Intra- and Extra-Regional SACU Exporters

We then moved onto look at the potential differences between firms that export goods traded mainly on an intra- or extra-regional basis. In order to do this we first specified γ as a dichotomous outcome variable, coded as = 1 if SACU firms export predominantly on an intra-regional basis. The results are presented in Table 15. As before, we make use of the full SACU sample in order to perform this analysis, and include those firms which we have not been able to identify as either mainly supplying intra- or extra regional markets (discussed earlier). This means that the independent dichotomous variable is only coded 1 only for those firms that produce products we definitely know are mainly supplied on an intra-regional basis (using our 50% threshold). We use the same major hypotheses as specified above, namely that:

- *Alternative*: there are significant differences in the effect of our selected indicators on firm's decisions (odds ratio) or not to export to intra-regional (African) markets.
- *Null*: there are no significant differences in the effect of our selected indicators on firm's decisions (odds ratio) or not to export to intra-regional (African) markets.

Table 16: Results of Logistic Regression for Intra-Regional Exporters

	B	S.E.	Wald	Sig.	Odds ratio Exp(B)
Ownership Dummy	3.388	0.276	150.264	0.000**	29.599
Managers Experience (years)	-0.023	0.011	4.241	0.039**	0.978
Firm age (years)	0.006	0.007	0.650	0.420	1.006
Customs, TradeReg Dummy	0.651	0.346	3.533	0.060**	1.917
LabourReg Dummy	0.390	0.338	1.330	0.249	1.477
Workforce Dummy	-0.913	0.319	8.206	0.004**	0.401
Size (no. of employees)	0.000	0.000	0.124	0.725	1.000
FormalTrainingDummy	0.287	0.223	1.650	0.199	1.332
Constant	-4.261	0.309	190.130	0.000**	0.014

Note: N= 1,652. The labour reg, customs/trade reg, and workforce reg dummy variables take a value of 1 if firms report these policy and institutional variables to have either a severe or major (negative) effect on production. Goodness of fit indicators: Cox and Snell 0.140; Nagelkerke R Square 0.349.

**= significant at 5 percent level ; * = significant at 10 percent level.

Source: World Bank Enterprise Surveys and UN Comtrade.

The results presented in Table 15 for our intra-regional exporters, suggest that we must accept the alternative hypothesis relating to the following indicators: ownership; social upgrading; manager's experience; and the following policy/institutional barriers: customs/trade regulations, and workforce regulations. These variables exert a significant influence (10 and 5 percent level, respectively) on their association with the likelihood that a firm exports on an intra-regional basis. These results are easier to make sense of when we compare them to the results for extra-regional exporters. In Table 16 we specify γ as a dichotomous outcome variable, coded as = 1 if SACU firms export predominantly on an extra-regional basis.

Table 17: Results of Logistic Regression for Extra-Regional Exporters

	B	S.E.	Wald	Sig.	Odds ratio Exp(B)
Ownership Dummy	4.161	0.529	61.848	0.000**	64.115
Managers Experience (years)	0.022	0.013	2.981	0.084*	1.022
Firm age (years)	-0.015	0.011	1.958	0.162	0.985
Customs, TradeReg Dummy	-1.359	0.640	4.513	0.034**	0.257
LabourReg Dummy	0.284	0.411	0.478	0.489	1.328
Workforce Dummy	0.103	0.338	0.092	0.761	1.108
Size (no. of employees)	0.000	0.000	4.184	0.041**	1.000
FormalTrainingDummy	0.117	0.285	0.169	0.681	1.124
Constant	-5.875	0.572	105.373	0.000**	0.003

Note: N= 1,652. The labour reg, customs/trade reg, and workforce reg dummy variables take a value of 1 if firms report these policy and institutional variables to have either a severe or major (negative) effect on production. Goodness of fit indicators: Cox and Snell 0.105; Nagelkerke R Square 0.365. **= significant at 5 percent level ; * = significant at 10 percent level.

Source: World Bank Enterprise Surveys and UN Comtrade.

Taken together these results suggest we must accept the alternative hypothesis in the case of the following:

- Ownership: Foreign owned firms are much more likely to export on an extra- rather than intra-regional basis;
- Managers experience: the odds ratio suggests firms that employ more experienced managers are more likely to export on an extra-regional basis than intra-;
- Firm age: older firms tend to be slightly less likely to export on an extra-regional basis (and hence more likely to export on an intra-regional basis) though this result is only significant at the 16 percent level;
- Customs and trade regulations dummy: firms that rank these as major and severe barriers to production are much less likely to export on an extra-regional basis, and more likely to export on an intra-regional basis;
- Firm size (number of employees): though this variable is significant, its effect on the odds ratio is ambiguous.

We expect firms that trade predominantly on intra and extra-regional basis to exhibit differences related to the indicators we use as proxies for GVC participation, social upgrading, and policy/institutional barriers. We have revealed such differences through our descriptive as well as quantitative analysis. This analysis could be improved though in a number of ways. It is standard practice within the literature to introduce interaction effects in order to explore differences between population sub-groups within an overall sample. A challenge in doing so at this stage of the analysis however, is that we have only coded firms as either intra- or extra- regional exporters within the overall SACU exporter sample. That is to say, if firms export, they also export on an intra- (or extra- regional) basis. This means we are unable to introduce interaction terms and proceed further at this stage in the analysis. However, we can improve on this in the following sub-section where we pool the SACU sample with all other African firms included in the

Global Enterprise Surveys in order to increase the sample size and explanatory power.[18]

4.4 SACU and Other African Exporters

Within the African exporter's sample, it is possible to introduce an interaction effect for SACU firms and compare these exporters to other African exporters. Although this means we are unable to shed any further light on the differences between intra- and extra-regional exporters within the SACU sample, we can in terms of how our selected indicators influence SACU exporters compared to other African exporters.

In order to compare estimated coefficients between two different groups, such as SACU and other African it is standard to run regression for a pooled sample and include interaction terms of each regressor with the SACU dummy, e.g. ownership*SACU dummy, in addition to regressors themselves and the SACU dummy. If an interaction term is statistically significant, it indicates that the coefficient differs between SACU and non-SACU. We present our results for this next step in the analysis in Table 17 below.

Table 18: SACU and African Exporters

	B	S.E.	Wald	Sig.	Odds ratio Exp(B)
SACU Dummy	-0.765	0.275	7.717	0.005**	0.466
Ownership Dummy	1.359	0.075	332.163	0.000**	3.892
SACU*Ownership	2.526	0.231	119.110	0.000**	12.503
Managers Experience	0.025	0.007	13.932	0.000**	1.026
SACU*Managers Experience	-0.036	0.011	10.523	0.001**	0.964
Firm Age	0.002	0.003	0.652	0.419	1.002
SACU*Firm Age	0.005	0.007	0.586	0.444	1.005
Customs, TradeReg Dummy	0.000	0.190	0.000	0.998	1.000
SACU*Customs, TradeReg Dummy	0.552	0.367	2.252	0.133	1.736
LabourReg Dummy	-0.444	0.163	7.435	0.006**	0.641
SACU*LabourReg Dummy	0.579	0.342	2.860	0.091*	1.784
Workforce Dummy	0.329	0.205	2.588	0.108	1.390
SACU*Workforce Dummy	-0.655	0.318	4.245	0.039*	0.520
Size (no. of employees)	-0.001	0.001	1.470	0.255	0.999
SACU*Size	0.001	0.001	3.626	0.057*	1.001
FormalTrainingDummy	-0.791	0.138	32.984	0.000**	0.453
SACU*FormalTraining	1.085	0.236	21.152	0.000**	2.959
Constant	-3.193	0.099	1039.968	0.000	0.041

Note: N= 15611. The labour reg, customs/trade reg, and workforce reg dummy variables take a value of 1 if firms report these policy and institutional variables to have either a severe or major (negative) effect on production. Goodness of fit indicators: Cox and Snell 0.061; Nagelkerke R Square 0.149.

**= significant at 5 percent level; * significant at 20 percent level.

Source: World Bank Enterprise Surveys for Southern African Countries and Global Enterprise Surveys for other African countries and UN Comtrade.

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[18] It should be noted that the sample we use for SACU is comprised of the most recent year's data for each country. In most cases, these data correspond to Global Enterprise Surveys, except in the case of South Africa and Swaziland. Hence, we use our SACU sample and combine it with all African countries (except SACU) included in the Global Enterprise Surveys. In the next Section, we simply make use of all of the Global Enterprise Survey data.

These results and interpretation of the specified interaction effects suggest there are significant differences in the impact (or association) of the following indicators for SACU firms compared to other African firms:19

- **GVC Participation Indicators**
  - Ownership: There is a much stronger association between this variable and the likelihood of exporting for SACU firms than other African.
  - Size: Although significant for SACU firms the increase in odds for exporting firms is marginal.

- **Policy and Institutional Barriers**
  - Labour Regulations: SACU firms that experience major or severe barriers are more likely to export, whereas other African firms are less likely to export.
  - Workforce Regulations: SACU firms which experience these as major or sever barriers to production are less likely to export compared to other African firms.
  - Formal Training: SACU firms which provide formal training are much more likely to export compared to other African firms.

4.5   Comparison of SACU with Global Enterprise Surveys

The final step in our analysis was to compare the results of the logic regression for our SACU and African sample, to that of other regions. We do this initially for the full sample of firms included in the Global Enterprise Surveys: Africa, East Asia Pacific, Eastern Europe and Central Asia, South Asia, and Latin America and the Caribbean. Table 16 presents the results of specifying γ as a dichotomous outcome variable, coded as = 1 if firms across the Global Enterprise Surveys export.

Table 19: Results of Logistic Regression for Global Enterprise Surveys

Indicator	B	S.E.	Wald	Sig.	Exp(B)
Ownership Dummy	1.221	0.032	1478.564	0.000**	3.389
Managers Experience (years)	0.010	0.001	64.925	0.000**	1.010
Firm age (years)	0.007	0.001	86.433	0.000**	1.007
Customs, TradeReg Dummy	0.188	0.039	23.313	0.000**	1.207
LabourReg Dummy	0.067	0.042	2.539	0.111	1.070
Workforce Dummy	-0.141	0.035	15.802	0.000**	0.868
Size (no. of employees)	0.000	0.000	227.059	0.000**	1.000
FormalTrainingDummy	0.268	0.027	95.575	0.000**	1.308
Constant	-2.671	0.028	8924.471	0.000**	0.069

Note: N = 59278. The following regions are included: Africa; East Asia Pacific, Eastern Europe Central Asia, Latin America and Caribbean, South Asia. Goodness of fit indicators: Cox and Snell 0.041; Nagelkerke R Square 0.078. **= significant at 5 percent level; * significant at 20 percent level

Source: World Bank Global Enterprise Surveys and UN Comtrade.

We can see that the odds ratio for the ownership variable for all firms in the Global Enterprise Surveys is similar to that of the African sample (Table 18) though much lower compared to our SACU exporter sample (Table 14). An increase in firm managers' experience slightly increases the odds of exporting, and this is similar to

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19 The result for manager's experience is approximately the same for African firms and SACU firms and hence we do not discuss it.

the result for the Africa sample (Table 17). As a firm's age increases, so too do the odds of exporting, though the increase in odds overall for firms is marginal. The labour regulations dummy is not significant, which is a key difference compared to the African sample (Table 17). However, the customs and trade regulations dummy is significant and this result is comparable to SACU exporters (Table 14). Firm size is ambiguous. Firms that provide formal training are more likely to export and this is similar to our SACU sample (Table 14).

Summary of Comparative Analysis

We summarise the results for SACU exporters, compared to Africa exporters as well as those across the regions included in the World Bank Enterprise Surveys in Table 19. We simply summarise the odds ratios across our indicators of interest and denotes whether or not they exert a significant influence. Finally, the results of our analysis of the individual regions included in the Global Enterprise Surveys are presented in Tables 20-23 overleaf. In each case, we specified γ as a dichotomous outcome variable, coded as = 1 if firms export.

Table 20: Summary of Results: Odds Ratios

Indicator	SACU	Global Survey	AFR	EAP	EECA	LAC	SAR
Ownership Dummy	50.247**	3.389**	3.892**	5.818**	4.348**	2.820**	1.595*
Managers Experience (years)	0.986	1.010**	1.026**	1.019**	1.020**	1.002	1.014**
Firm age (years)	1.014**	1.007**	1.002	1.000	1.019**	1.009**	0.993*
Customs, TradeReg Dummy	1.768*	1.207**	1.000	1.389**	1.747**	1.535**	0.986
LabourReg Dummy	1.152	1.070	0.641**	1.300*	1.349**	0.961	1.219
Workforce Dummy	0.721	0.868**	1.390	0.679**	1.003	0.895	1.049
Size (no. of employees)	1.000**	1.00**	0.999	1.001**	1.000	1.000**	1.002**
FormalTraining Dummy	1.298	1.308**	2.959**	0.656**	1.537	2.083**	1.730**

*Note: ** denotes significant at 5 percent level; * denotes significance at the 10 percent level. There are differences in the goodness of fit indicators for the model as applied to each region. See Appendix 3.*

Source: World Bank Enterprise Surveys and UN Comtrade.

East Asia and Pacific

Surprising, an additional year of operating for firms in Asia Pacific (Table 20) does not increase the odds of exporting. Firm managers experience matters though: as manager's experience increases so too do the odds of exporting. Firm size has an ambiguous effect on the odds of exporting. All of our policy/institutional barrier indicators are significant, though only the lack of workforce skills variable is associated with a reduction in the odds that firms export.

Table 21: East Asia and Pacific

Indicator	B	S.E.	Wald	Sig.	Exp(B)
Ownership Dummy	1.761	0.078	505.480	0.000**	5.818
Managers Experience (years)	0.018	0.004	26.910	0.000**	1.019
Firm age (years)	0.000	0.003	0.005	0.945	1.000
Customs, TradeReg Dummy	0.329	0.126	6.763	0.009**	1.389
LabourReg Dummy	0.262	0.155	2.878	0.090*	1.300
Workforce Dummy	-0.388	0.128	9.203	0.002**	0.679
Size (no. of employees)	0.001	0.000	93.403	0.000**	1.001
FormalTrainingDummy	-0.422	0.071	34.852	0.000**	0.656
Constant	-2.373	0.080	871.437	0.000**	0.093

Note: N = 8554. Goodness of fit indicators: Cox and Snell 0.094 ; Nagelkerke R Square 0.168.

Source: World Bank Enterprise Surveys and UN Comtrade.

Eastern Europe and Central Asia

Exporters in Eastern Europe (Table 21) are not only likely to find customs and trade regulations a major or severe barrier to exporting, but are also likely to find labour regulations problematic. The workforce dummy is not significant in this instance. Nevertheless, foreign ownership, number of years of managers' experience and firm age are all significantly associated with an increase in the odds of firms exporting.

Table 22: Eastern Europe Central Asia

Indicator	B	S.E.	Wald	Sig.	Exp(B)
Ownership Dummy	1.470	0.072	419.299	0.000**	4.348
Managers Experience (years)	0.020	0.002	67.482	0.000**	1.020
Firm age (years)	0.019	0.002	123.510	0.000**	1.019
Customs, TradeReg Dummy	0.558	0.076	53.975	0.000**	1.747
LabourReg Dummy	0.300	0.087	11.849	0.001**	1.349
Workforce Dummy	0.003	0.062	0.002	0.966	1.003
Size (no. of employees)	0.000	0.000	14.827	0.000	1.000
FormalTrainingDummy	0.430	0.051	71.806	0.000	1.537
Constant	-3.026	0.060	2558.363	0.000	0.048

Note: N = 15682. Goodness of fit indicators: Cox and Snell 0.55; Nagelkerke R Square 0.103

Source: World Bank Enterprise Surveys and UN Comtrade.

Latin America and the Caribbean

Foreign ownership increases the odds of exporting for Latin America and the Caribbean (Table 22), though to a lesser degree than East Asia Pacific and Eastern Europe and Central Asia. Firm age matters. There is a significant association between firms that experience severe or major barriers to production because of customs and trade regulations and their likelihood of exporting, though the odds ratio is lower than in the case of Eastern and Central Europe analysed above. Firms that provide formal training are more than two times likely to export.

Table 23: Latin America and Caribbean

Indicator	B	S.E.	Wald	Sig.	Exp(B)
Ownership Dummy	1.037	0.060	303.402	0.000**	2.820
Managers Experience (years)	0.002	0.002	1.074	0.300	1.002
Firm age (years)	0.009	0.001	60.818	0.000**	1.009
Customs, TradeReg Dummy	0.428	0.058	55.038	0.000**	1.535
LabourReg Dummy	-0.040	0.058	0.462	0.497	0.961
Workforce Dummy	-0.111	0.052	4.510	0.034	0.895
Size (no. of employees)	0.000	0.000	27.839	0.000**	1.000
FormalTrainingDummy	0.734	0.052	199.131	0.000**	2.083
Constant	-2.688	0.066	1644.801	0.000	0.068

Note: N = 14657. Goodness of fit indicators: Cox and Snell 0.060; Nagelkerke R Square 0.104.

Source: World Bank Enterprise Surveys and UN Comtrade.

South Asia

Contrary to expectations an additional years of operation for firms in South Asia (Table 23) would seem to decrease the likelihood that these firms export. The reasons for this deserve more attention. Interesting, this result is somewhat similar to that of our SACU sample. Firm managers experience matters in terms of increasing the odds that a firm exports, but the result is not as strong as for other regions including Southern Africa. Foreign ownership of a firm matters as this too increases the odds a firm exports, and this result (and strength) is similar to that of Southern African exporters. Finally, none of the policy and institutional barriers included in the logit regression are significant.

Table 24: South Asia

Indicator	B	S.E.	Wald	Sig.	Exp(B)
Ownership Dummy	0.469	0.2489	3.591	0.058*	1.595
Managers Experience (years)	0.014	0.005	7.531	0.006**	1.014
Firm age (years)	-0.007	0.004	3.376	0.066*	0.993
Customs, TradeReg Dummy	-0.014	0.156	0.008	0.927	0.986
LabourReg Dummy	0.198	0.184	1.160	0.282	1.219
Workforce Dummy	0.048	0.138	0.119	0.730	1.049
Size (no. of employees)	0.002	0.000	134.267	0.000**	1.002
FormalTrainingDummy	0.548	0.112	24.084	0.000**	1.730
Constant	-2.599	0.124	440.083	0.000	0.074

Note: N = 4345. Goodness of fit indicators: Cox and Snell 0.091; Nagelkerke R Square 0.170

Source: World Bank Enterprise Surveys and UN Comtrade.

Conclusions

This paper has developed a research methodology to explore firm-level performance across different types of value chains: those destined for extra-regional markets, compared to those destined for regional markets. It has utilised the firm-level information included in the World Bank Enterprise Surveys for SACU members in order to do so. We have compared the results obtained for SACU to other regions in the Global Enterprise Surveys. Using this methodology, which admittedly uses some strong assumptions, we have revealed some differences across the groups of firms defined by the export market, which arguably warrant further attention.

Our identification of products traded mainly on an intra-regional basis substantiates the findings of others, such as Stevens et al. (2013). However, there does seem to be evidence of a type of production network in operation within the region, as different types of metal products are exported by South Africa to other SACU members, which also in turn export them back to South Africa. These products do not however, feature within South Africa's major extra-regional exports (within the same product heading). Despite this, the links between these products and the automotive industry deserve further attention.

The only evidence we have of vertically fragmented vertical trade within the region relates to the textiles and clothing industry. Otherwise, in terms of regional value chain development (with consumers and producers being located within the region) we have the most evidence related to more consumer orientated products. To some extent this is surprising given the high share of foreign ownership within firms operating within the region. The extent to which these findings support or reject the multi-chain upgrading hypothesis within the case-study based GVC is questionable at the current time.

The multi-chain hypothesis posts that domestic firms may have more opportunities to launch their own manufactured and branded products within their home market or in neighbouring markets, with similar levels of development. The types of lead firms driving intra-regional value chains as conventionally understood (with consumers and producers within the region) and their relationships with foreign investors within SACU could be further explored.

We have revealed differences in firm-level characteristics according to their end market, and hence identified GVC related firm-level heterogeneity. Our approach to analysis has revealed a number of significant measures of association, though we are unable to identify the direction of causality (and association in some cases could be spurious). This caveat applies to all of the logistic regression analysis presented in this paper. Despite this caveat it is fair to say that the results overall indicate a level of heterogeneity across firms included in the Enterprise Surveys according to the type of GVC they export to (domestic; export; intra-regional exports; extra-regional exports).

Some generic as well as specific policy recommendations arise from this analysis. There are differences between intra- and extra-regional exporters in terms of their

firm-level characteristics, and the products traded between these markets differ substantially. We have identified some specific product/country combinations which may warrant further investigation. Comparing the results for SACU to other African exporters, as well as other regions included in the Enterprise Survey, we can see that exporters are more likely to experience high or severe barriers to exporting in terms of customs and trade regulations, and this increases the odds of exporting more on an intra- compared to extra-regional basis. Non-tariff barriers applied in the region are already known to affect intra-regional exporters to a greater extent than intra-regional exporters (Keane et al., 2010).

The quantitative analysis carried out is underpinned by the assumption that firms have a choice in relation to their export market, and that this applies equally to intra- or extra-regional markets. In practice however, we know this choice is not equally weighted and the more qualitative and case-study based GVC literature emphasises such aspects as power, rents and barriers to entry, in this regard. Understanding input:output processes at the firm-level and value added processes at this level could help to shed further light on the constraints of domestic firm's integration with GVCs, and promote further dialogue with the lead (global) firms that drive these. We not explored the role of imports into production from extra-regional suppliers, although we know these sources have grown relative to African suppliers. This aspect of research deserves further attention.

Generally, the exploratory analysis presented in this Working Paper could be improved in a number of ways. Although we have described the theory which suggests differences in firm-level upgrading trajectories depending on the end market, and provided some empirical evidence which substantiates this view, case-study analysis would help to substantiate further the findings presented in this paper. Panel data analysis for countries with the available data may be more revealing. The distinction between intra- and extra- regional exporters for other regions included in the Global Enterprise surveys could also be undertaken in the future. Finally, the robustness of results could be further improved, and some variables excluded from analysis so as to sharpen the results.

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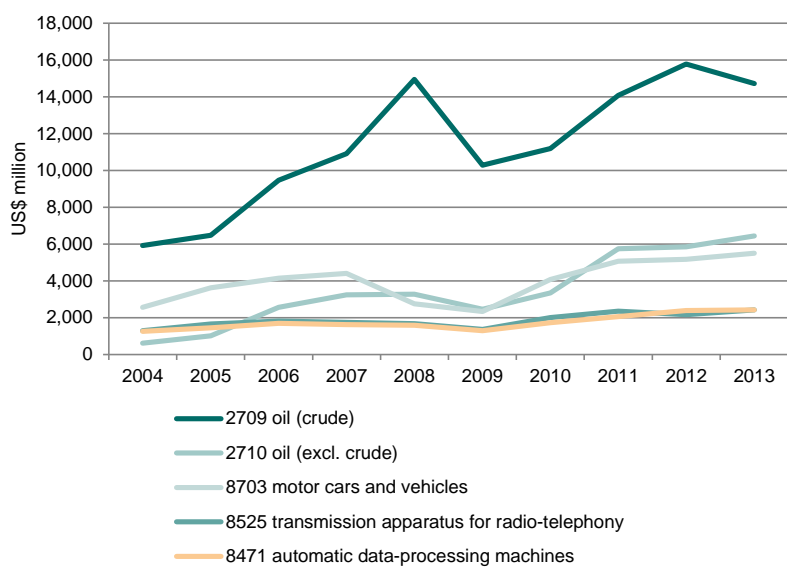# Appendix 1

Table A1: Review of Indicators of Interest

Category	Indicators	Selected Indicators			
		Economic upgrading	Social upgrading	Policy/Institutional barriers	GVC participation related indicator
Biggest Obstacle	Access to finance, Access to land, Business licensing and permits, Corruption, Courts, Crime, theft and disorder, Customs and trade regulations, Electricity, Inadequately trained workforce, Labour regulations, Political Instability, Practices of the informal sector, Tax administration, Tax rates, Transportation			Business licensing and permits Customs and trade regulations Labour regulations Inadequately trained workforce	
Finance	Percent of firms identifying access to finance as a major constraint Proportion of working capital financed by supplier credit (%)			Percent of firms identifying access to finance as a major constraint	Proportion of working capital financed by supplier credit (%)
Firm Characteristics	Proportion of private domestic ownership in a firm (%), Proportion of private foreign ownership in a firm (%), Proportion of government/state ownership in a firm (%), Proportion of a firm held by the largest owner(s) (%), Percent of firms with legal status of publicly listed company, Percent of firms with legal status of privately held Limited Liability Company, Percent of firms with legal status of Sole Proprietorship, Percent of firms with legal status of Partnership, Percent of firms with legal status of Limited Partnership				Proportion of private foreign ownership in a firm (%)
Innovation and Technology	Percent of firms with an internationally-recognized quality certification, Percent of firms using technology licensed from foreign companies*, Percent of firms having their own Web site,			Percent of firms having their own Web site Percent of firms using e-mail to interact with clients/suppliers	Percent of firms with an internationally-recognized quality certification Percent of firms using technology licensed from foreign companies

	Percent of firms using e-mail to interact with clients/suppliers, Percent of firms with an annual financial statement reviewed by external auditors.				
Performance	Capacity utilization (%)*, Real annual sales growth (%), Annual employment growth (%), Annual labour productivity growth (%)	Real annual sales growth (%)	Annual employment growth (%), Annual labour productivity growth (%)		
Regulations and Taxes	Senior management time spent dealing with the requirements of government regulation (%), Number of visits or required meetings with tax officials, If there were visits, average number of visits or required meetings with tax officials, Days to obtain an operating license, Days to obtain a construction-related permit, Days to obtain an import license, Percent of firms identifying tax rates as a major constraint, Percent of firms identifying tax administration as a major constraint, Percent of firms identifying business licensing and permits as a major constraint			Days to obtain an import license	
Trade	Days to clear direct exports through customs, Percent of firms exporting directly or indirectly (at least 1% of sales), Percent of firms exporting directly (at least 1% of sales), Proportion of total sales that are domestic sales (%), Proportion of total sales that are exported directly (%), Proportion of total sales that are exported indirectly (%), Days to clear imports from customs*, Percent of firms using material inputs and/or supplies of foreign origin*, Proportion of total inputs that are of domestic origin (%)*, Proportion of total inputs that are of foreign origin (%)*, Days of inventory of main input*, Percent of firms identifying customs and trade			Percent of firms identifying customs and trade regulations as a major constraint Days to clear imports from customs Days to clear direct exports through customs	Proportion of total inputs that are of foreign origin (%)* Percent of firms using material inputs and/or supplies of foreign origin* Proportion of total sales that are exported directly (%) Proportion of total sales that are exported indirectly (%) Percent of firms exporting directly or indirectly (at least 1% of sales) Percent of firms exporting directly (at least 1% of sales)

	regulations as a major constraint.			
Workforce	Percent of firms offering formal training, Proportion of workers offered formal training (%)*, Years of the top manager's experience working in the firm's sector, Number of permanent full-time workers, Number of temporary workers, Number of permanent production workers*, Number of permanent non-production workers*, Number of permanent skilled production workers*, Number of permanent unskilled production workers*, Proportion of unskilled workers (out of all production workers) (%)*, Percent of firms identifying labour regulations as a major constraint, Percent of firms identifying an inadequately educated workforce as a major constraint		Percent of firms identifying an inadequately educated workforce as a major constraint Percent of firms offering formal training Proportion of workers offered formal training (%)* Years of the top manager's experience working in the firm's sector Number of permanent full-time workers Number of temporary workers Proportion of unskilled workers (out of all production workers) (%)*	Percent of firms identifying labour regulations as a major constraint

Appendix 2

Figure A1: South Africa: top five imports (average 2011-13)

Legend:
- 2709 oil (crude)
- 2710 oil (excl. crude)
- 8703 motor cars and vehicles
- 8525 transmission apparatus for radio-telephony
- 8471 automatic data-processing machines

Source: Authors' calculations using data from UN COMTRADE database. Share of total M = 29.8%

Table A2: South Africa: suppliers of top five imports (average 2011-13)

HS4	Description	Supplier	Share of total imports of product
2709	petroleum oils and oils obtained from bituminous minerals, crude	Saudi Arabia	40.8%
		Nigeria	23.3%
		Angola	14.1%
		Iran	11.0%
		UAE	2.7%
2710	petroleum oils and oils obtained from bituminous minerals (excl. crude); preparations containing >= 70% by weight of petroleum oils or of oils obtained from bituminous minerals, these oils being the basic constituents of the preparations, n.e.s.; waste oils containing mainly petroleum or bituminous minerals	India	25.5%
		EU28	21.0%
		Singapore	15.3%
		Mozambique	8.4%
		UAE	5.7%
8471	automatic data-processing machines and units thereof; magnetic or optical readers, machines for transcribing data onto data media in coded form and machines for processing such data, n.e.s.	China	59.3%
		EU28	14.6%
		United States	4.3%
		Vietnam	3.7%
		Singapore	3.0%
8525	transmission apparatus for radio-telephony, radio-telegraphy, radio-broadcasting or television, whether or not incorporating reception apparatus or sound recording or reproducing apparatus; television cameras; still image video cameras and other video camera recorders; digital cameras	China	33.8%
		EU28	18.0%
		Vietnam	12.4%
		India	9.5%
		Mexico	9.3%
8703	motor cars and other motor vehicles principally designed for the transport of persons, incl. station wagons and racing cars (excl. motor vehicles of heading 8702)	EU28	47.3%
		Korea, Rep.	14.3%
		India	11.9%
		Japan	10.1%
		United States	9.1%

Source: Authors' calculations using data from UN COMTRADE database.

Figure A2: South Africa: top five exports (average 2011-13)
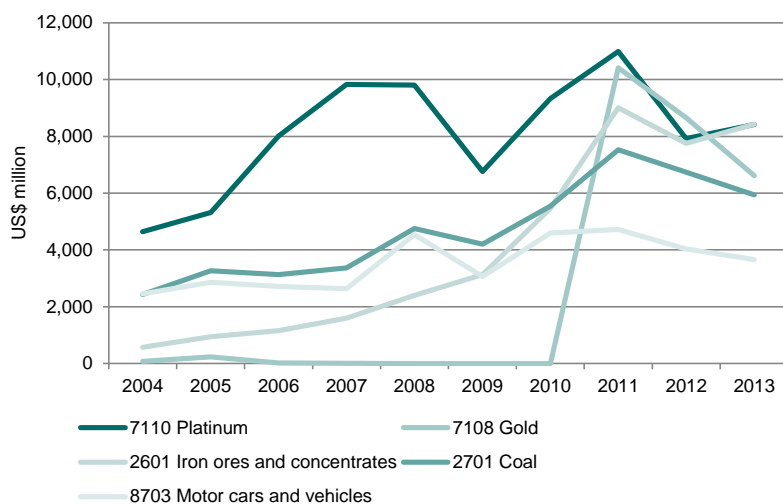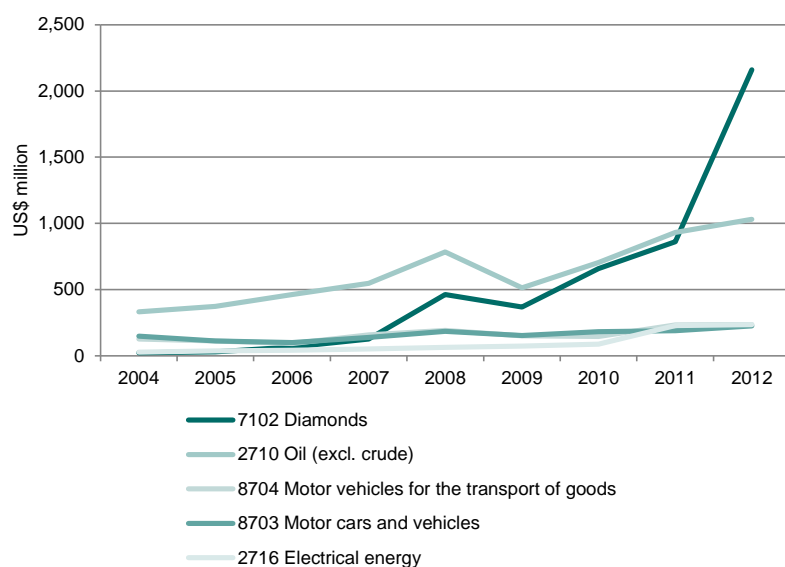

Source: Authors' calculations using data from UN COMTRADE database. Share of total X = 36.6%

Table A3: South Africa: markets for top five exports (average 2011-13)

HS4	Description	Market	Share of total exports of product
2601	iron ores and concentrates, incl. roasted iron pyrites	China	68.6%
		EU28	11.8%
		Japan	10.0%
		Korea, Rep.	4.6%
		Singapore	2.0%
2701	coal; briquettes, ovoids and similar solid fuels manufactured from coal	India	26.3%
		EU28	18.8%
		China	17.0%
		Taiwan	6.4%
		Israel	5.1%
7108	gold, incl. gold plated with platinum, unwrought or not further worked than semi-manufactured or in powder form	Unspecified	99.8%
		EU28	0.2%
7110	platinum, incl. palladium, rhodium, iridium, osmium and ruthenium, unwrought or in semi-manufactured forms, or in powder form	Japan	33.8%
		EU28	20.7%
		Switzerland	18.4%
		United States	16.8%
		Hong Kong	6.5%
8703	motor cars and other motor vehicles principally designed for the transport of persons, incl. station wagons and racing cars (excl. motor vehicles of heading 8702)	United States	45.4%
		EU28	18.4%
		Japan	10.0%
		Namibia	5.9%
		Australia	4.8%

Source: Authors' calculations using data from UN COMTRADE database.

Figure A3: Botswana: top five imports (average 2010-12)
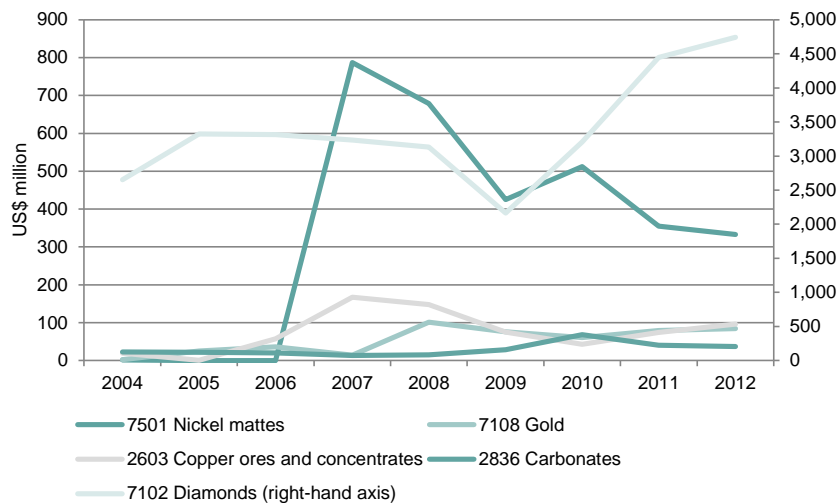

Source: Authors' calculations using data from UN COMTRADE database. Share of total M = 38.7%

Table A4: Botswana: suppliers of top five imports (average 2010-12)

HS4	Description	Supplier	Share of total imports of product
2710	petroleum oils and oils obtained from bituminous minerals (excl. crude); preparations containing >= 70% by weight of petroleum oils or of oils obtained from bituminous minerals, these oils being the basic constituents of the preparations, n.e.s.; waste oils containing mainly petroleum or bituminous minerals	South Africa	94.9%
		Namibia	2.8%
		Mozambique	1.3%
		Zimbabwe	0.7%
		Switzerland	0.2%
2716	electrical energy	South Africa	82.4%
		Namibia	8.4%
		Mozambique	5.4%
		Congo, Rep.	2.4%
		Zambia	0.8%
7102	diamonds, whether or not worked, but not mounted or set (excl. unmounted stones for pick-up styluses, worked stones, suitable for use as parts of meters, measuring instruments or other articles of chapter 90)	EU28	70.6%
		Namibia	10.5%
		South Africa	8.3%
		Israel	7.6%
		India	1.1%
8703	motor cars and other motor vehicles principally designed for the transport of persons, incl. station wagons and racing cars (excl. motor vehicles of heading 8702)	South Africa	70.3%
		Japan	21.1%
		EU28	3.5%
		Korea, Rep.	1.8%
		Singapore	1.7%
8704	motor vehicles for the transport of goods, incl. chassis with engine and cab	South Africa	68.1%
		United States	16.2%
		EU28	6.2%
		India	4.8%
		Japan	2.5%

Source: Authors' calculations using data from UN COMTRADE database.

Figure A4: Botswana: top five exports (average 2010-12)

Legend:
- 7501 Nickel mattes
- 7108 Gold
- 2603 Copper ores and concentrates
- 2836 Carbonates
- 7102 Diamonds (right-hand axis)

Source: Authors' calculations using data from UN COMTRADE database. Share of total X = 85.7%

Table A5: Botswana: markets for top five exports (average 2010-12)

HS4	Description	Market	Share of total exports of product
2603	copper ores and concentrates	South Africa	92.3%
		EU	6.5%
		Switzerland	1.2%
		Norway	0.0%
		China	0.0%
2836	carbonates; peroxocarbonates 'percarbonates'; commercial ammonium carbonate containing ammonium carbamate	South Africa	77.7%
		Zimbabwe	15.6%
		Congo, Dem. Rep.	4.4%
		Zambia	2.2%
		Namibia	0.1%
7102	diamonds, whether or not worked, but not mounted or set (excl. unmounted stones for pick-up styluses, worked stones, suitable for use as parts of meters, measuring instruments or other articles of chapter 90)	EU	84.1%
		Israel	7.0%
		Switzerland	2.1%
		India	1.5%
		United States	1.1%
7108	gold, incl. gold plated with platinum, unwrought or not further worked than semi-manufactured or in powder form	South Africa	97.4%
		Zambia	1.8%
		United States	0.8%
7501	nickel mattes, nickel oxide sinters and other intermediate products of nickel metallurgy :	Norway	84.2%
		Zimbabwe	14.7%
		South Africa	1.1%

Source: Authors' calculations using data from UN COMTRADE database.

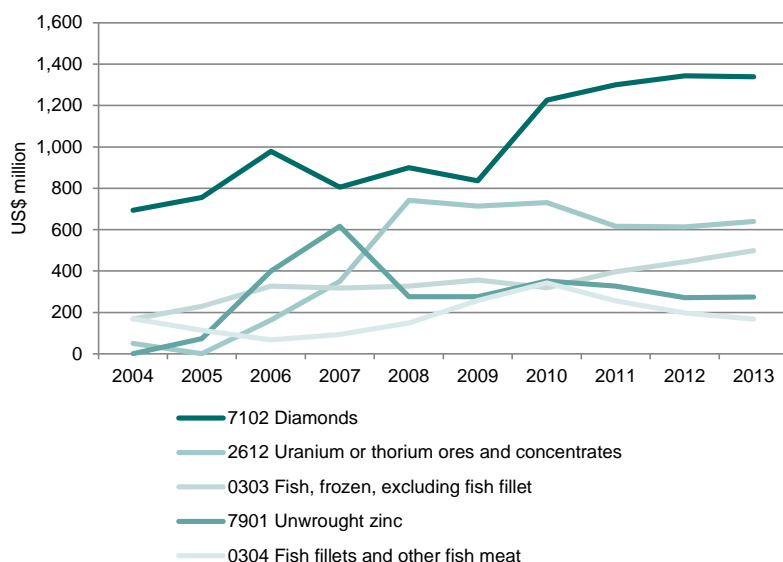## Figure A5: Namibia: top five imports (average 2011-13)
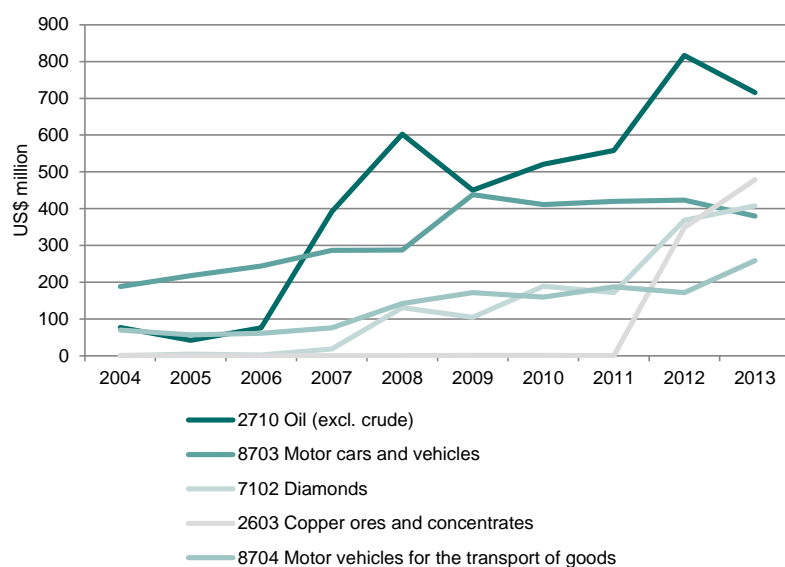
Source: Authors' calculations using data from UN COMTRADE database. Share of total M = 27.0%

Table A6: Namibia: suppliers of top five imports (average 2011-13)

HS4	Description	Supplier	Share of total imports of product
2603	copper ores and concentrates	Switzerland	88.8%
		Peru	5.9%
		EU	5.2%
2710	petroleum oils and oils obtained from bituminous minerals (excl. crude); preparations containing >= 70% by weight of petroleum oils or of oils obtained from bituminous minerals, these oils being the basic constituents of the preparations, n.e.s.; waste oils containing mainly petroleum or bituminous minerals	South Africa	74.8%
		EU	8.6%
		Tanzania	4.4%
		Switzerland	3.9%
		British Virgin Islands	2.4%
7102	diamonds, whether or not worked, but not mounted or set (excl. unmounted stones for pick-up styluses, worked stones, suitable for use as parts of meters, measuring instruments or other articles of chapter 90)	Unspecified	44.1%
		EU	31.0%
		Botswana	23.1%
		United States	1.2%
		Israel	0.2%
8703	motor cars and other motor vehicles principally designed for the transport of persons, incl. station wagons and racing cars (excl. motor vehicles of heading 8702)	South Africa	89.9%
		Botswana	3.6%
		UAE	2.8%
		EU	1.6%
		Japan	0.7%
8704	motor vehicles for the transport of goods, incl. chassis with engine and cab	South Africa	78.9%
		United States	8.6%
		EU	6.3%
		UAE	2.5%
		China	2.0%

Source: Authors' calculations using data from UN COMTRADE database.

# Figure A6: Namibia: top five exports (average 2011-13)

Legend:
- 7102 Diamonds
- 2612 Uranium or thorium ores and concentrates
- 0303 Fish, frozen, excluding fish fillet
- 7901 Unwrought zinc
- 0304 Fish fillets and other fish meat

Source: Authors' calculations using data from UN COMTRADE database. Share of total X = 52.1%

Table A7: Namibia: markets for top five exports (average 2011-13)

HS4	Description	Market	Share of total exports of product
0303	frozen fish (excl. fish fillets and other fish meat of heading 0304)	EU	37.6%
		Congo, Dem. Rep.	20.4%
		South Africa	19.3%
		Mozambique	8.4%
		Angola	6.0%
0304	fish fillets and other fish meat, whether or not minced, fresh, chilled or frozen	EU	88.9%
		South Africa	6.2%
		Australia	2.2%
		United States	1.9%
		Libya	0.1%
2612	uranium or thorium ores and concentrates	Canada	36.9%
		EU	27.8%
		United States	20.0%
		China	14.8%
		Malawi	0.2%
7102	diamonds, whether or not worked, but not mounted or set (excl. unmounted stones for pick-up styluses, worked stones, suitable for use as parts of meters, measuring instruments or other articles of chapter 90)	EU	43.1%
		Botswana	27.7%
		Unspecified	17.1%
		United States	7.2%
		Israel	2.5%
7901	unwrought zinc :	EU	58.0%
		United States	15.1%
		Singapore	13.9%
		Switzerland	7.3%
		South Africa	4.3%

Source: Authors' calculations using data from UN COMTRADE database.

Figure A7: Lesotho: top five imports (average 2008–9)
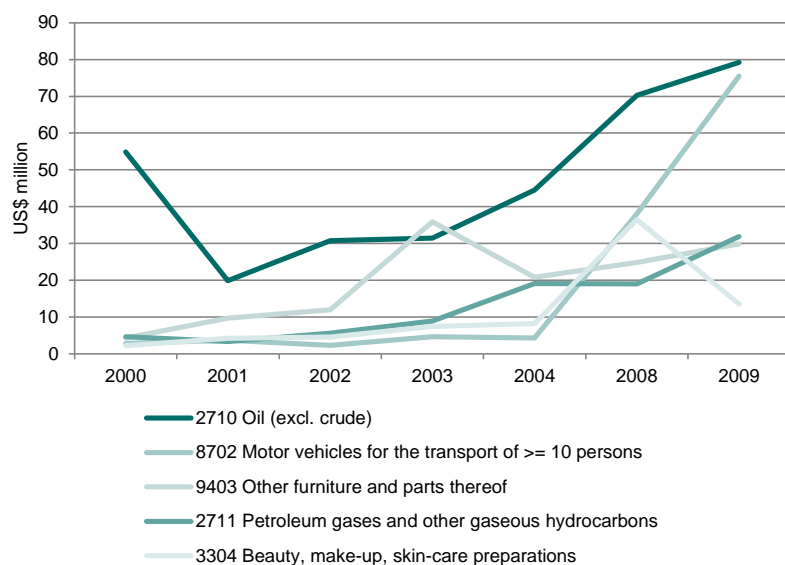
Note: No data available for 2005–7. Graph excludes HS 9999 (UN Special Code) which, with a share of 6.7% of total import value, was the largest import (average 2008–9), as there are no data on composition or suppliers. Share of total M = 17.3%
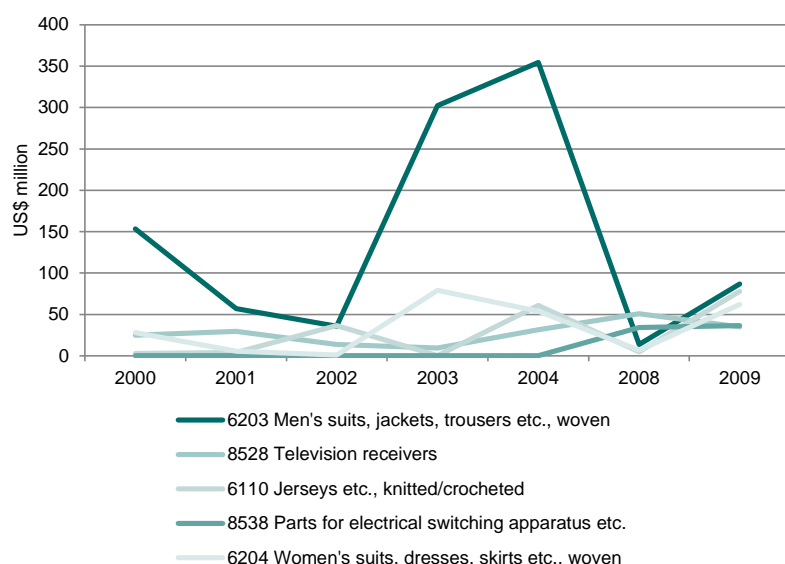
Source: Authors' calculations using data from UN COMTRADE database.

Table A8: Lesotho: suppliers of top five imports (average 2008–9)

HS4	Description	Supplier	Share of total imports of product
2710	petroleum oils and oils obtained from bituminous minerals (excl. crude); preparations containing >= 70% by weight of petroleum oils or of oils obtained from bituminous minerals, these oils being the basic constituents of the preparations, n.e.s.; waste oils containing mainly petroleum or bituminous minerals	South Africa	100.0%
2711	petroleum gas and other gaseous hydrocarbons	South Africa	100.0%
3304	beauty or make-up preparations and preparations for the care of the skin, incl. sunscreen or suntan preparations (excl. medicaments); manicure or pedicure preparations	South Africa	100.0%
8702	motor vehicles for the transport of >= 10 persons, incl. driver	Japan	41.0%
		EU	29.6%
		South Africa	20.1%
		United States	3.2%
		Gambia	2.3%
9403	furniture and parts thereof, n.e.s. (excl. seats and medical, surgical, dental or veterinary furniture)	South Africa	100.0%

Source: Authors' calculations using data from UN COMTRADE database.

Figure A8: Lesotho: top five exports (average 2008-9)

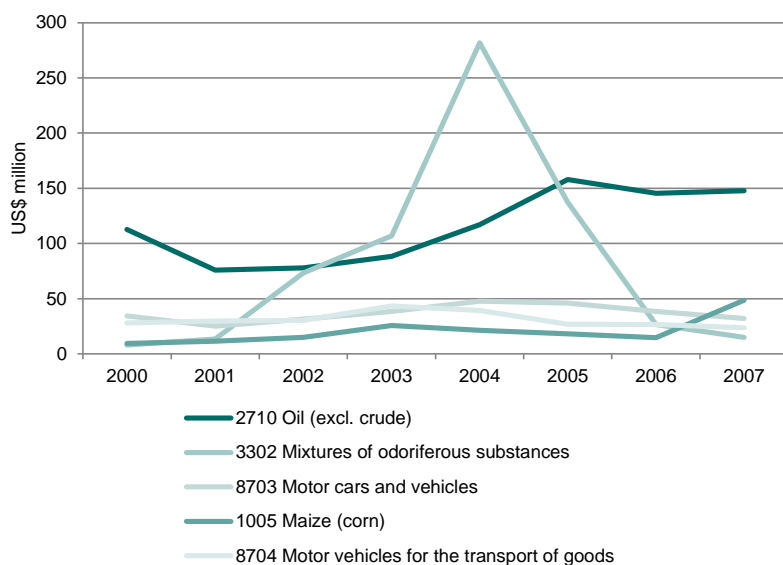*Note: No data available for 2005–7. Share of total X = 46.8%*

Source: Authors' calculations using data from UN COMTRADE database.

Table A9: Lesotho: markets for top five exports (average 2008-9)

HS4	Description	Market	Share of total exports of product
6110	jerseys, pullovers, cardigans, waistcoats and similar articles, knitted or crocheted (excl. wadded waistcoats)	United States	63.5%
		Canada	26.9%
		South Africa	6.9%
		EU	1.1%
		Japan	0.9%
6203	men's or boys' suits, ensembles, jackets, blazers, trousers, bib and brace overalls, breeches and shorts (excl. knitted or crocheted, wind-jackets and similar articles, separate waistcoats, tracksuits, ski suits and swimwear)	United States	54.4%
		South Africa	24.3%
		Canada	20.0%
		China	0.3%
		EU	0.3%
6204	women's or girls' suits, ensembles, jackets, blazers, dresses, skirts, divided skirts, trousers, bib and brace overalls, breeches and shorts (excl. knitted or crocheted, wind-jackets and similar articles, slips, petticoats and panties, tracksuits, ski suits and swimwear)	United States	55.7%
		Canada	23.9%
		South Africa	19.8%
		EU	0.3%
		Japan	0.2%
8528	television receivers, whether or not incorporating radio-broadcast receivers or sound or video recording or reproducing apparatus; video monitors and video projectors	South Africa	100.0%
8538	parts suitable for use solely or principally with the apparatus of heading 8535, 8536 or 8537, n.e.s.	South Africa	100.0%

Source: Authors' calculations using data from UN COMTRADE database.

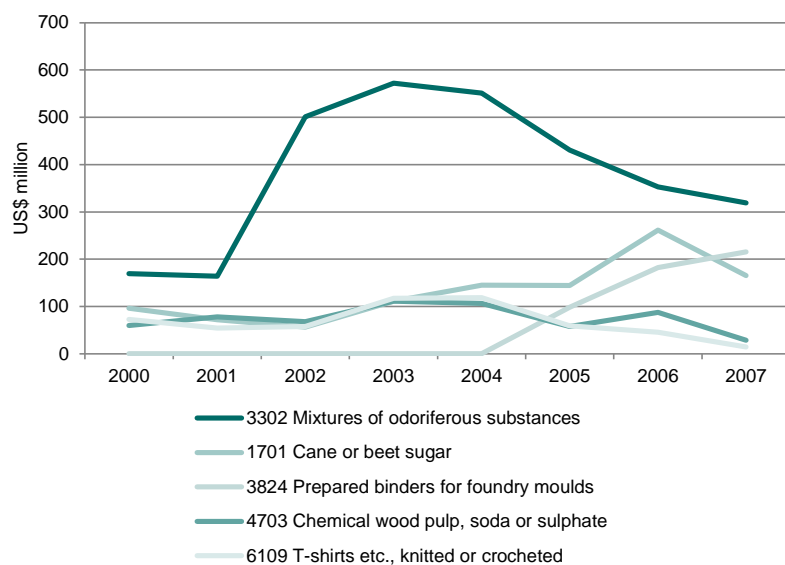# Figure A9: Swaziland: top five imports (average 2005–7)

Note: No more recent data available. Share of total M = 21.7%
Source: Authors' calculations using data from UN COMTRADE database.

Table A10: Swaziland: suppliers of top five imports (average 2005–7)

HS4	Description	Supplier	Share of total imports of product
1005	maize or corn	South Africa	81.8%
		Zambia	18.2%
2710	petroleum oils and oils obtained from bituminous minerals (excl. crude); preparations containing >= 70% by weight of petroleum oils or of oils obtained from bituminous minerals, these oils being the basic constituents of the preparations, n.e.s.; waste oils containing mainly petroleum or bituminous minerals	South Africa Taiwan	98.8% 1.2%
3302	mixtures of odoriferous substances and mixtures, incl. alcoholic solutions, based on one or more of these substances, of a kind used as raw materials in industry; other preparations based on odoriferous substances, of a kind used for the manufacture of beverages	South Africa	100.0%
8703	motor cars and other motor vehicles principally designed for the transport of persons, incl. station wagons and racing cars (excl. motor vehicles of heading 8702)	South Africa Mozambique Japan EU28	29.8% 25.0% 24.4% 20.7%
8704	motor vehicles for the transport of goods, incl. chassis with engine and cab	South Africa Japan EU28 Ghana	89.0% 8.4% 2.4% 0.2%

Source: Authors' calculations using data from UN COMTRADE database.

Figure A10: Swaziland: top five exports (average 2005-7)

Note: No data available for 2005–7. Share of total X = 67.1%
Source: Authors' calculations using data from UN COMTRADE database.

Table A11: Swaziland: markets for top five exports (average 2005–7)

HS4	Description	Market	Share of total exports of product
1701	cane or beet sugar and chemically pure sucrose, in solid form	EU28	49.3%
		Uganda	43.1%
		South Africa	5.0%
		New Zealand	2.6%
3302	mixtures of odoriferous substances and mixtures, incl. alcoholic solutions, based on one or more of these substances, of a kind used as raw materials in industry; other preparations based on odoriferous substances, of a kind used for the manufacture of beverages	Australia	39.1%
		Zimbabwe	32.0%
		South Africa	28.9%
3824	prepared binders for foundry moulds or cores; chemical products and preparations for the chemical or allied industries, incl. mixtures of natural products, n.e.s.	South Africa	63.2%
		Mozambique	36.8%
4703	chemical wood pulp, soda or sulphate (excl. dissolving grades)	South Africa	100.0%
6109	t-shirts, singlets and other vests, knitted or crocheted	United States	44.1%
		Mozambique	22.5%
		Lesotho	21.1%
		South Africa	12.3%

Source: Authors' calculations using data from UN COMTRADE database.

Appendix 3: Summary of Enterprise Survey Analysis

Table A12: Ownership and Direct Exporting SACU Firms

Country	All foreign ownership	Non-exporters	Exporters	Foreign and exporting
South Africa	137	933	124	124
Namibia	28	88	19	11
Botswana	129	237	31	18
Lesotho	50	123	28	28
Swaziland	27	45	25	16
Total	371	1425	227	197

Source: World Bank Enterprise Surveys for each country, described in Section Two.

Table A13: Firm Age SACU Sample

Country	All Firms		Exporters	Non-Exporters
	Non-Exporter	Exporting Firms	Age (Av)	Age (Av)
South Africa	933	124	27	23
Namibia	88	19	26	20
Botswana	237	31	23	20
Lesotho	123	28	15	18
Swaziland	45	25	19	20
Total/Av.	1425	227	24.3	22.1

Source: World Bank Enterprise Surveys for each country, described in Section Two.

Table A14: Firm Size SACU Sample

Country	Exporters	Non-Exporters
	Av. Size	Av. Size
South Africa	146	92
Namibia	199	23
Botswana	115.8	73
Lesotho	2646	107
Swaziland	412.2	57
Total/Av.	474.5	84.6

Source: World Bank Enterprise Surveys for each country, described in Section Two.

Table A15: Licences and International Quality Certification

Country	Exporter Dummy		Foreign Licence		% Licence	International Quality Certification				% Cert.
			No	Yes		Don't know	No	In Process	Yes	
Botswana	Non-Exporter	0	0	0	-	5	177	4	50	21.2
	Exporters	1	0	0	-	0	21	1	9	29.0
Lesotho	Non-Exporter	0	0	0	-	3	97	0	23	18.7
	Exporters	1	0	0	-	1	23	0	4	14.3
Namibia	Non-Exporter	0	71	16	18.4	1	70	0	17	19.3
	Exporters	1	15	4	21.1	0	6	0	13	68.4
Republic of South Africa	Non-Exporter	0	470	76	13.9	0	554	0	248	30.9
	Exporters	1	100	24	19.4	0	79	0	45	36.3
Swaziland	Non-Exporter	0	40	5	11.1	0	39	0	6	13.3
	Exporters	1	20	5	20.0	0	11	0	14	56.0

Source: World Bank Enterprise Surveys for each country, described in Section Two.

Table A16: Length of relationship with supplier, and sub-contracting

Country	Firm Type	Av. no. of years firm has known supplier	Sub-contracting Arrangements				
			Sub-Contract	No-Subcontract	Don't Know	Total	% Firms Sub-Contracted
South Africa	Non-Exporter	13	77	469	0	546	14
	Exporter	11	22	102	0	124	18
Namibia	Non-Exporter	9	8	79	0	87	9
	Exporter	9	2	17	0	19	11
Botswana	Non-Exporter	14	60	175	2	237	25
	Exporter	13	13	18	0	31	42
Lesotho	Non-Exporter	9	26	82	5	113	23
	Exporter	8	6	21	1	28	21
Swaziland	Non-Exporter	-	9	39	0	48	19
	Exporter	-	12	13	0	25	48

Source: World Bank Enterprise Surveys for each country, described in Section Two.

Table A17: Manager's experience in SACU firms

Country			Managers Experience	
			Mean	Count
Botswana	Export Dummy	0	18	237
		1	19	31
Lesotho	Export Dummy	0	13	123
		1	12	28
Namibia	Export Dummy	0	11	87
		1	16	19
Republic of South Africa	Export Dummy	0	13	933
		1	16	124
Swaziland	Export Dummy	0	8	45
		1	9	25

Source: World Bank Enterprise Surveys for each country, described in Section Two.

Table A18: Managers' education level in exporting firms

			Tertiary and above	Vocational / Other	None / Don't know	Total	% Tertiary Educ. and above
Botswana	Export Dummy	0	163	71	3	237	69
		1	27	4	0	31	87
Lesotho	Export Dummy	0	65	52	6	123	53
		1	11	16	1	28	39
Namibia	Export Dummy	0	44	43	0	87	51
		1	9	10	0	19	47
Republic of South Africa	Export Dummy	0	448	474	11	933	48
		1	74	48	2	124	60
Swaziland	Export Dummy	0	23	21	1	45	51
		1	19	6	0	25	76

Source: World Bank Enterprise Surveys for each country, described in Section Two.

Table A19: Workforce skills and development

			Don't Know	No	Yes	Total No. Firms	Proportion offering Formal Training (%)
Botswana	Export Dummy	0	0	109	128	237	54
		1	1	13	17	31	55
Lesotho	Export Dummy	0	3	55	65	123	53
		1	0	15	13	28	46
Namibia	Export Dummy	0	0	54	33	87	38
		1	0	5	14	19	74
Republic of South Africa	Export Dummy	0	11	566	356	933	38
		1	0	55	69	124	56
Swaziland	Export Dummy	0	0	29	16	45	36
		1	0	6	19	25	76

Source: World Bank Enterprise Surveys for each country, described in Section Two.

Table A20: Workforce Education: An obstacle for SACU firms?

			Major	Minor	Moderate	No	Severe	% Firms (Severe/Major)	Total
Botswana	Export Dummy	0	57	44	52	62	22	33.3	237
		1	9	5	9	4	4	41.9	31
Lesotho	Export Dummy	0	10	26	21	57	9	15.4	123
		1	5	5	6	10	2	25.0	28
Namibia	Export Dummy	0	21	11	23	25	7	32.2	87
		1	4	1	7	5	2	31.6	19
Republic of South Africa	Export Dummy	0	57	164	114	583	15	7.7	933
		1	10	35	22	52	5	12.1	124
Swaziland	Export Dummy	0	7	8	7	19	4	24.4	45
		1	5	2	10	6	2	28.0	25

Source: World Bank Enterprise Surveys for each country, described in Section Two.

Table A21: Labour Market Regulations: An obstacle?

			No	Minor	Moderate	Major	Severe	% Firms (Severe/Major)	Total
Botswana	Export Dummy	0	85	59	54	31	8	16	237
		1	10	10	9	1	1	6	31
Lesotho	Export Dummy	0	61	29	20	8	5	11	123
		1	16	5	4	2	1	11	28
Namibia	Export Dummy	0	44	16	15	10	2	14	87
		1	5	5	3	4	2	32	19
Republic of South Africa	Export Dummy	0	629	167	88	41	8	5	933
		1	67	31	14	11	1	10	124
Swaziland	Export Dummy	0	26	11	4	3	1	9	45
		1	5	7	4	6	3	36	25

Source: World Bank Enterprise Surveys for each country, described in Section Two.

Table A22: Customs and Trade Regulations: An Obstacle?

			No	Minor	Moderate	Major	Severe	% Severe/Major	Total
Botswana	Export	0	113	49	40	27	8	15	237
	Dummy	1	5	4	10	9	3	39	31
Lesotho	Export	0	56	24	22	13	8	17	123
	Dummy	1	12	4	5	5	2	25	28
Namibia	Export	0	47	16	18	6	0	7	87
	Dummy	1	11	3	2	3	0	16	19
Republic of South Africa	Export	0	787	94	27	19	6	3	933
	Dummy	1	103	15	4	1	1	2	124
Swaziland	Export	0	32	4	6	3	0	7	45
	Dummy	1	10	6	4	2	3	20	25

Source: World Bank Enterprise Surveys for each country, described in Section Two.

Appendix 4 Global Enterprise Survey Comparison

Table A23: Global Enterprise Survey Data

Regions	All Foreign Ownership	All Non-Exporters	All Exporters	Foreign and Exporting
AFR	3,302	18,785	1,456	549
EAP	980	7,398	1,246	429
ECA	23,382	21,755	3,673	773
LAC	22,721	21,735	3,852	971
SAR	213	5,782	970	74
Total	50,598	75,455	11,197	2,796

Source: Global Enterprise Surveys

Note: the total number of firms differs to those used in our analysis sue to missing data/coding issues as explained in Section 2.

Table A24: Ownership and Exporting

Regions	Ownership Type		Domestic		Foreign	
	Foreign	Domestic	Non-exporter	Exporter	Non-exporter	Exporter
AFR	3,302	16,939	16,032	907	2,753	549
EAP	980	7,664	6,847	817	551	429
ECA	2,046	23,382	20,482	2,900	1,273	773
LAC	2,866	22,721	2,881	19,840	1,895	971
SAR	213	6,539	5,643	896	139	74
Total	9,407	77,245	51,885	25,360	6,611	2,796

Source: Global Enterprise Surveys

Note: the total number of firms differs to those used in our analysis sue to missing data/coding issues as explained in Section 2.

Table A25: Firm Age: Global Enterprise Survey

Region	All Firms		Exporters	Non-Exporters
	Non-exporters	Exporters	Age(AV)	Age(Av)
AFR	18,463	1,437	26.71	18.99
EAP	7,260	1,231	19.36	18.10
ECA	21,492	3,628	23.036	17.718
LAC	21,497	3,831	34.03	28.481
SAR	5,744	967	22.80	21.59

Source: Global Enterprise Surveys

Note: the total number of firms differs to those used in our analysis sue to missing data/coding issues as explained in Section 2.

Table A26: Firm Size Global Enterprise Survey Results

Region	All Firms		Exporters	Non-Exporters
	Non-exporters	Exporters	Av.Size	Av.Size
AFR	18592	1443	261.68	41.33
EAP	7382	1244	501.44	104.765
ECA	21604	3649	175.86	77.08
LAC	21658	3847	289.29	94.41
SAR	5763	969	517.01	75.23

Source: Global Enterprise Surveys

Note: the total number of firms differs to those used in our analysis sue to missing data/coding issues as explained in Section 2.

Table A27: Managers Experience

Regions			Average Yr.
AFR	Export	0	13.56
	Dummy	1	13.08
EAP	Export	0	14.65
	Dummy	1	16.48
ECA	Export	0	15.45
	Dummy	1	17.96
LAC	Export	0	20.85
	Dummy	1	21.45
SAR	Export	0	17.52
	Dummy	1	19.51

Source: Global Enterprise Surveys

Note: the total number of firms differs to those used in our analysis sue to missing data/coding issues as explained in Section 2.

Table A28: International Quality Certification Enterprise Survey

Region		Exporter Dummy	International Quality Certification				% Certified
			Don't know	No	In progress	Yes	
AFR	Non-Exporter	0	235	15842	201	2507	13.34
	Exporters	1	19	788	27	622	42.719
EAP	Non-Exporter	0	101	5230	71	1996	26.98
	Exporter	1	17	533	29	667	54.33
ECA	Non-Exporter	0	298	17087	293	4077	18.74
	Exporters	1	48	1785	95	1745	47.50
LAC	Non-Exporter	0	236	17530	463	3506	16.13
	Exporters	1	28	2017	135	1672	43.40
SAR	Non-Exporter	0	32	5043	30	677	11.70
	Exporters	1	10	585	19	356	36.70

Source: Global Enterprise Surveys

Note: the total number of firms differs to those used in our analysis sue to missing data/coding issues as explained in Section 2.

Table A29: Workforce Education: An obstacle? Regional Results

	Regions		Minor	Moderate	Major	Sever	No	% Firms (Severe/Major)	Total
AFR	Export	0	4415	2585	1251	503	10031	9.33	18785
	Dummy	1	363	297	151	58	587	14.35	1456
EAP	Export	0	1584	674	224	45	4871	3.63	7398
	Dummy	1	320	150	66	17	693	6.66	1246
ECA	Export	0	3603	3149	1266	509	13228	8.15	21755
	Dummy	1	792	754	284	136	1707	11.43	3673
LAC	Export	0	4307	5777	3012	1684	6955	21.605	21735
	Dummy	1	764	1163	670	268	987	24.35	3852
SAR	Export	0	1447	859	278	103	3095	6.58	5782
	Dummy	1	308	209	49	17	387	6.80	970

Source: Global Enterprise Surveys.

Note: the total number of firms differs to those used in our analysis sue to missing data/coding issues as explained in Section 2.

Table A30: Regional Results for Labour Market Regulations

	Regions		Minor	Moderate	Major	Sever	No	% Firms (Sever/Major)	Total
AFR	Export	0	3555	2697	2137	1129	9267	17.38	18785
	Dummy	1	296	290	278	150	442	29.39	1456
EAP	Export	0	1132	490	287	112	5377	5.3	7398
	Dummy	1	340	197	82	19	608	8.10	1246
ECA	Export	0	2136	2097	1229	787	15506	9.26	21755
	Dummy	1	695	621	350	225	1782	15.65	3673
LAC	Export	0	3118	3462	1844	1158	12153	13.81	21735
	Dummy	1	877	1174	532	332	937	22.42	3852
SAR	Export	0	1316	1080	506	192	2688	12.07	5782
	Dummy	1	291	293	109	29	248	14.22	970

Source: Global Enterprise Surveys

Note: the total number of firms differs to those used in our analysis sue to missing data/coding issues as explained in Section 2.

Table A31: Regional Results for Customs and Trade Regulations

Regions			Minor	Moderate	Major	Severe	No	% Firms (Severe/Major)	Total
AFR	Export	0	4,108	2,808	2,281	1,159	8,429	18.31	18,785
	Dummy	1	339	292	202	102	521	20.87	1,456
EAP	Export	0	1,873	1,079	542	151	3,753	9.36	7,398
	Dummy	1	367	205	85	15	574	8.02	1,246
ECA	Export	0	3,313	3,727	3,542	1,892	9,281	24.97	21,755
	Dummy	1	634	761	661	386	1,231	28.50	3,673
LAC	Export	0	3,814	5,792	5,025	2,385	4,719	34.09	21,735
	Dummy	1	650	1,173	998	417	614	36.73	3,852
SAR	Export	0	1,480	1,349	647	275	2,031	15.94	5,782
	Dummy	1	256	311	167	37	199	21.03	970

Source: Global Enterprise Surveys

Note: the total number of firms differs to those used in our analysis sue to missing data/coding issues as explained in Section 2.

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