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Strategic issues for Zambia's industrial development: Regional integration, competition and linkage development

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1. Introduction

While Zambia's growth in GDP during the past decade has been impressive both in terms of the sub-Saharan region and globally, it largely still remains a resource-based economy in which diversified exports, industrial development, job creation and poverty reduction have not happened at the desired pace.

Zambia's non-traditional exports are nonetheless growing (although off a small base) and this signals encouraging developments in the capabilities and competitiveness of its manufacturing sector. The importance of developing diversified and more sophisticated industrial capabilities, especially for developing countries, is now well accepted (see, for example, Hausmann et al, 2007; Hidalgo, 2009; Page, 2012; Fagerberg et al., 2007). It has been shown that what a country exports 'matters' for its industrial development and this needs to be in sync with the country's actual levels of capabilities. This in turn requires strategic focus in terms of government prioritisation and assistance in terms of coordination in the accumulation of capabilities (Hidalgo, 2009). Accumulating and developing capabilities however is not without its challenges in resource-based economies, especially those that are also landlocked as is the case of Zambia.

This paper identifies important opportunities linked to growing local and regional demand, and what constraints exist for their exploitation. It identifies several areas of untapped, substantial opportunities for Zambia's manufacturing sector. While Zambia's competitiveness in global markets is challenged by macroeconomic factors (fluctuating exchange rates, real exchange rate appreciation etc.) and structural bottlenecks (transportation costs, infrastructural services etc.), all of which will require ambitious policy interventions and long term investment (roads and railways

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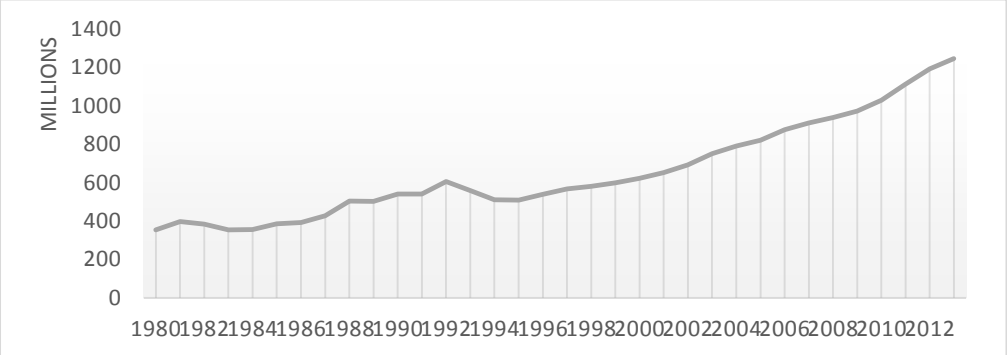
rehabilitation and construction, electricity, internet connectivity), there are more immediate opportunities that are available in addition to its focus on copper beneficiation. These opportunities include strengthening linkages to urban demand for processed food, increasingly structured around supermarket retail chains, and to copper mining demand for goods and services. Opportunities also exist for suppliers to the mining industry as copper mining companies require a local supply chain capable of providing value added services and products, at reasonable prices and within short lead times.

The paper is structured as follows. Section two presents a background on Zambia's industrial sector. Sections three and four analyse industry trends on the basis of macroeconomic and trade data, respectively. Sections five to seven focus on strategic issues for Zambia's industrial development, namely the regional economy, competition and linkage development strategies. Conclusions and areas for further research are discussed in section eight.

2. Background

Zambia recorded high GDP growth rates during the past decade, 7.76% on average between 2004 and 2013, well above the 5% Sub-Saharan Africa average (World DataBank, accessed February 2015). Growth was largely driven by the mining sector, which in turn spurred faster urbanisation, higher domestic consumption, and the growth of associated industries such as construction, ICT and retail. But as stated, Zambia's goals of economic diversification and poverty reduction, as envisaged in various policy documents, had not been met. This was attributed in part to the decline of the manufacturing sector in the 1990s, which eroded the sector's contribution to job creation, economic diversification, and the development of deeper productive and technological capabilities (Figure 1).

Figure 1: Zambia's manufacturing, value added (constant 2005 US$ million)



Source: World DataBank retrieved from http://data.worldbank.org/ in June 2015

Zambia's industrial policy since the 2000s pursued an export-oriented, private sector-driven strategy. Economic diversification and upgrading to higher value added production activities were clearly stated objectives under the Fifth (2006-2010) and Sixth National Development Plans (2011-2015). The key policy instruments adopted by government included the 2007 Zambia Development Agency Act, which set up Multi-Facility Economic Zones for large-scale investors,[2] and the 2008 Commerce, Trade and Industrial Policy. Both policies included sector-specific interventions.[3] The Zambia Development Agency, tasked with industrial policy implementation, had a very broad mandate but lacked the funding, autonomy and, in some cases, technical expertise to implement it (Interviews, 2014; OECD, 2012). The sectoral interventions under the Commerce, Trade and Industrial Policy had yet to be put in place.[4]

More recently, the Zambian government placed renewed emphasis on industrial policy with the adoption of the *Industrialisation and Job Creation strategy paper*. The strategy aimed to create one million new formal sector jobs over five years, and, with regard to the manufacturing sector, built on the existing policy framework. As part of this process, in 2012 Zambia developed a strategy for the engineering products sector – in particular copper fabrication and iron and steel products.

Previous research found Zambia to be potentially competitive in selected manufacturing areas, such as agro-processing and metal products (Dinh, 2013; World Bank 2014). The following section assesses current trends in the manufacturing sector, in particular its contribution to GDP growth, employment and export diversification.[5]

3. Key trends in the manufacturing sector

Trends in the manufacturing sector during the past decade showed that, although small relative to other sectors, there has been remarkable growth. Between 2000 and

[2] The Act included also the establishment of the Zambia Development Agency, provisions on privatisation, priorities for trade and industry development, investment promotion and protection, Micro and Small Enterprise development, and the establishment of the Trade and Industrial Development Fund.

[3] The Commerce, Trade and Industrial Policy identified the following priority sectors: processed foods; textile and garments; engineering products; gemstones; wood products; leather products. The list of priority sectors for MFEZs incentives grew considerably over time, somehow losing the scope of a prioritisation exercise (OECD, 2012).

[4] The Private Sector Development Reform Programme (PSDRP) was another key policy intervention. It aimed at improving the business environment and was successful in reducing regulatory barriers to entry, easing the procedures to start a business (OECD, 2012). There were however many outstanding areas of work, and sometimes implementation had been patchy (Interviews, 2014; OECD, 2012).

[5] This research was commissioned by the International Growth Centre – Zambia http://www.theigc.org/country/zambia/

2013, Zambia's positive economic growth was driven by the following sectors: mining, transport, communication, construction, and government services (Table 1). These reflected higher copper prices, stepped up infrastructural and public spending, and rising urban consumption.

In relative terms, manufacturing represented only 7.9% of GDP, a decline from its share of 9.5% in 2000. Nevertheless, between 2000 and 2013, the manufacturing sector grew by 5.5% CAGR, which was just below the 7.2% CAGR of total GDP. It was also a marked departure from the previous decade (Figure 1). This positive trend was corroborated by the labour data. Between 2005 and 2012, the percentage contribution of the manufacturing sector to total employment increased threefold. Whilst significant, its contribution stood at less than 4% in 2012. In absolute terms, manufacturing jobs increased fourfold from 55,600 people in 2005 to 216,700 people in 2012 (Table 2). Approximately one third of total manufacturing jobs were in the formal sector (73,814), which accounted for 9% of formal employment in 2013 – the fourth largest source of formal jobs.

Table 1: Zambia's GDP, selected sectors and economic activities (ZMK million)

	2000	2013	2013 % total GDP	2000-2013 CAGR
Agriculture, Forestry and Fishing	11,261.0	10,259.1	8.7	-0.7
Mining and Quarrying	1,972.1	12,225.6	10.4	15.1
PRIMARY SECTOR	13,233.1	22,484.7	19.1	4.2
Manufacturing	4,642.2	9,289.8	7.9	5.5
Electricity, Gas and Water	1,500.5	2,177.8	1.8	2.9
Construction	3,513.1	14,596.4	12.4	11.6
SECONDARY SECTOR	9,655.9	26,063.9	22.1	7.9
Wholesale and Retail trade	8,905.1	20,982.8	17.8	6.8
Restaurants, Bars and Hotels	846.7	1,762.6	1.5	5.8
Transport, Storage and Communications	1,543.2	10,701.2	9.1	16.1
Financial Intermediaries and Insurance	4,049.4	5,369.9	4.6	2.2
Real Estate and Business services	3,632.9	8,143.2	6.9	6.4
Community, Social and Personal Services	4,992.2	18,485.2	15.7	10.6
TERTIARY SECTOR	23,969.5	65,445.0	55.6	8.0
TOTAL	47,404.9	117,743.1	100	7.2

Notes: Constant Prices, 2010 Base Year. Central Statistical Office (CSO) rebased GDP estimates. Source: CSO, 2014

Table 2: Zambia's sector employment, by selected sub-sectors

Industry	Employed population (number, % total employment)			Formal employment (number, % sectoral employment)		
	2005	2008	2012	2005	2008	2012
Total	4,131,531 (100)	4,606,846 (100)	5,499,673 (100)	495,784 (12)	511,338 (11)	847,420 (15)
Agriculture, Forestry and Fishing	2,983,968 (72.2)	3,284,208 (71)	2,872,331 (52.2)	29,840 (1)	71,888 (2)	87,420 (3)
Mining and Quarrying	166,143 (4)	92,810 (2)	88,251 (1.6)	154,513 (93)	62,082 (67)	67,608 (77)
Manufacturing	55,499 (1.3)	159,194 (3.5)	216,660 (3.9)	18,870 (34)	36,923 (23)	73,814 (34)
Construction	33,399 (0.8)	80,255 (1.7)	187,906 (3.4)	12,692 (38)	13,889 (17)	36,676 (20)
Trade, Wholesale and Retail Distribution	88,080 (2.1)	425,209 (9.2)	645,571 (11.7)	9,689 (11)	28,706 (7)	110,365 (17)
Transport and communication	22,773 (1)	94,800 (2.1)	137,301 (2.5)	22,773 (56)	29,484 (31)	61,797 (45)

Source: CSO Labour Force Survey, 2005, 2008, 2012

Zambia's FDI stock grew substantially, from US$ 4 billion in 2003 to US$ 12 billion in 2012 (UNCTAD Stats). Whilst mining dominated FDI inflows, an increasing share of FDI targeted the manufacturing sector (OECD, 2012). Out of US$ 1.7 billion FDI flows in 2012, US$ 933 million targeted mining, and US$ 470 million the manufacturing sector (Bank of Zambia, 2014). Manufacturing FDI stock rose from US$ 883 million in 2011 to US$ 1.3 billion in 2012.[6] Indeed, almost half of the 50 leading industrial companies in Zambia were foreign-owned (Sutton and Langmead, 2013). According to a survey conducted by the Bank of Zambia, manufacturing was the second most profitable sector for foreign investors (measured as return on equity), after the professional, scientific and technical sectors (Bank of Zambia, 2014). This was confirmed by a Business Perceptions Survey conducted by the Zambian Chamber of Commerce and Industry in 2014 (Interviews, 2014).

The food, beverages and tobacco sub-sectors showed the strongest performance, growing by approximately 150% between 2001 and 2013.[7] This was driven by well-established commodities such as sugar, tobacco, and cotton, as well as more recent production of soybean and wheat. Cement production also performed very well, driven by investment in cement production and the construction boom in Zambia and the

[6] The mining sector attracted US$ 9 billion FDI stock as of 2012 (Bank of Zambia, 2014).
[7] Based on the Central Statistics Office Industrial Index, which only allowed an analysis of sectoral growth trends, but not of relative contribution of each sub-sector to manufacturing value added.

Democratic Republic of Congo (DRC). The latter has also underlined growth in wood products manufacturing (Dinh, 2013) and metal fabrication. The following section turns to the trade data, which shed light on some of these diversified export activities.

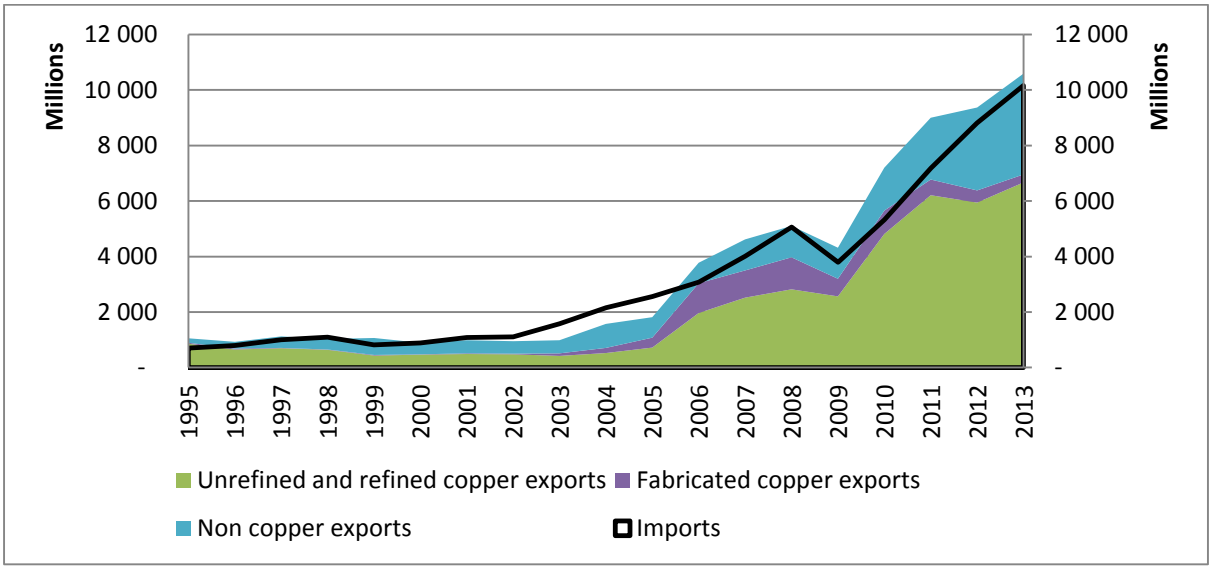
4. Exports, diversification and value addition

From the early 2000s, Zambia's export performance improved significantly, reaching a significant net trade surplus since 2006 (Figure 2). Copper exports averaged 70% of total exports, growing by 29% on average per year in 2002-2012 (although less than half of this in real terms), and increasing their share of GDP from 14% in 2002 to 30% in 2012 (World Bank, 2014a,b).

Mineral beneficiation, a policy objective for Zambia since it gained independence in 1964, was still very limited: approximately 5% of copper output was beneficiated into copper semi-fabricates (MCTI, 2012; Nathan Associates and EME, 2010).[8] From the mid-2000s nevertheless the data showed growing non-copper exports. These were erratic in relative terms: 48% of total exports in 2003, 22% in 2008, and 34% in 2013 (Comtrade database). However, looking at absolute values, there was consistent growth: exports increased from US$467 million in 2003, to US$ 1.1 billion in 2008, and finally to US$ 3.6 billion in 2013. These figures were not per se indicative of underlying industrial capability development, because they included significant re-exports of machinery and vehicles to the DRC and unprocessed commodities such as gemstones and cobalt.

[8] Comtrade data was inaccurate with respect to export figures for copper semi-fabricates. According to Comtrade, exports increased since 2003, peaked at around US$ 1 billion in 2006-2008 (approx. 1/3 of copper exports), and declined dramatically since then. Nevertheless, data from the Zambia Development Agency (ZDA), which relied on corporate data, reported significantly lower levels of copper semi-fabricates exports: exports peaked in 2006, with US$ 289 million exports, and declined since. The ZDA figures were more realistic and called for further investigation into the possible errors with the Comtrade data.

Figure 2: Zambia's trade flows (US$ millions, 1995-2013)



Source: UN Comtrade, retrieved from http://comtrade.un.org/ accessed January 2015.

Once one excludes minerals and precious stones (copper, cobalt, gold and gemstones), copper by-products, and major re-exports, the extent of diversification became more obvious (Table 3). The top ten non-traditional exports in Table 3 grew from US$140 million in 2003 to US$1.2 billion in 2013, a CAGR of 24%. Copper semi-fabricates were excluded due to data quality problems. If these were to be included, the growth trends would be more significant.

In value terms, the bulk of non-traditional exports consisted of cement and traditional agricultural commodities: tobacco, sugar, and cereals. One trend which was particularly important from an industrial development perspective was small but fast-growing exports of value added products. The highest growth rates during the 2003-2013 decade were found in animal fodder and essential oils, at 50% CAGR or above. Animal fodder exports fell in 2013 due lower world prices but production levels remained high. Very high growth rates, between 29% and 35%, were also registered for cement, metal fabricated products, and milling products.

Zambia's export sector was characterised by a dualistic structure. One the one hand, large commodity exports were controlled by a handful of firms. 15 firms accounted for 80% of export earnings across six industries: metals, sugar, chemicals, cement, wire and cables, flour (Sutton and Langmead, 2013). On the other hand, there was a large number of small firms trying to access the export market. Firm-level customs data for 1999-2011 shed some light on this group of exporters (Banda and Simumba, 2013; World Bank, 2014b). The number of firms, products and markets increased considerably in the period under analysis. The number of exporting firms increased

from 232 in 1999 to 1,754 in 2011; their products increased four-fold; their markets two-fold. Excluding the 15 large established exporters mentioned earlier, 80% of transactions were relatively small sized (less than US$ 0.5 million) and directed at SSA markets. There were very high rates of entry into exporting, but also extremely low levels of survival by international standards: around half of the exporters did not survive after the first year, and survival in the same product and destination market was very low (World Bank, 2014b).

Table 3: Zambia's selected NTEs (selected years, US$ '000)

	2003	2008	2012	2013	CAGR 2003-2013
Cement	11,239	33,738	120,979	274,232	38%
Tobacco and manufactured tobacco substitutes	22,318	71,893	156,797	216,948	26%
Sugars and sugar confectionery	33,289	64,276	143,576	188,910	19%
Cereals	6,678	51,411	419,761	161,686	38%
Cotton	53,830	39,081	132,488	85,598	5%
Animal fodder	1,365	4,962	131,737	80,732	50%
Milling products	5,261	33,268	36,122	68,217	29%
Essential oils; perfumery, cosmetic or toilet preparations	849	3,019	12,774	65,846	55%
Iron and steel	2,806	10,279	54,803	54,982	35%
Raw hides and skins (other than furskins) and leather	2,693	5,898	6,582	50,052	34%
Total	140,330	311,928	1,215,620	1,247,205	
% total exports	**14%**	**6%**	**13%**	**12%**	
% total exports minus copper and by products, gemstones and major re-exports	**41%**	**37%**	**58%**	**65%**	

Note: Analysis at the HS2 level. Source: UN Comtrade, retrieved from http://comtrade.un.org/ accessed January 2015.

To conclude, although the manufacturing sector was still small in terms of relative contribution to GDP and employment, there were encouraging signs in recent years. These included: positive growth of manufacturing value added, increased values and shares of FDI inflows targeting manufacturing, very good export performance, and an increasing number of smaller firms trying to enter the export sector, especially the regional one. At a disaggregated level, agro-processing industries and metal fabrication showed the highest dynamism. If one selects productive activities with existing capabilities and significant scope for downstream processing, four activities were of particular interest. One of Zambia's fastest growing and largest export

products, sugar, had significant potential for downstream processing into confectionery, beverages and other food products. This potential was however still unfulfilled and Zambia's food processing industry had not capitalised yet on its low cost of production of sugar. Cereals were among Zambia's top exports, but the growth of an export milling industry showed significant potential to upgrade and grow the industry. Animal feed and metal fabrication performed well in terms of exports and received significant levels of large and medium scale FDI, which pointed to significant room for growth in the regional market. In order to enhance its competitiveness across these product groups, Zambia needs to tackle well known constraints such as infrastructure and skills development.

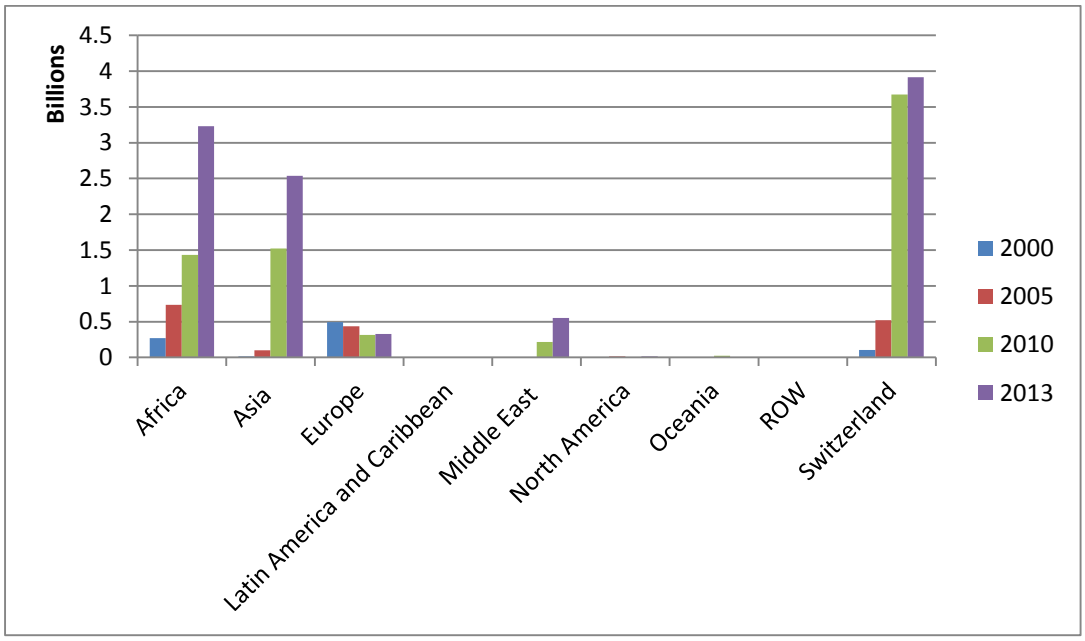
The next sections highlight three areas which could support Zambia's industrial strategy: allowing its firms to expand their regional markets and participate in integrated regional value chains; ensuring access to competitively priced inputs, and tapping into growing domestic demand structured around supermarket retail chains and mining companies' procurement.

5. The regional economy: markets, linkages and investment

Zambia's trade profile changed considerably during the last decade or so (Figure 3). Exports to African and Asian countries increased substantially, reaching US$ 3.2 billion and US$ 2.5 billion in 2013 respectively. Exports to Europe declined. Switzerland was plotted separately because of the disproportionate weight of non-fabricated copper exports formally directed to this country. Although major buyers were located in Switzerland, mirror data shows that China was the actual major importer of Zambian copper (World Bank, 2014a). Including Switzerland under Europe would mask Europe's decline as a destination market for both traditional and non-traditional exports.

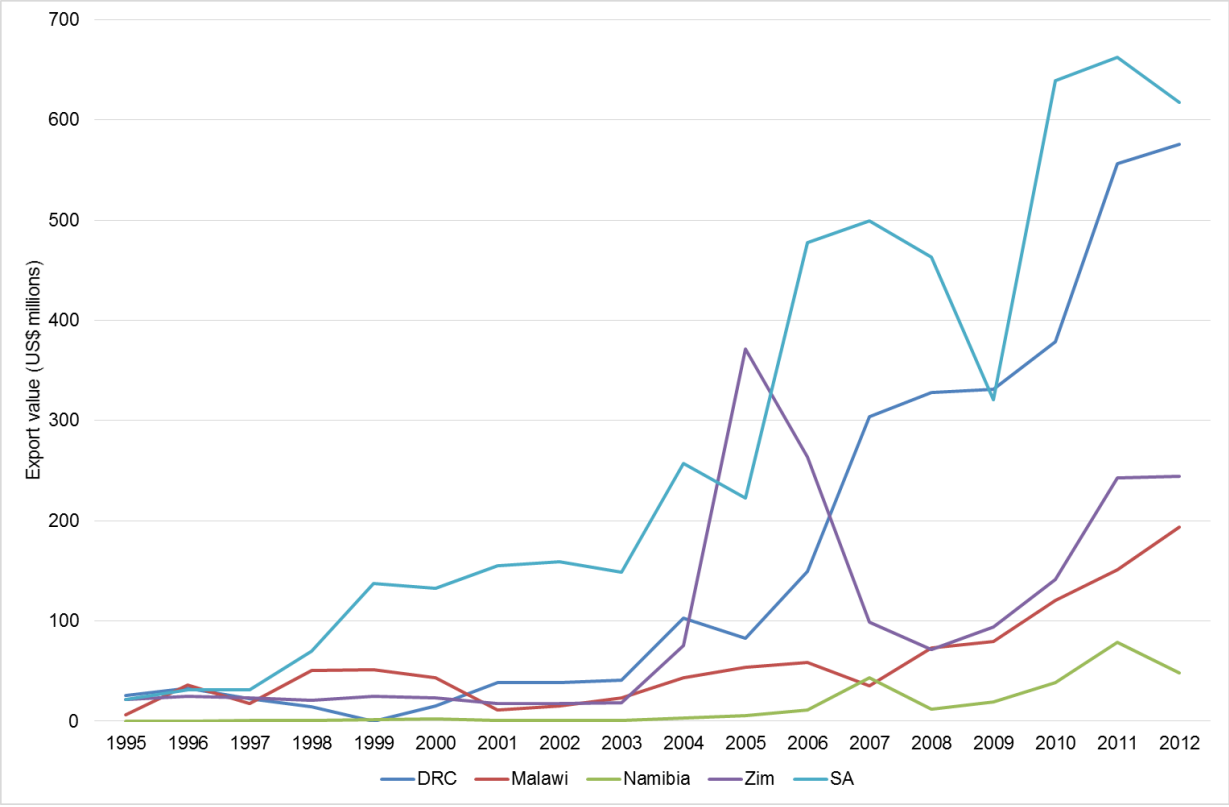
In particular, Zambia's exports to neighbouring countries increased substantially from 2005/6 onwards (Figure 4), especially due to a surge in exports to the DRC following the end of the civil war in that country (first elections in 2006), as well as the recovery in the global copper demand and price, which affected the economies of both the DRC and Zambia.

Figure 3: Zambia's total export, by destination market (selected years, US$ billion)



Source: UN Comtrade, retrieved from http://comtrade.un.org/, accessed January 2015.

Figure 4: Zambia's exports to the region



Source: UNCTADstat database, retrieved from http://unctadstat.unctad.org/ in May 2015.

As important as the growth in export values is the composition of such regional exports. These were overwhelmingly composed of value added products. The market for Zambian cement was 100% regional being a low cost, high volume product, with majority of the demand coming from the DRC mining sector (83% of Zambia's exports). Zambia exported cereal products such as breakfast cereals and biscuits to Malawi, DRC and Zimbabwe. Animal fodder was exported to Zimbabwe and South Africa; metal fabricated products to South Africa, Mozambique and Zimbabwe; and copper semi-fabricates, mainly copper wires, to South Africa and to a lesser extent Tanzania and Kenya.

Several factors explained why the regional market supported the expansion of Zambia's value added industries. Firstly, regional demand for processed foods and construction inputs showed significant growth because of rising urbanization rates and growing middle class consumption. Household consumption grew particularly fast in Tanzania, Mozambique and Zambia (World Bank Global Consumption Database). Although not rising as fast, South Africa's household consumption levels still dwarfed the region.

Food and beverages was the largest component of household consumption in the region, with the exception of South Africa (third after housing and transport) and Namibia (second after housing). Moreover, in Zambia, Namibia and South Africa, food and beverages consumption levels were higher in urban households than rural ones, which translated into high demand for processed foods.

At a domestic level, Zambia's fastest growing food imports consisted of fresh products (meat, fish, dairy), between 26% and 59% CAGR in 2000-2013, and processed foods (beverages, preparations of cereals, vegetables, fruits, meat and fish, cocoa products), between 18% and 33% CAGR. At a regional level, according to TradeMap data, SADC markets grew faster than the world average for a number of food products. Looking at sugar confectionery, in which Zambia could be competitive given its low cost production basis for sugar, world demand grew by an average of 8% per year during 2009-2013, but demand in Mozambique grew by 32% per year, Zimbabwe by 28%, DRC by 21%, Angola by 15% and South Africa by 14% (ITC Trademap Data). In particular, South Africa's growing trade deficit in processed foods (currently being met largely by deep sea imports) and constraints on increased agricultural production related to land and water opened a large market for countries like Zambia.

Not only was regional demand fast growing, but regional markets had characteristics that facilitated entry and supply by Zambian firms. Regional markets had lower entry barriers than overseas ones, through fewer information asymmetries, similar

consumer taste, lower industry standards, and/or access to marketing and distribution networks. Lastly, for some low value, high volume products such as cement, lower transportation costs conferred Zambia an important price advantage. The impact of regional trade agreements on the other hand was not straightforward: the DRC was the key export destination market and yet it was not party to the SADC FTA.

The region was also a source of FDI in Zambia's production capabilities. Two good examples were in the animal feed to poultry value chain and metal fabrication. As mentioned earlier, animal feed was one of the fastest growing non-traditional exports. This was due to a combination of high demand growth at domestic and regional level, and significant investment in production along the soybean to poultry value chain. South Africa's consumption grew own from 21.5 kg/per capita in 2000 to 36 kg/per capita in 2013 (DAFF, 2011; Esterhuizen, 2013). However, South Africa had a poultry trade deficit of 15-20% of demand, met largely by imports from Brazil and Europe. Other regional markets were also fast growing, although from a lower basis, for example Zambia and Mozambique saw a 20% CAGR in 2005-2012 (Technoserve, 2011; Poultry Association of Zambia, 2013). It was estimated that demand for poultry globally by those on median incomes would more than double over the next three decades and would shift from being mainly purchased from the live market to being sourced as processed fresh and frozen chicken from supermarkets (Aho, 2013). Demand for poultry products in turn drove demand for animal feed, mainly composed of soymeal and maize.

Zambia's poultry sector received significant investment from South Africa. Two vertically integrated firms, Rainbow and Astral, historically dominated South Africa's market (Grimbeek and Lekezwa, 2013). Both companies invested in Zambia, in vertically integrated operations involved in soybean farming, animal feed production, broiler and eggs production, processing, marketing and distribution (Sutton and Langmead, 2013). As a result, soybean production in Zambia increased threefold, from about 60 – 70 000t in 2010 to over 200 000t in 2013, while investments in crushing capacity ran ahead of production, standing at 400 000t per annum in 2014 (Takala-Greenish *et al.*, 2015). Since 2008, also thanks to an export ban on soybeans, animal feed producers moved into the export market (US$ 130 million in 2012). Concomitantly, Zambia's broiler production almost trebled from 2009 to 2012 (Bagopi *et al.*, 2014*)*.

Zambia could become a regional supplier of animal feed and, in the longer term, broiler meat. In 2014, South Africa imported 350 000t of soybeans from Argentina, at estimated landed price of around $500/t. Zambia's soybean producers were not price competitive: in 2011 the cost of production for commercial farmers in Zambia was US$

451 and US$ 398/t for farming on dry land and using irrigation respectively (Takala-Greenish *et al.*, 2015) while delivered prices were at import levels of around US$700/ton (Bagopi et al., 2014). However Zambeef, a South Africa-Zambia joint venture, reduced production costs to approximately US$300/t, including local transport costs. At these prices and with efficient regional transport costs Zambia could be competitive across the southern African region. This also requires cooperation between countries with strong national lobbies from feed mills and oil producers, and the removal of direct and indirect protection to domestic producers. In other words, building domestic production capabilities has to go hand in hand with regional cooperation on transport, trade policy and competition.

The contribution of steel and iron metal fabrication to Zambia's GDP increased in recent years, up to 20% in 2011 (Sutton and Langmead, 2013). There were around 40 formal firms, employing an estimated 2,000 to 6,000 people, and meeting 50% of domestic apparent consumption (Dinh, 2013; MCTI, 2012). These are mainly fabricators however, relying on imported steel largely from South Africa through local distributors or South African traders/merchants. Imported steel is expensive because of transportation costs and import duties but steel foundries relying on scrap steel (instead of virgin steel) had recently entered the market. New investment in metal fabrication was driven by a boom in the construction industry, with significant production of roofing sheets. African investors contributed significantly to increasing local production capabilities: El Sewedy Transformers (electrical transformers) is a partnership between an Egyptian company and ZESCO; TAP Zambia (corrugated steel sheets; pipes) are owned by Kenya's African Resource Group; MM Integrated Steel Mills (corrugated steel sheets) originated from Tanzania; Safintra Zambia (roofing sheets) and Scaw Metals (mill balls) are South African-owned (MCTI, 2012; Sutton and Langmead, 2013).

Looking beyond FDI, Zambian firms entered into various forms of non-equity relationships with regional firms. The mining capital equipment clusters in South Africa and Zambia provide an illustrative example (Fessehaie, 2015). Zambia was the most important export market for South Africa's equipment manufacturers. Over the years, they developed various arrangements with local supply firms in the Copperbelt. These included sole distributorship agreements and joint bidding for tenders from the mining companies. These inter-firm linkages are important to support local supplier competitiveness. However, these linkages were more important in terms of employment and skills development rather than joint product development, and technology transfer. One of the challenges for any policy aimed at upgrading firm competences in the Copperbelt will be to try to leverage off these linkages in order to promote sub-contracting and knowledge transfer opportunities.

The region could further support Zambia's industrial development by enabling access to larger markets, investment, and knowledge. Whilst the trade liberalization aspect of the SADC and COMESA FTAs is important, Zambia's industrialization strategy should focus on initiatives to maximize regional FDI, inter-firm linkages and knowledge transfer. Regional cooperation could be instrumental in building firm and sector level capabilities in Zambia.

6. Competition and industrial development

Small economies tend to be characterised by highly concentrated industries. High concentration makes it easier for dominant firms to abuse their market power in order to restrict competition and extract greater rents. This harms economic development through many channels. Firms can charge higher prices, offer less variety and lower the quality goods and services, which affects low-income groups disproportionally (Roberts *et al.*, 2014). Uncompetitive pricing of critical inputs in particular affects downstream users such as farmers, manufacturers, and service sectors. Incumbent firms with considerable market power will also have little incentive to invest in efficiency and improve product offerings because they can simply extract rents from their market position rather than their inventiveness (Roberts *et al.*, 2014). Monopolistic firms can further discourage investment downstream or upstream in the value chain because of the high risk of opportunistic behaviour by the monopolist in buying/selling its products (Venables and Collier, 2008).

The sugar industry contributed 3-4% of Zambia's GDP and employed 11 000 workers (Sutton and Langmead, 2013; ECIAfrica Consulting, 2013). Production and exports are largely controlled by one company, Zambia Sugar – part of South Africa's Illovo Sugar group.[9] Zambia Sugar produces around 380,000 tonnes of refined and unrefined sugar, 40% of which is sold to the domestic market. The company controls 90-95% of the domestic market, around 150,000 mt and is essentially a quasi-monopoly.

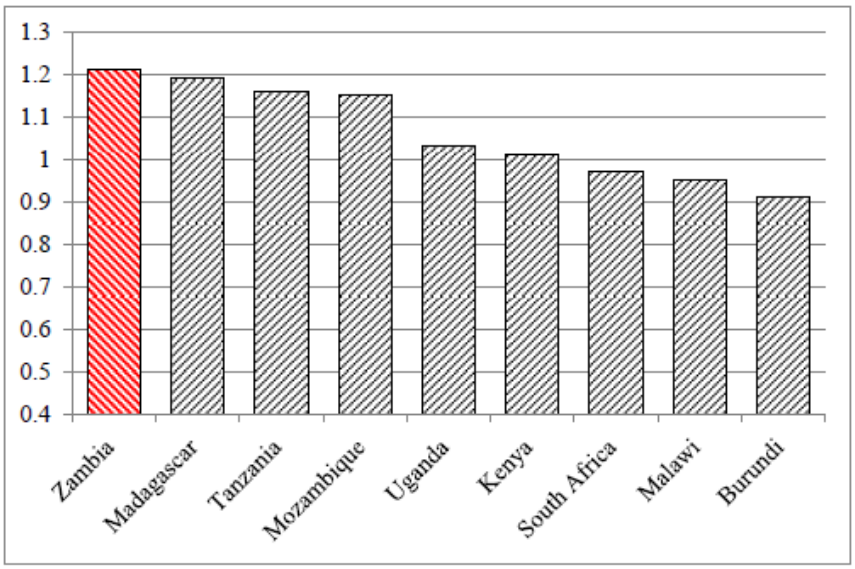
Whilst Zambia is one of the world's lowest cost production locations (at US$169/t vs. global average of US$263), domestic prices remain high (World Bank, 2014a) (Figure 5). As a result, the margins of Zambia Sugar are substantially higher than those of the

[9] http://www.illovosugar.co.za/About-us/Zambia, accessed in February 2015

South African operations of Illovo (its immediate parent).[10] The exercise of market power from Zambia Sugar is alleged to have raised prices for retail consumers and industrial users (Chisanga *et al.*, 2014; Ellis *et al.*, 2010; World Bank, 2014a). In addition to the natural protection afforded by transport costs, the Zambian market is protected from import competition through a domestic regulation which restricts imports of household sugar to vitamin A-fortified sugar and burdensome import licensing requirements (Interview with Zambia Association of Manufacturers, 2015).[11]

High inputs prices have constrained the development of competitive processed foods manufacturing such as sugar confectionery and beverages.[12] Indeed in 2006 downstream industrial users brought the matter to the Competition and Consumer Protection Commission of Zambia, which recommended the establishment of an import quota regime. This recommendation however was never implemented. Promoting new entry and reducing the barriers to entry for regional imports would lower sugar prices for downstream industries and support the long-term sustainability of the overall value chain.

Figure 5: Retail sugar prices in selected countries (2013)



Source: World Bank, 2014a

The animal feed to poultry value chain provides another example where industry upgrading and expansion has been curtailed by potential anti-competitive practices.

[10] This is the case even although Zambia Sugar had a number of costs which appear to be higher than would be expected of an efficient firm. See segmental analysis, p56, Illovo Annual Financial Statements, 2013. Zambia Sugar Annual Reports

[11] Note, however, that fortifying sugar adds only 0,01% to the production costs, and the requirement does not apply to industrial sugar.

[12] According to the Zambia Association of Manufacturers (ZAM), beverages producers faced sugar price increase of around 14% per year (Interview with ZAM, 14 October 2014).

Notwithstanding Zambia's competitive soybean production, animal feed prices until 2012 were in fact higher than in South Africa, as were the prices of breeding stock (day old chicks) and of frozen poultry meat (even after adjusting for brining) (Bagopi *et al.*, 2014). This was the result of limited competition between very large vertically integrated companies. The price of day-old chicks, required by broiler producers, inhibited independent firms from capitalising on the more competitive animal feed that resulted from growth in agricultural production and investment in feed production. Vertically integrated firms could self-supply, but if they maintain uncompetitive prices to independent broiler producers the industry's potential for broad-based growth is curtailed.

Other related markets are also characterised by high levels of concentration. For example, Zambia's milling industry is dominated by eight large scale millers. US-owned National Milling controls 25% and 30% of the flour and mealie meal market, respectively, and is the second largest animal feed producer (Company report, 2015; Sutton and Langmead, 2013).

In sugar, poultry and potentially a number of other industries, industrial development strategies needed to tackle potentially anti-competitive conduct of dominant firms involved in upstream production to ensure that cost advantages are fully exploited by downstream industries.

7. Linkage development strategies

Supermarkets and mining companies offer Zambia's manufacturing sector a growing source of domestic demand for a broad range of goods. Supermarkets, mainly from South Africa, play a growing role in the distribution of processed foods and light consumer goods. Pick n Pay entered the Zambian market in 2010, and plan to have 15 shops by 2015 employing 2000 people and an investment worth US$ 50 million (Pick n Pay, 2014). Shoprite entered the Zambian market in 1995 and has over 22 stores across Zambia, employing around 2500 people (Company report). Supermarkets cater for the rising middle class and urban consumers, but are rapidly spreading to rural areas too. The challenge for local food processors is two-fold. First, entering the supply chain of supermarkets requires meeting stringent requirements in terms of consistent quality, cost, consistent volumes, just-in-time supply, and meeting mandatory and private standards. Lack of local supply capabilities in these aspects has led to substantial imports from South Africa. For instance, in 2013, South Africa supplied 87.6% of prepared fruits and vegetables imports into Zambia, most likely for the supply to South African supermarkets. The second challenge is for suppliers to

upgrade into value added, differentiated products, to move into a more profitable market segment. South African supermarkets in Zambia are committing to increasing local content on their shelves, however, this appears to be largely for products with limited value-addition. For instance, Pick n Pay committed to 50% local content in 2011, which was already met for fruits and vegetables and certain manufactured products by 2014 (Pick n Pay, 2014). Only 25% was imported directly, however this share accounted for 80% of the range of products.

Participation and upgrading in the supermarkets' supply chains requires effective services and infrastructure in terms of packing houses[13], cold chains, shipping equipment, credit facilities, standards and certification processes etc. SADC countries have struggled to ensure that local suppliers to supermarkets are sufficiently competitive, for example through access to capital and technologies (Emonger and Kirsten, 2006; Weatherspoon and Reardon, 2003). In Zambia, some local firms have nonetheless been successful in supplying products such as detergents and mineral bottled water to supermarkets, having displaced South African competitors (Interviews, 2015). However, access to sufficient capital to expand and upgrade production, and quality assurance systems remain problematic (Sutton and Langmead, 2013).

The mining industry in Zambia invested very high levels of CAPEX to re-capitalise the mining assets and complete greenfield projects (for example Lumwana Mines). It is estimated that the mining sector's demand for goods and services would increase to up to US$ 4 billion per year until 2030 (Genesis Analytics, 2014). Zambia's mining inputs cluster has been characterised by a process of de-industrialisation in the 1990s, with declining levels of local value addition and the exit of most manufacturers from the mining supply chain (Fessehaie, 2012). Existing local manufacturers supply inputs such as metal, plastic and rubber products, and paints. The local supply chain has become increasingly populated by service providers. Whilst some of these provide value added services such as electrical and mechanical engineering services, most are pure traders which contribute very little in terms of value addition, technological innovation, employment and, often, taxation.

Understanding the procurement requirements by mining companies in the Copperbelt is important to design a supplier development strategy. As a global trend, mining companies are focusing heavily on reducing costs and increasing productivity (Fessehaie, 2015). Suppliers are expected to be cost and quality competitive, and to provide technical knowledge and efficient after-market services. Yet, Zambian

[13] With the ability to provide washing, packaging, labelling, bar-coding services.

suppliers' capabilities in this respect are hampered by factors such as outdated technologies, weak quality assurance mechanisms, lack of access to long-term capital, high production cost structures, real exchange rate appreciation, skills shortages, and an unstable policy environment (Kasanga, 2012; CMZ and ICMM, 2014).

A linkage development strategy could support local supply firms' upgrading processes, by providing access to customers, knowledge and support measures. The Zambia Mining Local Content Initiative (ZMLCI) adopted by the private sector and supported by government is a step in this direction. Such strategy should leverage on buyer - supplier cooperation, and design targeted government interventions. It should also take into account regional dynamics (Fessehaie, 2015). Firstly, improved access to the DRC Copperbelt would increase scale economies for local value added activities. Secondly, South Africa's mining inputs cluster is a regional hub in Southern Africa, with significant linkages to the Zambian Copperbelt. Potential cooperation between the two countries could target, among others, the facilitation of South African investment in value added activities in the Copperbelt, sub-contracting arrangements, skills development and technology transfer.

8. Conclusions

Although from a low basis, Zambia's manufacturing sector shows encouraging trends in terms of contribution to GDP growth, employment, FDI inflows, and export performance. In terms of the latter in particular, there are small but rapidly growing exports of processed goods such as animal fodder, milling products, and fabricated copper and steel products. These, together with potential for sugar confectionery and other sugar-based processed foods, have been identified as high potential manufacturing activities.

Underlying the positive trends in the manufacturing sector is growing domestic demand stimulated by the urban middle class and by the mining sector. The regional market is also found to play a major role in supporting this industrialisation process. Regional integration, competition and linkage development have been identified as three critical issues in designing a strategy to expand and upgrade existing processing capabilities.

The region is the largest destination market for Zambia's non-traditional exports such as sugar, animal fodder, cement, engineering products, milling products, fresh vegetables, and so forth. Moreover, this market offers growth opportunities to smaller sized, diversified exporting firms, which previous studies showed to be growing in

number, export markets, and products, although with low survival rates. In several products, the regional market is fast-growing and has lower entry barriers than overseas markets. The regional economy is a source of investment in Zambia's processing capabilities and a source of non-equity, inter-firm linkages with Zambian firms which contributed to varying degrees of local upgrading processes.

Regional integration efforts historically have mostly focused on establishing free trade agreements. Lowering tariff barriers to the regional market was important for Zambia, especially because regional trade agreements include provisions for the removal of less explicit market access barriers such as NTBs and trade facilitation issues, and for the harmonisation of technical standards and sanitary and phyto-sanitary measures. However, the growth of Zambian exporting firms into the DRC market shows that even in the absence of trade arrangements, or any formal trade for that matter, the regional market can offer more lucrative opportunities for Zambian firms than deep sea markets.

Regional cooperation on industrial development therefore would also be important. Whilst there are established regional frameworks such as the SADC Industrial Policy Development Framework and the COMESA-EAC-SADC Tripartite Industrial Development Pillar, Zambia could consider a scaled-down bilateral cooperation programme, focused on specific, achievable objectives within a limited timeframe, and, crucially, for specific high potential value chains.

Low levels of competition undermine the competitiveness of downstream activities. Competition policy should therefore be part and parcel of Zambia's industrial development strategy. In the absence of competitive discipline, entrenched dominant firms will likely focus their energies on protecting their position and their ability to continue to earn supra-competitive rents including through lobbying for protection and regulations that undermine smaller rivals and entrants. The difference between competitive and monopoly or cartel pricing differ from industry to industry and depend on market conditions, however, international studies typically find mark-ups of at least 15-25% and it is likely that mark-ups in Zambia would be even higher given the substantial transport costs and history of protection.[14]

Zambia's low cost production basis for cane sugar and soybean could make downstream processors competitive in the domestic and regional markets. Whilst this was being realised in the case of the animal feed industry where trade deficits turned into surpluses with increasing levels of regional exports, high sugar prices have hampered the competitiveness of a local sugar confectionary industry in particular,

[14] See Connor (2014) for a review of international studies and Roberts *et al.* (2014) for a review of cartels in southern Africa.

and other industrial users such as manufacturers of beverages, biscuits and bakery products in general.

Integration of regional markets has the potential to increase competitive rivalry, as scale economies mean that there are unlikely to be many producers in industrial products in any single country. The gains from integration where there is imperfect competition are much greater than the static gains from specialisation and exchange, as increased trade means more competitive outcomes (Baldwin and Venables, 1995). The distribution of the gains obviously depends on where the industries and consumers are located and there can be substantial first-mover advantages. This points to the need for a common understanding of the collective gains, including in supporting businesses across countries in the region while ensuring competition between them.

A case study of the opening up road transport across Zambia, Zimbabwe and South Africa is illustrative of such possible gains (Ncube et al., 2014). Harmonisation of licencing and regulations across the three countries substantially increased the ease of operation of regional trucking companies and reduced cross-border transport costs. While this meant an increased representation of Zimbabwean and South African registered trucking companies in Zambia it substantially lowered transport costs meaning higher returns to exports of copper and other goods such as animal feed. It was also found to have facilitated greater competition in fertilizer trading which reduced fertilizer prices by around 15% or $100-$150/t on prices of around $800/t in 2013, which made Zambian prices significantly lower than Malawian prices and almost on par with Tanzanian prices. This also came on the back of a cartel being uncovered in Zambia, which ran from 2007 to 2012 and the entry of the Export Trading Group which has grown its share of fertilizer markets in several African countries, and brought about greater price competition.

These examples illustrate the linkages between trade policy, transportation costs, and the strategic decisions of firms, and the need for further research in this area. Regional integration cannot be achieved where there are conflicting trade policies across countries, inefficiencies in transportation, and where strategic behaviour of firms undermine competitive rivalry across borders.

In this paper, linkage development has been looked at in the context of value chains into the mining sector and supermarkets. Supermarket retail chains are revolutionising the way consumers in urban and semi-urban areas shop for groceries and household items. The growth in supermarket outlets is remarkable, tapping into demand for processed foods and beverages driven by fast urbanisation and rising middle class. There is anecdotal evidence that local Zambian firms have managed to supply bulk commodities, but value added, branded products are largely imported from South

Africa and other deep sea sources. In mining, the increasing requirement for an established local presence, particularly for aftermarket services, provides an opportunity for mining supply firms. In the supply chains to mining companies and supermarkets, local suppliers can find an opportunity to upgrade and access larger, more demanding markets. Access to larger markets enables firms to grow and operate on better economies of scale. Higher standards enforced by these buyers force suppliers to upgrade their performance in terms of consistency of quality and volumes, price, lead times and standards compliance. In order to do so, firms invest in quality assurance processes, new equipment, and labour upskilling. Whilst entry barriers are high, therefore, participation into these supply chains support important upgrading processes.

Linkage development strategies to facilitate entry and competitiveness into the mining and supermarkets value chains require a combination of government and firm interventions. Government needs to tackle factors such as access to credit and a national quality assurance system. On the other hand, buyers in the mining and retail sectors have an important role to play in helping suppliers meeting their requirements through supply chain development initiatives.

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