



Draft – Strictly Not for Quotation

Fostering regional industrialisation through backward linkages from the extractive sector: the case of capital equipment sector in Mozambique and South Africa

By

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Introduction and rationale

- Crucial driver of national competitiveness is manufacturing development & its ability to multiply productive linkages within the economy.
- But growth in SADC largely driven by mining & other resource related activities with weak diversification towards manufacturing activities.
 - average MVA (% of GDP) in the region declined from 17.4% (1990) → 12.7% (2015) (WDI, 2018)
- Variations in manufacturing capabilities development within the region offers potential for intra-regional collaboration for regional industrialisation
- Both countries experiencing deindustrialisation with differing dynamics:
 - Mozambique's growth from capital-intensive mega projects → limited impact on rest of economy
 - South Africa experiencing early de-industrialisation with declines in sectors where country had established advanced capabilities
- Over past two decades, economic linkages between South Africa & Mozambique → centred on trade & investment relations with growing linkages around capital equipment & related products.
 - How can capabilities & competitiveness in capital equipment & related industries be maintained & further developed in both countries?

Approach and methodology

- Qualitative & quantitative data
- Secondary data:
 - analysis of trade data, sub-sectoral FDI, macroeconomic data, policy documents & company specific information
- Primary data:
 - administered through questionnaires & face-to-face interviews

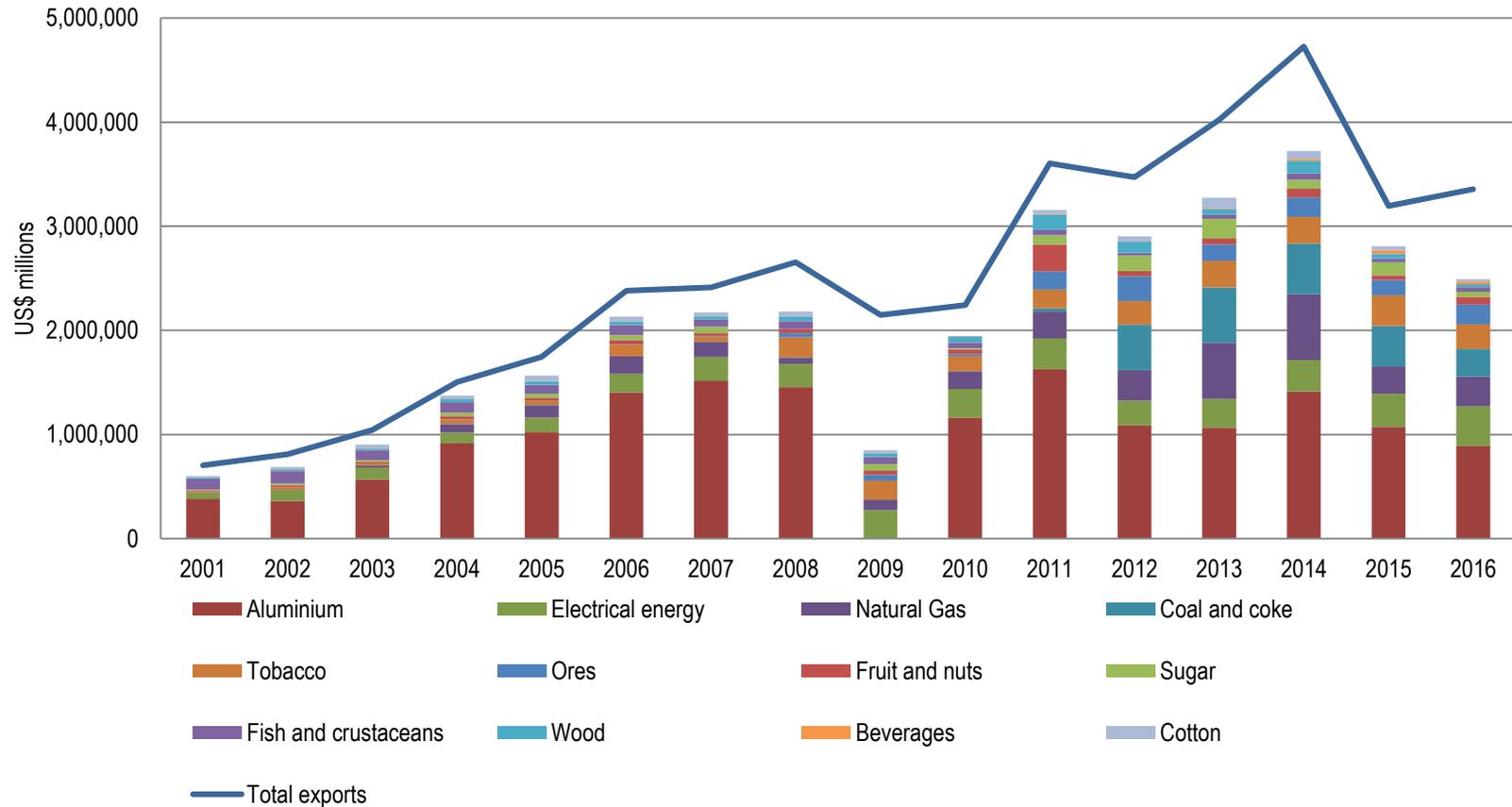
Interviews conducted

South Africa	Mozambique
<ul style="list-style-type: none">• Total: 11• South African/international firms• Department of trade and industry• Industrial Development Corporation• Export Councils (SACEEC and BEPEC)	<ul style="list-style-type: none">• Total: 18• Mega projects (Vale, Anadarko)• Mozambican firms• South African firms• Foreign firms• Private sector associations• Government institutions (DNI, IPEME, CPI, IFPLAC, Beleluane Industrial Park)• UNIDO• Independent vocational training institute

Industrial-led structural change and linkage-agency approach

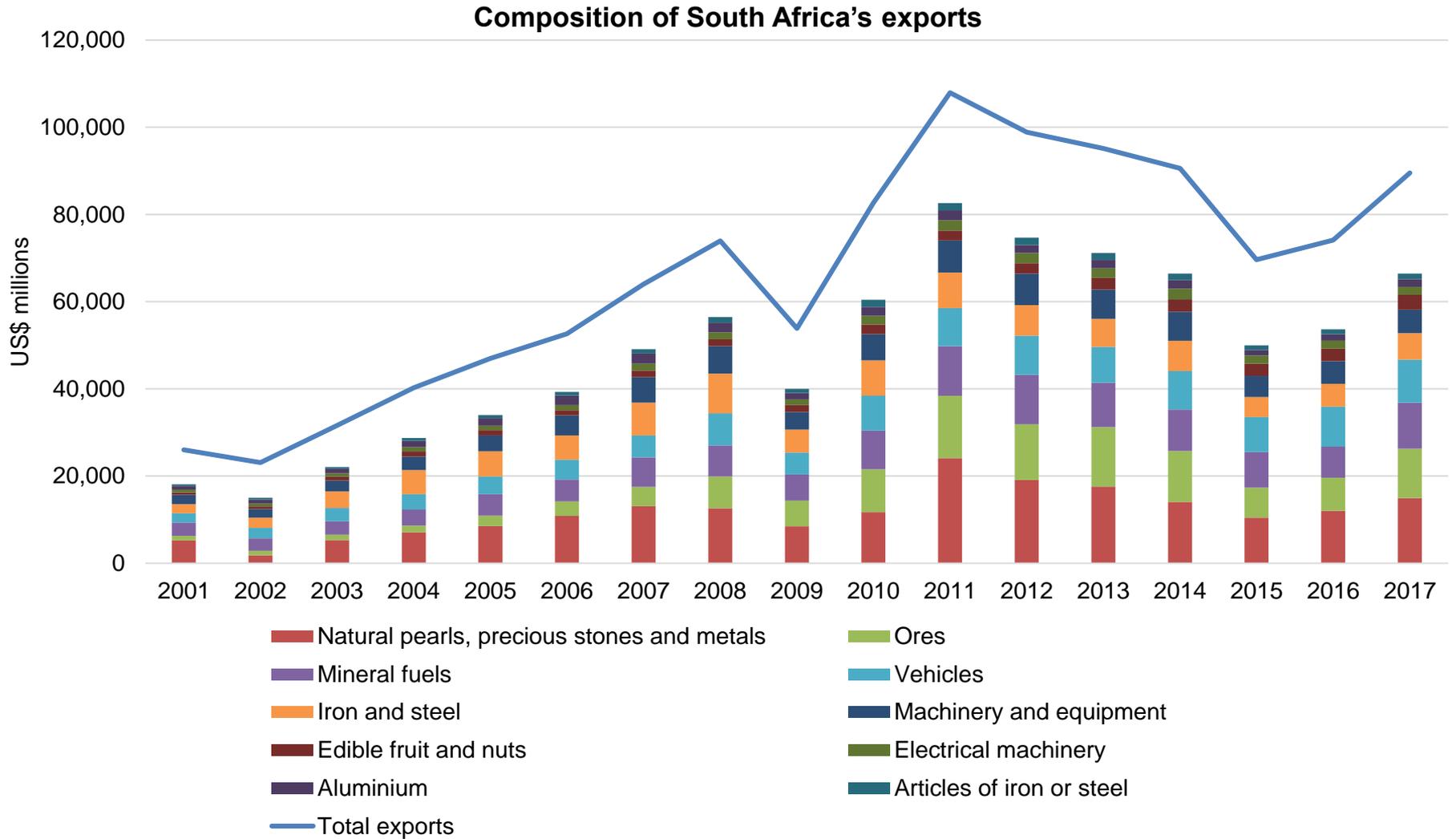
- Economic development is about building industrial competitiveness spearheaded by expansion of manufacturing:
 - the experience of both early & late industrialisers (Amsden 1989, 2001; Chang, 2002).
- Industrial development seen as a transformation of productive & technological structures:
 - Inter-sectoral transitioning (from low to high productivity sectors) and;
 - Intra-sectoral deepening (upgrading within a sector)
- At the core of economic development is diversification → often based on linkages towards sophisticated, higher productivity, higher value-added products
- Challenge for most African countries has been how to develop on basis of linkages to mineral wealth
- Some countries have been more successful in ensuring linkages materialise → tied to mechanisms employed, or agency
- Interplay between linkages & agency determines system of accumulation which shapes the structure of economy's

Mozambique's high dependence on natural-resource-based exports



Source: Trademap

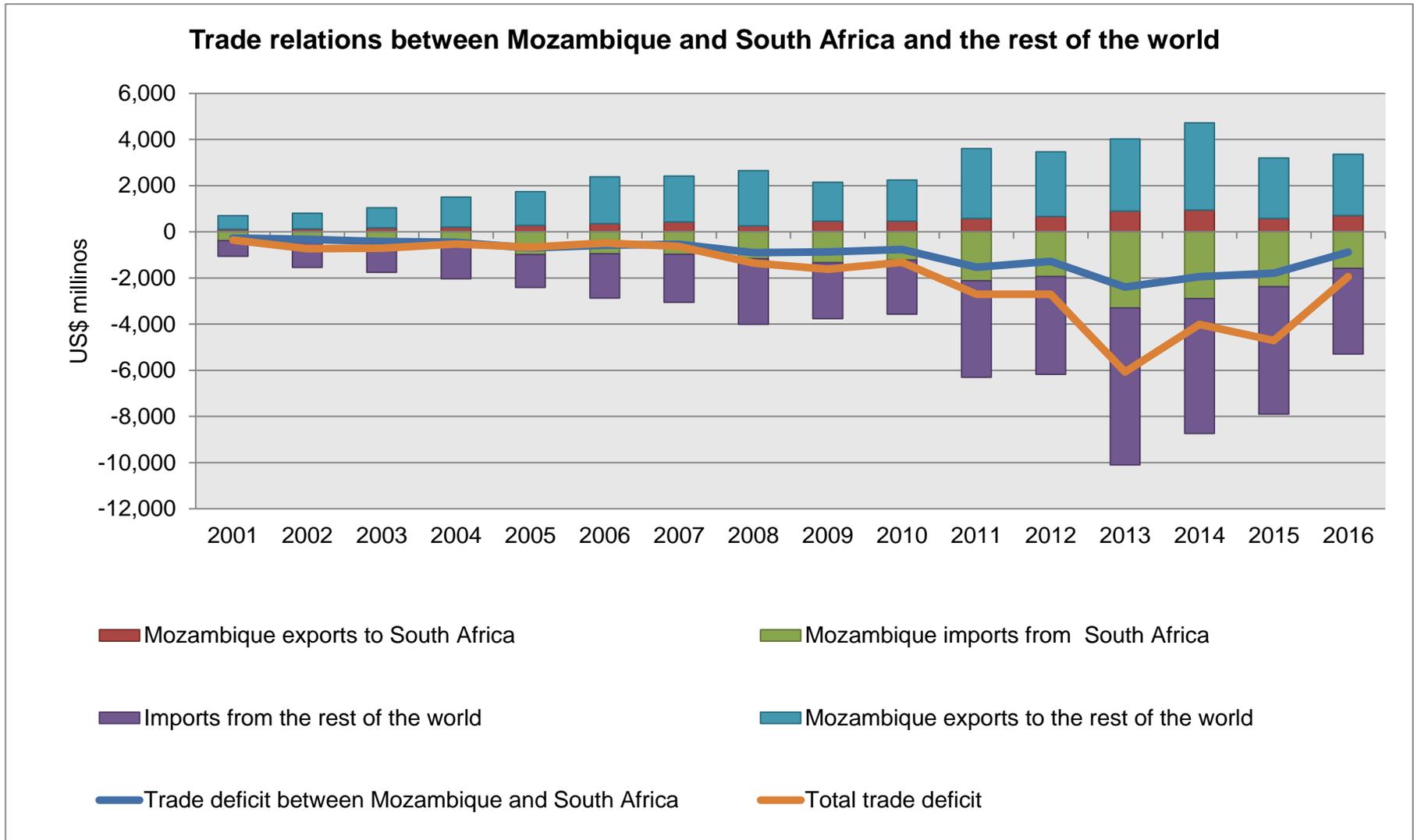
South Africa's export basket dominated by capital-intensive commodity industries



Source: Trademap

**Patterns of integration between South Africa and Mozambique:
Investment, trade and capabilities development**

Trade relations between the two countries characterised by trade deficit for Mozambique



South Africa's main exports to Mozambique comprised of capital equipment and related industries

		Values (US\$ millions)		Share in imports		Annual Growth Rate
		2002	2015	2002	2015	
Capital Equipment and related industries	Machinery, accessories and parts	39.5	442.4	9%	19%	25%
	Electrical machinery, equipment and parts	21.2	179.4	5%	8%	21%
	Metals	43.9	300.7	10%	13%	19%
	Food products	40.5	348.4	9%	15%	22%
	Electricity	30.7	178.4	7%	7%	17%
	Vehicles and parts	103.2	298.4	23%	13%	10%
	Total imports from South Africa	448.8	2,380	100%	100%	16%

Declining market shares suggest weaker backward linkages from Mozambique to South Africa

South Africa's market share in Mozambique's imports of capital equipment and related products

Product cluster	2001	2003	2005	2007	2009	2011	2013	2016	Average
Machinery and equipment	36%	37%	41%	46%	47%	37%	39%	36%	43%
Iron and steel	85%	84%	76%	76%	74%	72%	61%	60%	73%
Articles of iron and steel	60%	54%	60%	53%	58%	42%	44%	41%	54%

Source: Trademap

Capital equipment and related industries present an opportunity for collective development of capabilities

- Mozambique - weak productive & technological capabilities in industrial activities:
 - developing capabilities would enhance economy's FDI absorptive capacities by **expanding/deepening backward linkages & diversifying productive base**
- South Africa – previous success in building advanced capabilities in capital equipment
 - opportunity to **arrest decline & facilitate further diversification** to maintain & improve competitiveness of sector
- Capital equipment manufacturing & activities have strong **intra-industry & intra-sectoral linkages** to machinery, steel & iron, non-ferrous metals, chemical & plastic products; & even services
- Industry also characterised by **technological innovation**
- Mozambique's significant increase in imports of capital equipment means market for **aftermarket services** represent an opportunity for value added services & sophisticated, high quality maintenance & operating systems

Developing industrial competitiveness in capital equipment and related services: opportunities and challenges

Large and growing market for after sales & maintenance services

- Large and important market for after sales and maintenance services in capital equipment and related industries across large investments in several sectors in Mozambique, mainly in the extractive industries and their respective port and rail infrastructure;
 - There are increasing opportunities in the manufacturing and repair of spare parts, as well as electric and hydraulic components;
- After sales as the market where a majority of profit is generated and therefore sustaining capital equipment businesses;
- Maintenance and repair contracts (MARC) in particular, which are more long-term, represent an opportunity for continuous training and imparting of skills;

Examples:

- maintenance contracts with two megaprojects allowed a large foreign firm operating in Maputo province in Mozambique to develop internal capabilities to diversify activities into the manufacturing of spare parts, which now represent 40% of total income;
- Two Mozambican firms grew in size and capabilities by successfully linking with megaprojects

Large and growing market for after sales & maintenance services

Example: Backward linkages with Mozal: capital equipment and maintenance services

Sales and maintenance services of mobile equipment for the aluminium industry

Sales and maintenance services of hydraulic technologies

Conveyor belting, feeder and overhead crane maintenance

Anode Handling & Conveying

Boiler and refractory maintenance

Potshell repairs

Manufacturing of heavy metallic structures and repairs

Manufacturing of small tools for aluminium production

Plant engineering

Source: Elaborated by the authors based on interview data

Challenges in fostering backward linkages with the extractive sector in the capital equipment industry in Mozambique

- Few Mozambican firms operating in this industry as suppliers to large and megaprojects;
- Only capable of manufacturing relatively simple spare parts and providing maintenance and repair services;
- Rely entirely on the domestic market;
- Investments upgrading manufacturing capabilities to supply large FDI projects in Mozambique, particularly setting up workshops for production using specialised machineries, are mainly constrained by:
 - The size of the market,
 - The weakness of the domestic supply chain, particularly in terms of inputs, skilled labour and adequate industrial infrastructure;
 - The absence of development finance; and
 - Strategic coordination

Challenges in fostering backward linkages with the extractive sector in the capital equipment industry in Mozambique

The size of the market

- Shrinkage of the Mozambican industrial sector, increasingly concentrated around a few industries - mainly the extractive industries (which have high requirements in terms of technological capabilities), and also the sugar and beverages industries;
 - Opportunities to diversify markets and risks are reducing over time;
 - Decreasing demand for parts and services in Mozambique and increasingly limited to the reconditioning of components;
 - Large investments in upgrading capabilities become unfeasible for the individual firm as scale economies cannot be achieved;
 - Aggravating points:
 - Fall in commodity prices between 2014 and 2016 and the economic crisis;
 - Information asymmetries regarding existing market opportunities (absence of long-term procurement from the FDI megaprojects);

Challenges in fostering backward linkages with the extractive sector in the capital equipment industry in Mozambique

The domestic supply chain

- Imported equipment and inputs (steel and other metallic structures);
- Low incentives the development of a domestic market for inputs over the long-run as firms at the trade free zones in industrial parks can import all of their inputs off-duty;
- Unskilled or semi-skilled labour:
 - Persistent mismatch between formal professional training programs and market needs, leading to constant internal re-training of the workforce;
 - huge shortage of skills in machining of parts and hydraulic mechanics;
 - Need for coordination between public and private training institutions and industrial firms to address issues, including the certification of the workforce;
- Industrial infrastructure and facilities

Challenges in fostering backward linkages with the extractive sector in the capital equipment industry in Mozambique

Financing capability development

- Lack of sources of cheap and long-term finance for productive investments;
- Small Mozambican firms are not able to take part in large projects which would allow them to grow and develop capabilities due to high up-front commitments and long pay-back periods.

Strategic coordination between actors

- Dispersed initiatives to promote linkages, but with limited impact in terms of scope and scale; Not clear articulation with the implementation of the national industrial policy:
 - Subcontracting and Partnership Exchange program (SPX) (Government and UNIDO);
 - Institute for the Promotion of Small and Medium Enterprises database of suppliers;
 - The Confederation of Economic Associations initiative for information sharing;
 - FDI megaprojects initiatives often associated with CSR;
- Critical issues for industrial development such as the development of technological capabilities, skills upgrading and development finance are often missed out;

Competitive dynamics of South African firms

- South African firms have existing capacity and technological capabilities for local manufacturing;
- Deep sea import competition and the price of raw materials, causing firms to focus on quality, product customisation and flexible after sales;
 - Shift from conventional machines to the use of Computer Numerical Control (CNC) machines, which have enhanced workforce abilities and increased volumes of production;
 - Firms tend to continuously re-invest in skills and information technology systems, with R&D capabilities;
 - The majority have penetrated export markets, and Mozambique in particular (some with long-standing relationships with this market);
 - Some firms are globally competitive, exporting to overseas markets such as Australia and North and South America;

Current situation: the dominance of South African firms

Given this context, exposure to international competition means that Mozambican firms are uncompetitive:

- Main subcontractors of large FDI projects have been foreign, particularly South African firms (capabilities and historical relationships with some of the large investors in Mozambique such as BHP Billiton, Tongaat Hullett and Grindrod);

Categories of main buyers for firms interviewed according to their ownership

Main Buyers	Number of suppliers per firm ownership		
	South African	European	Mozambican
Megaprojects (Aluminium, Coal, Other Minerals)	10	3	5
Sugar Industries	2	-	2
Beverages Industries	1	1	2

Source: *Elaborated by the authors based on interview data*

- Eighteen years later, from the eight Mozal subcontractors for metallurgical and mechanical maintenance services established at the Beleluane industrial park free trade zone, only one firm is originally Mozambican;

Current situation: the dominance of South African firms

- Investments in manufacturing capabilities not economically feasible for Mozambican firms, for most South African firms it is cost-effective for manufacturing activities to remain located in South Africa;
- A lot of equipment still gets transported back to South Africa, especially because clients often require that the repairs are done by the OEM so not to void the equipment warranty;
- Megaprojects ability to access flexible and prompt repair services locally compromised and lead times are increased;

Local content for capabilities development

- The fear of accelerated premature deindustrialisation and import competition has given rise to strong debates around the need to ensure internal protection through measures such as localisation and preferential procurement strategies across many developing countries, including South Africa and Mozambique. Three issues emerge in this debate:
- Emergence of nationalistic measures without a regional perspective
 - Example: South African firms being excluded from directly supplying to FDI megaprojects;
- Industrial impact of local content policies: local value addition VS capital ownership
 - In South Africa: requirements tend to have a strong emphasis on ownership -- preferential procurement is awarded to black-owned importing firms, while local manufacturers without back ownership do not benefit;
- Targeting and enforceability
 - In Mozambique: Local content legislation will focus on local content, but enforceability capabilities are weak as the legislation will be applied to all sectors;

Conclusions and policy implications

- The study shows that leveraging natural resources for industrial transformation of the economy requires strategically coordinated state intervention through industrial policy to generate effective incentives to develop productive capabilities, particularly by supporting markets for inputs, development finance and institutional capacity;
- In a context of significant differences in terms of manufacturing capabilities, regional integration based on expanded markets reproduce the underdeveloped productive structures in the weaker economies and the regional dependency on the South African economy;
- Regional integration debates have to take greater consideration of the need for developing manufacturing capabilities across the region;
- A crucial point emerging is a need for a discussion of what a meaningful partnership for a Mozambican firm is and how to translate this into effective conditionalities for productive partnerships with FDI investments in Mozambique;

Conclusions and policy implications

- Whether cooperation is feasible between Mozambican and South African firms depends on political economy factors affecting the pressures and interests acting upon both states. Nevertheless, the evidence at the moment shows that:
 - Mozambique's mode of accumulation is dependent on foreign influxes of capital and historically the country has been unable of imposing conditionalities on FDI;
 - The current pattern of integration benefits the South Africa economy, creating very low incentives for seeking collaboration:
 - Lack of structured collaboration between Mozambique and South Africa in the capital equipment sector, except for general trade missions;
 - South Africa-based firms were the major beneficiaries of the partnerships established with Mozambican to supply Mozal during its first years, with very limited impact in terms of technological transfer, financial gains and access to the Mozal market for Mozambican firms;
 - The Industrial Development Cooperation (a South African development bank) has not fully engaged with the region, although very active domestically;

Thank you

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