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COMPETITION, PRODUCTIVE CAPABILITIES AND STRUCTURAL TRANSFORMATION IN SOUTH AFRICA

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Abstract

Competition law has been promoted across developing countries as part of a market liberalisation package which is premised on a neo-classical model of competition, privileging static allocative efficiency and largely ignoring production. This article critiques this approach through an assessment of its application in South Africa where substantial weight was given to competition law. Building on the critical assessment, the article proposes an alternative framework based on the conception of 'optimal competition' of Amsden and Singh (1994). It does this through assessing the relationship between competitive rivalry, productive investment and the development of capabilities in two key industry groupings in South Africa, metals and machinery, and plastics and chemicals. We argue that the failure to develop diversified production capabilities in South Africa reflects the entrenched incumbent firm advantages and the lack of a coordinated policy agenda which proceeds from a recognition of economic power and the need to reshape markets to alter competitive rivalry. An optimal competition framework allows analysis of dynamic rivalry and capabilities development.

Key words: competition; capabilities; structural transformation; industrial development

1. Optimal competition and productive capabilities

Competition law has been promoted across developing countries as part of a market liberalisation package which is premised on static allocative efficiency and largely ignores production. This market fundamentalist conceptualisation of competition privileges exchange and does not address the role of competitive rivalry in the process of accumulating capabilities to raise productivity. It further ignores how path dependency and market conditions such as the size of the economy, concentration levels and extent of barriers to entry, themselves shape competitive outcomes (Gal, 2002; Roberts, 2013). The neo-classical framework assumes that anticompetitive conduct such as cartels are a distortion to otherwise well-functioning markets when, in reality, entrenched market power and strategic interactions between firms are intrinsic features of market economies. Notwithstanding all the developments in economic theory which focus on strategic interactions of firms in oligopolistic markets, the dominant conceptualisation of competition continues to be largely based on the perfect competition benchmark, with assumptions of constant returns to scale, homogenous products and complete information (see Blaug, 2001, and Budzinski, 2008, for a full discussion of the different theories).

A focus on production (rather than exchange) requires understanding competitive rivalry in terms of whether it stimulates or undermines investments by firms to build capabilities for technological progress, and engage in learning by doing and development of new products (Singh, 2016). Indeed, the countries that have succeeded in closing the technology gap have done so with public support for learning efforts, including conditional support (usually time bound or based on performance) that can be withdrawn if the conditions are not met (Khan, 2015). The market fundamentalist approach which relegates government to addressing market failures is at odds with this experience. Instead, we argue that there is a need to develop and employ a conception of 'optimal competition' (following Amsden and Singh, 1994; Singh, 2016) to interpret patterns of structural transformation.

Optimal competition implies sufficient competitive rivalry to reduce inefficiency within large companies and discipline the exercise of market power, while spurring investment and innovation (Amsden and Singh, 1994). As such, it embodies a balance of interests consistent with maximizing the long-term rate of industrial growth, taking into account achieving economies of scale, enhanced efficiency, optimal use of scarce resources, international competitiveness and productivity (Amsden and Singh, 1994). These goals require different levels of competition, and combinations of cooperation and competition, which are related to the stage of industrial development, the world configuration of industries, the context of the economy in question and the role of the state (Chakravarty and Singh, 1988).

The right balance will differ from country to country. Comparative studies show that there was a greater intensity of competition observed in Taiwan than South Korea during their high growth phases, however, there was broadly similar performance in terms of long-term economic growth (Aw et al, 2003). The lower levels of competition in Korea were compensated by the vigorous industrial policy and the nature of the relationships (the reciprocal control mechanisms over rents) between government and business (Singh, 2003; Amsden, 1989).

Government's role is to foster conditions for the development of dynamic comparative advantages, constructing competitive assets rather than creating perfect markets (Amsden, 1989). It means pursuing industrial policy goals using appropriate competition policy for the

stage of development. The theory of dynamic comparative advantage means changing the set of productive capabilities and not focusing narrowly just on competition between existing businesses. For instance, infant industry measures support new industries even while involving short-term protection from international competition for a limited period and accompanied by conditionalities to ensure investment in capabilities and international competitiveness (Okimoto, 1990; Amsden, 1989).

Building on the concept of optimal competition requires examining the questions of competitive rivalry and capabilities in specific developing economies. South Africa is a useful case study as successive post-apartheid governments placed competition law at the centre of economic reforms alongside widespread liberalisation of international trade, together with industrial policies (Black and Roberts, 2009). However, like other middle-income countries, South Africa has struggled to diversify its economy and structurally transform, while markets remain concentrated (Buthelezi et al. 2019; Bell et al, 2018).

The article advances our understanding of optimal competition and the development of productive capabilities, through the South African case study, with two key areas of focus.

First, we examine how earlier policy choices have entrenched market power in a number of industries, , and the record of competition law enforcement in attempting to address this power. We assess how the incumbents lobbied for rules and regulations in their favour. Entrenched dominant firms which are protected from rivals lack an important spur to invest, innovate and improve productivity (Mathis and Sand-Zantman, 2014; Arrow, 1962; Bloom et al., 2019). A critical consideration in this regard is the interaction of industrial policy and competition, with regard to: path dependency and the power of entrenched incumbents; the ability of the state to coordinate policy across different departments; and, the impact of global value chains and the changing internationalized nature of large businesses on domestic industries.

Second, competitive rivalry is generally considered in horizontal terms, however, competitive outcomes in one level of the value chain can impact the development of whole sectors through vertical linkages, which can promote or undermine structural transformation (Lee et al, 2018). We argue that it is critical to understand the orientation of large firms over multiple vertical levels of production, impacting on capabilities in downstream industries, including the innovation and investment levels of smaller local firms. Technological changes in firms do not take place in isolation but rather through an array of interdependent processes and structures, both internally and externally driven. Production and technological upgrading depend on complementary changes in a firm's environment including various arrangements between firms which lie between the extremes of arms-length market exchange and full vertical integration (Dallas et al, 2019).

After an overview of the record on structural transformation and industrial development in South Africa in section 2, in section 3 we analyse two major industries at the heart of manufacturing – metals and machinery and plastics – to assess the relationship between competitive rivalry, productive investment and the development of capabilities in more depth. In doing so, we critique the dominant paradigm of competition and, in section 4, build on an alternative conception of dynamic rivalry and industrial development, bringing production back-in to competition.

2. Competition, capability development and structural transformation in South Africa

South Africa's challenges of structural transformation

Similar to many other developing economies South Africa adopted far-reaching market-oriented reforms in the 1990s. While other developing countries such as Brazil and Malaysia continued to pursue industrial policies centred around the accumulation of technological capabilities, South Africa placed more faith in liberalised markets (Andreoni and Tregenna, 2018).

The extensive liberalisation of goods, services and capital markets since the early 1990s increased and changed the nature of international integration of the economy. Alongside the increased importance of international trade there was a massive growth in portfolio and direct capital flows, and in foreign ownership on the Johannesburg Stock Exchange. The changes in internationalisation have not, however, been accompanied by a more dynamic economy. Instead, economic growth and productivity have been poor, with little diversification (Bell et al., 2018). Resource-based industries continue to dominate merchandise exports, accounting for around 60% in 2018, down from just over 70% in 1994 (see Bell et al, 2018, for details).

The failure to develop advanced capabilities in diversified industries has been termed a 'middle-income trap', reflecting the challenges countries have experienced in moving from industries based on cost competitiveness to ones based on technological capabilities (Lee, 2015). South Africa has performed poorly in terms of diversification even when compared with other upper-middle income countries and, on some measures, it has prematurely deindustrialised (Andreoni and Tregenna, 2018; Bell et al, 2018). South African industry value-added grew at a compound average annual growth rate of just 1.4% over the period from 1994 to 2018 while GDP grew at 2.7%. This contrasts with the average for all upper-middle income countries which recorded an average industry value-added growth of 5.2%, leading GDP growth of 4.9%.[1] Investment levels have been much weaker in South Africa than upper-middle income averages, and efforts to improve skills have had limited success.[2] The contribution of manufacturing to GDP in South Africa declined from 21% in 1994 to 14% in 2018.

Moreover, within manufacturing there has been a structural regression in South Africa as growth in value-added has continued to be biased towards mineral and resource-based sectors, as described in more detail below. South Africa is thus missing out on the gains from international integration from improved competitiveness and 'learning through exporting' in diversified manufacturing industries. Instead, there are 'islands' of export capabilities, such as in mining machinery, which have not been built upon. While the auto sector – which has been highly incentivised under successive industrial policies – stands out in terms of the value of exports, these have been limited to fully assembled vehicles and a narrow range of components (Black et al. 2018).

FromAt the outset of democracy, South Africa's industrial structure was identified as posing a challenge for achieving economic development (Joffe et al., 1995). The levels of concentration were found to be undermining productive efficiencies, as oligopolistic markets tended to lead to collusive arrangements and ubiquitous vertical integration undermined the growth of small and medium enterprises (Joffe, 1995:135).

The post-apartheid economic policy from 1994 focused on removing apartheid regulations on markets as part of the process of democratisation, replacing them with independent institutions

(such as the competition authorities) as the referees of liberalised markets. Industrial policies were initially focused on supply-side measures such as skills and investment incentives (Machaka and Roberts, 2003; Black and Roberts, 2009). An overarching National Industrial Policy Framework was introduced in 2007 under which market power issues were identified as the realm of the competition authorities.

The economy has remained highly concentrated and profits have been sustained even while investment has been weak (Buthelezi et al, 2019; Bell et al., 2018). Domestic mark-ups have also been found to be unresponsive to trade pressure, particularly in some upstream sectors of manufacturing where there has been market power and persistent rent-capture (Driver, 2019). These outcomes are in spite of the competition authorities vigorously pursuing cartel enforcement (Muzata et al, 2017; Vilakazi et al, 2020). They have been less effective in addressing unilateral abuses of dominance (Roberts, 2020).

The relationship between capabilities and competition is one important aspect in understanding the patterns of structural transformation. The exertion of market power by firms appears to have undermined the ability of the economy to leverage forward and backward linkages as part of broadening the industrial base. To assess why this is the case, we analyse two important broad industry groupings in more detail, first locating their performance within manufacturing before the in-depth analysis of competition and capabilities in the industries in section 3.

Overview of selected manufacturing industries

Within manufacturing, a small grouping of basic heavy industries consisting of refineries, basic and other chemicals and basic metals accounted for 25% of manufacturing output and 47% of manufacturing exports in 1994 (Table 1). Given the levels of concentration in these sectors, this is effectively due to just a handful of companies. Aside from non-ferrous metals, these industries have all grown more rapidly than manufacturing as a whole and, apart from other chemicals, recorded high average rates of investment. Other diversified manufacturing sectors, including the downstream activities of manufacture of plastic and metal products, generally performed more poorly than the average with the notable exception of motor vehicles (Tregenna, 2012; Black and Hasson, 2016; Bell et al, 2018).

[Table 1 here]

The trade liberalisation in the 1990s did lead to the expected increases in import penetration for most sectors (see also Roberts, 2000; Black and Roberts, 2009). Yet, in basic chemicals, other chemicals, and basic ferrous metals the relative importance of imports in meeting domestic demand was actually lower in 2018 than in 1994 (Table 1). Import penetration increased substantially for downstream plastic products, metal products and other diversified manufacturing. Machinery & equipment already had very high rates of import penetration in 1994, which increased still further while exports also grew substantially.

The apartheid state's industrialisation strategy focused on heavy industry with linkages into mining and energy. Steel was a key pillar and, as a result, the basic metals industries received favourable electricity tariffs, logistics support and investments aimed at promoting competitiveness. Machinery and structural steel were key intermediate capital inputs to mining and the development of the sector up to 1994 was a reflection of the priorities and power of

the apartheid state. The main state-owned steel business Iscor was privatized in 1989 as an effective monopolist of flat steel products and the single largest producer of long products.

A second important pillar was petrochemicals, which was centred around Sasol, the state-owned producer of liquid fuels from coal and later natural gas. Sasol also produced fertiliser and explosives, key inputs to agriculture and mining, respectively, and a range of other intermediate industrial chemical inputs including monomers and polymers for plastic products manufacture. Sasol was privatized between 1979 and 1983 although very close ties to the apartheid state were maintained through the 1980s (Mondliwa and Roberts, 2019).

In the post-apartheid period, Iscor and Sasol both internationalised although in quite different ways. Iscor was acquired by a major multinational and became part of the ArcelorMittal group (Zalk, 2017). Sasol outwardly internationalised with a dual listing in New York in 2003, a major USA investment, as well as other investments and acquisitions. In contrast with Iscor, Sasol has maintained and even increased its vertical integration upstream into its feedstocks. This involves substantial ownership of its own coal mines and the rights to gas from Mozambique, along with the pipeline infrastructure for it to be transported to Secunda. It has also been able to acquire key chemical businesses from its competitors including AECI's polymer business, though acquisitions in the fuel industry have been blocked by the competition authorities.

The basic metals and basic chemicals sectors continued to receive substantial support in the 1990s, including development finance, as part of the firms' steps to improve production efficiencies and be internationally competitive in liberalised markets (Roberts and Rustomjee, 2009; Rustomjee et al., 2018). Iscor continued to dominate the upstream steel industry, together with Highveld Steel and Scaw Metals (which manufactured thick steel plate and structural steel products), both owned by Anglo-American. Iscor and the Anglo-American companies also had joint shareholdings in a number of related companies in the sector reflecting the historically close integration of the state, with big business.

3. Competition and capabilities in key South African industries

Metals and machinery value chains

Industrial policy and capability development

Globally, upstream basic metals industries have been considered strategically important for industrialisation as producers of key inputs into a number of downstream industries, including metal products and machinery (as well as arms manufacture). This recognises the importance of vertical linkages and the wide usage of steel as an intermediate product. In South Africa, however, capability accumulation and linkages have been undermined.

The privatisation (in 1989) and internationalisation of Iscor (in the early 2000s) in the absence of effective conditionalities reduced the firm's incentive to invest in capabilities, leading to the fragementation of the value chain. The large and lumpy investments required for primary steel production and the state support to the sector around the world have also meant that there are major price cycles that provide challenges for smaller open developing countries such as South Africa. To counter this, Iscorreceived substantial state support, which continued in the 1990s in order to invest and improve production efficiencies (Roberts and Rustomjee, 2009; Rustomjee et al., 2018). This support included government brokered iron ore prices at cost plus a 3% management fee (agreed when the mining operations had been separated from

steel-making in the 1990s), low energy prices and industrial finance. At the same time, the support entrenched Iscor's position in the domestic market.

Under state ownership, Iscor had produced a wide range of steel grades aimed at meeting domestic needs and prices were set on a cost-plus basis (Roberts and Rustomjee, 2009). In the 1990s Iscor was the subject of a major government-sponsored restructuring strategy resulting in its acquisition by Mittal Steel, subsequently becoming part of the ArcelorMittal group to become ArcelorMittal South Africa (AMSA) (Roberts and Rustomjee, 2009; Rustomjee et al., 2018). With privatization and internationalisation, Iscor/AMSA sharply reduced its range of products and cut costs while increasing domestic prices to the full import parity levels. The import parity prices[3] were as much as 50-100% above the prices it received for roughly half of its production which is exported (Roberts, 2008). This was despite its plants being in the lowest quartile of all plants in the world in terms of production costs at the time (Roberts, 2008). Thus, despite input cost advantages related to a government brokered iron ore price deal (priced at cost plus 3%) and cheap electricity, AMSA pursued a dual-pricing system, charging domestic consumers much more than what it was able to receive on its exports. AMSA also did not make the necessary investments to improve product quality as required by the downstream industries (Rustomjee et al., 2018). This has undermined the development of capabilities at the downstream level.

On the back of higher commodity prices in the 2000s, steel exports boomed until 2008 (Figure 1). However, in these years the upstream industry advantages did not flow through to downstream industries using steel as a key input. That is, reciprocal measures to ensure that the benefits of support were passed on to downstream sectors were weak or unenforced.
[Figure 1 here]
The mechanisms that were pursued to align AMSA's incentives to the country's economic goal of improving the competitiveness of downstream steel industries were incompatible with the state capabilities. The developmental steel pricing which AMSA had agreed to in principle on initially acquiring control, was undermined as it was not explicitly agreed prior to the transfer of control (Roberts and Rustomjee, 2009). Competition law enforcement extended over a decade and failed to constrain the unilateral exertion of market power by AMSA, which undermined the cost competitiveness of downstream industries. Further, mineral licence conditions of non-price discrimination between local and export customers of minerals and derived products were not enforced due to poor coordination between government departments and the strength of the upstream interests.

The kind of internationalisation that occurred came with its own consequences. The global ArcelorMittal group did not prioritize the local South African operations as far as building capabilities were concerned. Under the business assistance agreement and thereafter, there was a significant outflow of funds from AMSA to its shareholders, even in the face of rising inefficiencies. Between 2001 and 2015 the recorded flow of funds out of AMSA to its shareholders including the parent company amounted to R21.8 billion (Zalk, 2017). International ownership did not lead to the building of technology and capabilities which had been expected and AMSA instead took a short-term view of extracting profits.

The impact of the market liberalisation coupled with the relatively strong currency in the commodity boom of the 2000s had a major impact on downstream industries reflected in rising import penetration in highly tradeable machinery and equipment (Figure 1). This was compounded by the lack of effective measures to help build capabilities. While South Africa

had significant capabilities in the mining machinery and equipment segment, industrial policy post-apartheid failed to implement policies to assist firms to build on these capabilities, including appropriate financing, technology support, skills development, and energy-pricing (Rustomjee et al., 2018).

The 2008 global financial crisis once more resulted in a decline in steel prices leading to poorer performance of the basic metals, and the continued poor performance of the machinery and equipment sector. The further slump in prices in 2015/16 led to a negotiated agreement, an attempt at balancing competition and industrial policy: in exchange for a settlement of all unresolved competition related matters, a policy directive that only South African steel be utilised in publicly-funded infrastructure projects, and tariff protection, AMSA committed to broad pricing terms for local customers and local investment. Local buyers face the impact of the tariffs on their inputs while it remains to be seen whether commitments made by AMSA to support downstream product development are meaningful. This has also been accompanied by further consolidation. Of the other primary producers, Highveld Steel went under, with some parts being acquired by AMSA, while Scaw Metals struggled to survive and closed major operations before being acquired by another local business.

Competition and corporate power?

In terms of competition law, there were a large number of competition cases involving the upstream steel industry since the Competition Act came into effect in 1999. These provide insights into the ineffectiveness of competition law as a mechanism to discipline rents when there is entrenched market power.
First, the acquisitions by transnational corporationss and consolidation through mergers required approval by the competition authorities. While questions were raised about the strategies to be followed by Mittal on its acquisition of Iscor and then Saldanha Steel, Iscor was already effectively a local monopoly producer of most flat steel products and so the mergers did not substantially lessen competition and thus there no grounds to place condititions on the approval (Roberts and Rustomjee, 2009)

Second, there has been successful enforcement of competition law relating to long steel cartels in various levels of the upstream part of the value chain where there were more than one supplier (Das Nair, Mondliwa and Roberts, 2015; Roberts, 2020). These cartels led to higher prices for downstream industries, as much as 31 percent and 34 percent above competitive levels for the reinforcing steel bar price-fixing cartel (Mondliwa and Das Nair, 2019). The cases taken together indicate an ingrained culture of communication to manage markets which is unsurprising given the industry history and the close-knit circles at management and technical levels. The issue is that while cartels typically undermine incentives to improve capabilities as firms can simply extract rents, the end of a cartel does not mean dynamic rivalry automatically ensues. Rather, firms may simply find other ways to continue to coordinate without being caught.

Third, there have been a series of cases relating to the unilateral exertion of market power by AMSA. These include cases relating to AMSA's pricing to local customers at import parity levels while charging substantially lower prices to export customers. In the first case, a customer complained that AMSA abused its dominance by charging excessive prices at import parity for flat steel, despite the fact that a very large proportion of total production was exported and there were low input prices. The case was lost on appeal, with the Competition Appeal

Court (CAC) deciding that the economic value (competitive benchmark prices) needed to reflect a 'long-run competitive equilibrium'. This has been interpreted as a price necessary to reward capital investment as if made by a greenfield entrant and not taking into account benefits from historic state support (Roberts, 2008; Das Nair and Mondliwa, 2017). A subsequent case of excessive pricing was brought and later settled without an admission by AMSA, as part of the 2015/16 deal with government for increased tariffs and other support measures.

The cases highlight the implication of adopting a static neo-classical microeconomic framework biased towards allocative efficiency which effectively assumes that competition will arise in the absence of constraints. It does not take into account the intrinsic concentration given scale economies, the incremental nature of capability building and the historical role of state support to underpin the large investments required which also means entrenching firms' dominant positions. In these conditions, competition is not promoted through competition law enforcement.

Competition and vertical linkages in the plastics industry

Industrial policy and capability development

The manufacture of plastic products requires bringing together a set of production and organisational capabilities as well as basic conditions such as competitively priced inputs (raw materials and utilities), access to finance and the ability to source appropriate machinery and moulds (Mondliwa, 2018). This requires linkages through the value chain to support investments in areas such as the chemical composition of materials and design of moulded products.

The plastics industry performed reasonably well in the initial period of market liberalisation, with output growth in-line with other diversified manufacturing production up until 2002 (Figure 2). The local industry competed effectively against imports and indeed the import penetration ratio fell below 7% in 2001. However, 2002 marked a turning point and the performance of the downstream plastics sector lagged that of other diversified manufacturing industries from this point, with a marked decline in competitiveness and import penetration increasing to 17% in 2018 (Figure 2). Given that around half of the industry is in packaging (and practically non-traded) this represents a much greater import penetration of the traded segments of plastics products (Mondliwa and Roberts, 2019). The turning point around 2002 reflects a break in the linkages between upstream and downstream industries as well as an absence of appropriate policies. The upstream refineries and basic chemicals industries recorded strong overall performance and investment, while investment rates in downstream plastic products manufacture have been relatively low, with gross investment in capital formation accounting for 15% of value addition compared with 23% for manufacturing on average over the 1994 to 2018 period (Table 1).

[Figure 2 here]

The turning point around 2002 coincides with Sasol's changes to its polymer pricing policy to charge import parity prices for all polymers resulting in higher prices. Prior to 2002 prices were charged at export parity levels, which were approximately 26% lower than import parity prices for polypropylene (Mondliwa, 2018). This was a significant change for the downstream industry, given that polymers make up 50% to 70% of variable production costs.

At the same time, while the upstream businesses have continued to benefit from a range of inherited advantages and regulations, there has been an absence of sectoral industrial policy targeted at enhancing efficiency and promoting productivity growth in downstream enterprises. The sector strategies embodied in the annual Industrial Policy Action Plans (IPAPs) attempted to achieve this coordination by outlining key tasks for various stakeholders including other government departments and government agencies, however, there has been no mechanism to ensure that these tasks are undertaken (Mondliwa, 2018). This has meant that different spheres of government take decisions that contradict each other, as discussed further below.

Second, interventions have failed to leverage forward linkages to key users of intermediate plastic products such as the automotive sector, which has benefitted from extensive industrial policy support and protection.

Other countries have facilitated capability upgrading by incentivising strategic vertical and horizontal relationships. For example, the automotive plastics subsector in Thailand has been relatively more successful in building technological capabilities through strategic relationships formed between Japanese MNCs and domestic component manufacturers, the benefits of which have included the transfer of organisational capabilities, and the development of horizontal clusters (Monaco et al, 2019). These relationships have been coordinated through the automotive masterplan and at a cluster level to share the costs of upgrading.

Third, while government has provided industrial finance incentives throughout the period, there has been limited success in extending these to small and medium enterprises, which make up the bulk of the plastics industry. A review of the disbursements of the manufacturing competitiveness enhancement programme (MCEP) together with interviews of the beneficiaries in plastics, revealed that the lack of targeting oftentimes means that existing large incumbents have benefitted and there has been a poor record of monitoring and enforcing conditionalities (Mondliwa, 2018).

Taken together the poor coordination of industrial policy interventions, and the de-linking of the value chain, has undermined capability upgrading required to aid structural transformation.

Competition and corporate power

Sasol, as the largest fuel producer and the manufacturer of basic chemicals from refinery feedstocks, has remained vertically integrated into its main inputs of coal and natural gas. Sasol had also benefitted substantially from the regulatory regime which guaranteed prices for its fuel and had provided extensive finance for major investments (Mondliwa and Roberts, 2019). In return, until 2002 Sasol had provided competitively priced chemical intermediate input prices for domestic downstream industries and supported the growth of these industries in other ways such as advice and technical support (Roberts and Rustomjee, 2008).

The first democratic government almost immediately undertook a review of the regulatory regime and its implications for economic development, the Liquid Fuels Industry Task Force was established in 1993. The review observed that polymer prices were in line with export prices to the competitive benefit of local downstream industry (Mondliwa and Roberts, 2014). Following the 1995 review, Sasol started a pre-emptive process to avoid the next review planned for 2000, including in 1998 giving the required five year notice to terminate fuel Main Supply Agreement (MSA) which guarnteed fuel prices and product offtake and constrained them in other ways including on its pricing of intermediate chemical products.

Sasol was found to have been 'effectively' released from the obligation to repay the state subsidies it had received by the termination of the MSA in 2003 (Mondliwa and Roberts, 2014). In addition, in 2007, National Treasury elected to forego a windfall gains tax in exchange for Sasol investing in a new synthetic fuel refinery. Sasol did not deliver the refinery due to changes in the economic of the project and other conditionalities were ignored including previous commitments to the state to continue to develop the petrochemicals industry. Instead, Sasol took a corporate social responsibility approach to the 'support for growth and competitiveness of the downstream sector' expected by National Treasury. Sasol established an incubator (ChemCity), which the government co-funded, rather than continuing to build more strategic vertical partnerships such as deepening engagements with customers for the development of new products (Mondliwa and Roberts 2019).

As with steel, competition law was viewed as the main mechanism to address the challenges raised by high levels of concentration in the upstream polymers industry, replacing the direct levers which had been in place under regulation. Around 2007, the government requested the Competition Commission to investigate Sasol's alleged excessive pricing. After close to ten years, the finding which had been made by the Competition Tribunal (in 2014) was overturned by the CAC. At the core of the case was whether to take into account Sasol's special cost advantages emanating from state support and historical position or not. This has implications for the calculation of the counterfactual price of the alleged excessive pricing including the appropriate return on capital. Though the Tribunal accepted that the advantages of Sasol were covered in the realm of competition law, the CAC found that this was an industrial policy question. This creates a gap in the system for firms that have entrenched market power, including where bestowed by the state in the past, to continue to benefit from this position into the future even if it is at the expense of other industries. In effect, under liberalisation, competition enforcement was meant to replace the reciprocal mechanisms of industrial policy.

In South Africa, the evolution of the strategic engagements between the state and Sasol is reflective of a change in the political settlement relating to this industry under the overall move to apparently 'free markets'. This had a set of implications. Ongoing regulation failed to consider Sasol's vertical integration and the key mineral inputs of coal and gas. Coal is regulated through mineral resource licenses which preclude price discrimination between domestic and export markets for coal and products beneficiated from coal. The Department of Minerals and Energy, the enforcer of these licences, has not intervened or even monitored the process of the products beneficiated from coal. Similarly, Sasol's natural gas prices to third party customers (making up a small proportion of total gas sales) are regulated by an independent regulator while no attention has been placed on what happens to the rest of the gas produced (Mondliwa and Roberts, 2019).

Feedstock propylene is a by-product of fuel production, which is also regulated by government. However, the approach to regulating Sasol in fuel has assumed away Sasol's vertical integration and the potential leveraging of market power from one product market to another. As such, key reciprocal mechanisms for the state-created monopoly position in gas and the inland market for fuel, along with requrements on the rights to access mineral resources, have not been utilised. This is the case even though the state through IPAP (developed and enforced by the Department of Trade, Industry Competition) acknowledged these as alternative measures for dealing with high input prices of intermediate chemical products.

4. Bringing production back-in to competition policy?

The South African experience, consistent with other country experiences, demonstrates that economic openness neither substitutes for a coordinated industrial and technology policy, nor is it effective as a source of competitive discipline on entrenched incumbents. It points to the importance of an optimal competition policy as part of industrial strategy to build diversified capabilities (Singh, 2016).

Competition law, as has been adopted in South Africa from the recommendations of international 'best practice', is quite different from an appropriate framework to ensure an optimal degree of competition. It is premised on an idealized competition existing in the absence of the constraints and arrangements which are the target of competition enforcement. As such, it is not suited to taking into account the intrinsic realities of dynamic increasing returns to scale and the need to incentivize long-term investments in capabilities for industrial development. Such investments require coordination between firms in vertical relationships and horizontal clusters (Best, 2018).

We draw together the key insights on the experience of South Africa and then consider the implications for a framework for optimal competition.

Structural transformation, competition and capabilities

The two industries examined demonstrate common features and interesting contrasts. Both illustrate the failure to diversify and build stronger capabilities. The downstream more diversified parts of the value chains have performed more poorly than the upstream resource-based basic metals, refineries and chemicals. This reflects the overall performance of the economy (see Bell et al, 2018).

However, within each industry there are pointers to the potential that exists. There are segments within the machinery sector linked to meeting the specialist requirements of the mining industry in which South Africa has developed capabilities. While niches of advanced capabilities remain, the country failed to build on these capabilities through supporting local clusters. In the plastics industry, for the period from 1994 to 2002 during which tariffs were liberalized, the local firms competed effectively with imports for local demand and grew output and employment. Crucially, during this period the monopoly input supplier was under a regulatory constraint which held it to account for the way its pricing impacted on downstream growth. This changed as the regulatory regime altered and its strategy towards the local value chain moved to maximize prices (Mondliwa and Roberts, 2019).

Alongside the liberalisation of trade has been internationalisation in terms of ownership and technologies. There are important differences between the two industries. In the case of basic steel, the government strategy for Iscor to have an international steel equity partner to enable access to technology and investment ultimately meant it becoming absorbed within ArcelorMittal, the largest steel transnational corporation. At the same time, its linkages into inputs disintegrated and then AMSA's long-term ore supply agreement collapsed in 2010.[4] The local business became peripheral to the parent given the relatively small domestic demand and low levels of growth and the parent company did not invest in the R&D in the South African business required for learning higher-tier capabilities. The weakening of historic cost advantages meant it was vulnerable to commodity price swings, while subject to transfer

pricing and profit shifting by the parent company, and weakening local linkages and technology collaboration (see also Lee, 2015).

By comparison, Sasol has retained and strengthened backward integration (Mondliwa and Roberts, 2019). Internationalisation has been through a series of major outward investments and acquisitions which played a part in its bargaining position vis-à-vis the South African government relating to taxation and regulation. Local downstream linkages were weakened and were reframed in terms of support for small, medium and micro enterprises initiatives.

Alongside the lead upstream firms' moves away from value chain coordination and upgrading, towards flexibility to extract maximum returns from their customers, the government's industrial policy in each industry remained focused on the upstream incumbents, in actions if not in words. While the policies had included clusters, linkages and diversification, the weight of support in terms of incentives and initiatives, and the lack of concrete steps to discipline the legacy positions, reflected a continued bias to upstream firms (Black and Roberts 2009; Mondliwa, 2018; Black et al, 2018; Rustomjee et al, 2018).

The metals to machinery and chemicals to plastics value chains reflect the challenges of coordination across policy areas incorporating energy, minerals and infrastructure. The weight of the path dependency to be addressed, along with global context challenging all middle-income countries, made a coordinated industrial policy all the more important. This policy needs to engage with GVC dynamics (Gereffi, 2020) and make the 'linking back' happen to local clusters and production systems (Lee et al. 2018; Andreoni, 2018). Coordination and shared services, such as for technology and skills, are required to support upgrading within and across firms, including entry into new market segments. While the geographic fragmentation of activities means that developing countries can attract some activities in a value chain, for this to be part of sustained productive capability building depends on local industrial clusters of producers of intermediate goods and services (Lee et al., 2018; Lema, 2018). This is inconsistent with competition viewed in static terms, and a narrow orientation of firms on contestation and bargaining over existing rents.

It is critical to engage with the orientation of large firms in these processes. Although innovation can be spurred by the promise of monopolistic profits in a Schumpeterian world, much of innovation is incremental and made by related firms, with public funding playing a crucial role (Mazzucato, 2013; Lee et al, 2018; Aghion et al., 2001). Entrenched dominant firms which are protected from rivals lack an important spur to invest, innovate and improve productivity (Mathis and Sand-Zantman, 2014; Arrow, 1962; Bloom et al., 2019). Where large incumbents extract profits at the expense of smaller firms at different levels of the value chain then these smaller firms are less able to invest and innovate, given the observed importance of retained earnings for investment (Audretsch and Elston, 2002; Goergen and Renneboog, 2001). High entry barriers weaken economy-wide investment by the new rivals and the incumbents, and can prevent new business models emerging and products being introduced (Shapiro, 2012; Cohen and Levin, 1989)

The experience of South Africa therefore illustrates the dangers of putting the competition cart before the capabilities horse - competition requires effective competitors! The incremental process of capability building means local firms have to be market participants in order to be part of the dynamic learning processes. Linkages are also very important for the investments and product development necessary for capabilities. Optimal competition necessarily requires

a focus on the nature of the process (does it involve learning and building capabilities or short-term cost-cutting through squeezing suppliers?) as well as on the outcomes (innovation and improved business models, investment in skills through the value chain?).

Optimal competition?

We identify three levels of analysis which are necessary to understand what optimal competition means in practice.

On the first level, the use of competition law to address the power over key industrial inputs has been ineffective. The litigious nature of competition law means it is a very long process to bring cases from initiation to conclusion. The framing of the legal basis for assessing excessive prices, as a price which bears no reasonable relation to economic value and is above that value to the detriment of consumers, assumed that 'economic value' provided a readily ascertainable benchmark. The CAC decisions in the Mittal and Sasol cases were that this value is the price that would pertain in a notional 'long run competitive equilibrium' under conditions of free entry and exit, attributing a spurious uniqueness to an 'equilibrium' price. In this world of neo-classical economics, the history of state support to the incumbent is not relevant to determining the price - as a new entrant would not have such support. The cases also reflected the challenges in considering what a reasonable return is for such companies in the context of international market cycles, scale economies, and the support being provided by other countries to their producers. Moreover, vertically integrated firms such as Sasol can adopt strategies to bypass interventions by the competition authorities through internal pricing to shift profits (Mondliwa and Roberts, 2019). Amendments to the South African Competition Act which came into force in 2020 remove the requirement to assess against economic value and provide a range of possible benchmarks for an assessment of excessive pricing. This should enable the Competition Tribunal to take the considerations raised here into account, however, the provisions are yet to be tested.

Even where there is an oligopoly, and firms may be colluding, penalizing cartel conduct does not create competitors. The 'insider' firms can look for other ways of coordinating to extract rents which are difficult to detect and do not fall foul of the cartel prohibition on fixing prices or dividing markets. The detection and punishment of many cartels in South Africa has not led to a more competitive open economy in terms of wider participation and investment.

On the second level, optimal competition requires engaging with power along value chains, in vertical relationships, and the changes required to ensure the more constructive relationships necessary to upgrade production capabilities along value chains (Mondliwa, Ponte and Roberts, 2021). Vertical coordination is essential to support investments and upgrading and the key question is how to grapple with the power of large companies to govern the overall chain. The separation of competition law and industrial policy in South Africa, with competition law as the primary means for addressing market power, meant that the government ignored a range of tools which could be used more effectively to set out expectations for corporate conduct. This included industrial policy incentives and development finance, and regulation of mining rights and over liquid fuels.

On a third level of the conceptual framework, the premise of competition law as embodied in the South African Act, drawn largely from the laws of industrialised countries, is that markets are primarily about allocative efficiency and are predominantly characterised by arms-length

exchange. This assumes markets are generally efficient. It is consistent with the state playing a minimalist role providing horizontal services such as education and infrastructure, alongside macroeconomic stability and a transparent business legal environment.

By comparison, bringing production back-in requires starting from the objective of building shared productive capabilities, generating competition and recognizing the creative functions of markets (Arndt 1988; Kaldor, 1972; Budzinski and Beigi, 2015). Rather than simply protecting competition we need to understand the nature of the competitive process for which we are designing the rules. There is a plurality of theories and policy paradigms in competition economics from which we can draw. This includes the evolving (ordoliberal) thinking in Germany on how to establish working, sustainable and accepted competitive markets (Budzinski 2008) as well as the balance between concentration, cooperation and fair competition in South Korea (Singh, 2016; Mendoza et al, 2013).

The issue comes back to ensuring the right kind of rivalry rather than competition for its own sake. This is competition which can spur large firms to continue to innovate and invest. A country does not arrive at such markets by magic. Indeed, it seems obvious that market power, imperfect competition and market failures which can reinforce positions of market power are intrinsic features of economic life, and competition policy is a necessary complement to industrial policy (Roberts, 2013).

Drawing from the South African experience, we argue that realizing optimal competition in practice requires three inter-related sets of measures.

First, it means effectively agreeing and enforcing expectations on large firms. This requires sector strategies which regulate the firms' conduct using a package of measures including provision of infrastructure, mineral rights, industrial policies and trade. These are largely about confronting the reality of concentration through negotiations between the state and the large companies. The South African industry experience points to the ways in which potential coordination has been undermined by the fragmentation of the state, exploited by the lobbying of the incumbent firms, and why such coordination relies on a political settlement oriented to long-term capabilities.

Second, co-operation and competition must be balanced through policies to support coordinated investments in vertical relationships along value chains and within clusters. For example, in South Korea the Korea Fair Trade Commission (KFTC) has monitored the conduct of chaebols in subcontracting relationships to protect against exploitation of smaller firms (Hur, 2004). The dominant firms may leverage their power in subcontracting arrangements to lower prices, however, unfair subcontracting arrangements by large firms militate against the development of a dynamic base of small and medium firms able to invest in their own independent production capabilities. The balance is critical for co-investment along the value chain.

Policy has to play a key role in tipping the calculus of the large firm in one direction instead of the other. Norms of fair and reasonable market relationships need to incorporate the balance through regulation and building multi-stakeholder consensus on the importance of shared longer-term investments. This involves collective institutional power relations (Dallas et al, 2019).

Third, competition policy and enforcement relating to exclusionary conduct and barriers to

entry must have the teeth to open-up markets and enable firms to be effective local and international competitors. This is important to support fringe entrants in expanding in incumbent-dominated markets in order to generate future competition.

Taken together these considerations imply a competition policy that is effective in the context of the society and structure of the economy in which it operates. The history of the country is clearly very important. South Africa illustrates the importance of entrenched dominant firms that inherited their positions in most cases from state ownership and/or support. In contrast with the industrial policies of East Asian late industrialisers, South Africa has not succeeded in incentivising capability accumulation through setting, enforcing and monitoring conditionalities on dominant firms. Markets also do not work well with high barriers to business creation, expansion, and market entry (Vilakazi, Goga and Roberts, 2020). Finally, the legacy of economic exclusion in South Africa requires elevating fairness considerations in building a competition culture, defined in terms of the effects of conduct in building broad-based productive capabilities.

Notes:

1. Calculated from World Bank World Development Indicators. Data for upper-middle income industry value-added growth are for 1994-2017.
2. Between 1994 and 2014, the share of black African youth in skilled occupations decreased (StatsSA, 2016).
3. The import-parity price was calculated by Iscor by taking the cheapest import source, and adding on the various costs associated with transport to South Africa, including agent's commission of 2.5 per cent, import duty of 5 per cent (until 2006), the costs of forward exchange cover that would be incurred by an importer, the 'hassle factor' of importing (set at a further 5 per cent), and the overland transport cost from Durban to inland customers (Roberts and Rustomjee, 2009).
4. In 2010, Kumba notified AMSA that it was no longer obliged to supply iron ore at cost plus 3% and offered to sell an equivalent amount of iron ore to AMSA on commercial terms. This followed AMSA's failure to convert its old order mining right in respect of its 21.4% share of the mineral rights to iron ore at Sishen Mine, as required in terms of the Mineral and Petroleum Resources Development Act. The cost plust 3% price was part of AMSA's contract with Kumba to mine AMSA's share of production from the Sishen Mine.

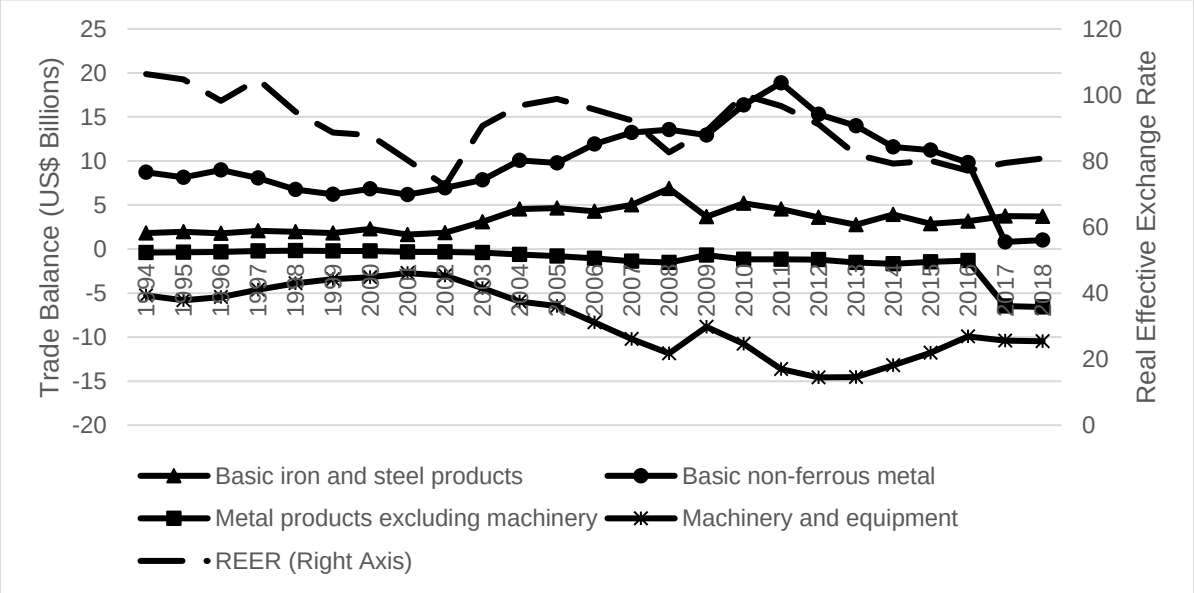
Tables and Figures:

Table 1: Manufacturing sector performance, 1994 to 2018

		Share in Manuf Output		Avge Inv:VA	Imports:Dom Demand		Exports:Output	
	VA gr	1994	2018	1994-2018	1994	2018	1994	2018
Coke & Refineries	5%	5%	7%	33	5	29	33	23
Basic Chemicals	3%	5%	5%	57	56	39	20	39
Other Chemicals	3%	6%	7%	15	32	27	6	20
Plastic products	1%	3%	2%	18	11	32	3	16
Basic ferrous	3%	6%	9%	38	21	14	64	37
Basic non-ferrous	1%	3%	3%	38	16	41	31	55
Metal products	2%	3%	4%	10		26	4	13
Machin & equip	3%	5%	5%	10	76	80	12	50
Motor vehicles	4%	8%	10%	17	49	54	10	57
Food & beverages	2%	23%	22%	24	8	13	7	11
Other divers manuf	1%	34%	28%	25				
Manufacturing	2%	100%	100%	23	25	35	14	27

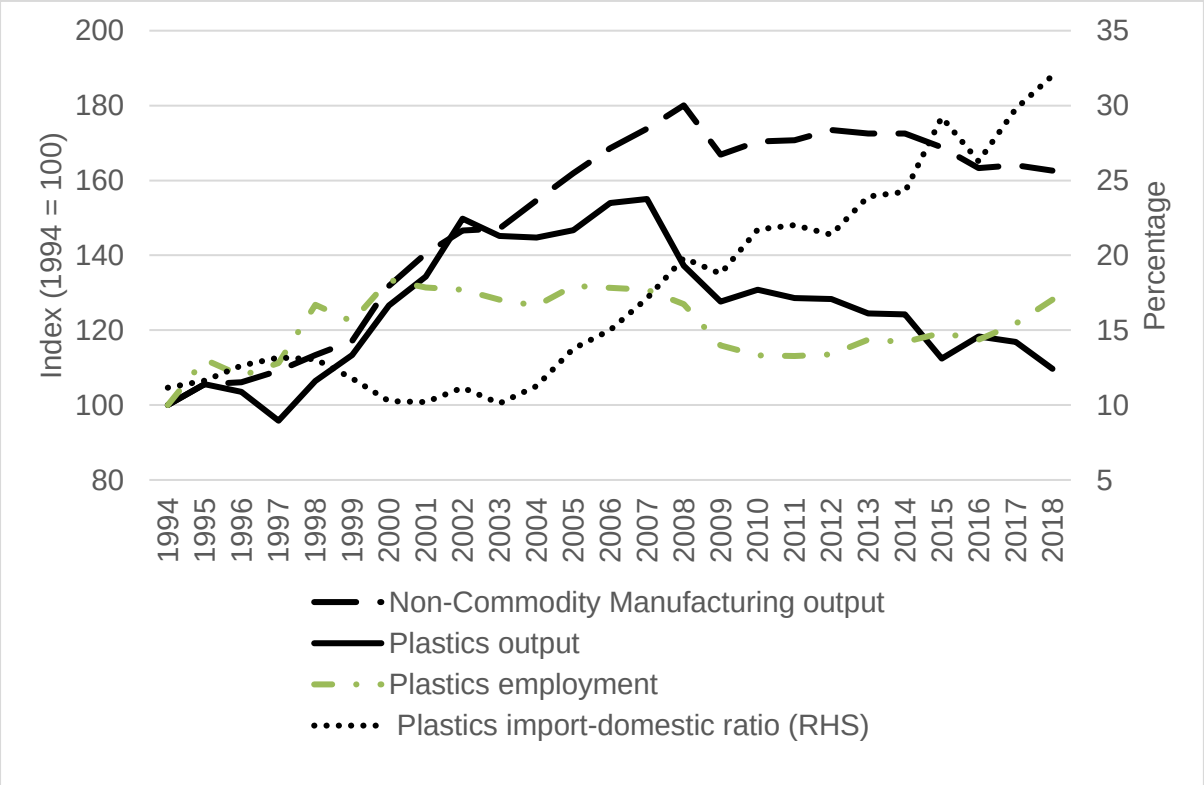
Source: Authors calculations using Quantec Data

Figure 1: Trade balance for metals, machinery and equipment



Source: Author calculations using Quantec data

Figure 2:Turning point in the performance of the plastics sector



Source: Authors calculations using Quantec Data

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