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Enquiries
Head: Research Department
South African Reserve Bank
P O Box 427
Pretoria 0001

Tel. no.: +27 12 313-3911
0861 12 SARB (0861 12 7272)

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South African Manufacturing: A situational analysis

Palesa Mnguni and Witness Simbanegavi

Abstract

This note provides a synopsis of the manufacturing sector in South Africa, and attempts to explain the evolution of the sector, including its recent lacklustre performance. Although Manufacturing's contribution to GDP has declined, having peaked at around 23% in the early 1980s, the sector remains important for South Africa. It comprised 12% of GDP, 12% to formal sector employment and 42% of exports in 2019. While the evolution of MVA appears to be in line with global trends, South Africa's manufacturing performance is below the EM average. Capacity utilisation and capital stock declined sharply following the 2009 recession, and have stabilised at lower levels, consistent with de-industrialisation. The sector has failed to diversify and manufacturing remains concentrated in energy and capital-intensive subsectors. The foregoing points to the need for (industrial) policies geared at building capabilities and developing new sources of competitive advantage to arrest/reverse de-industrialisation.

1. Introduction

Manufacturing is an engine of economic growth, a source of resilience to economic shocks and an important contributor to GDP. It has high economic multipliers due to its forward and backward linkages to both downstream and upstream production sectors of the economy. Additionally, it contributes to exports and employment, and the jobs tend to be better paying, stable and less vulnerable to shocks compared to other sectors.¹ These attributes have historically made, and continue to make, manufacturing a focus sector for development efforts by many countries, and South Africa is no exception. This note provides a synopsis of the manufacturing sector in South Africa, and attempts to explain the evolution of the sector, including its recent lacklustre performance.

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¹ Cantore N., Clara, M., Lavop, A., Soare, S. 2017. Manufacturing as engine of growth: which is the best fuel? *Structural Change and Economic Dynamics*, Vol. 42:56-66. See also OECD Observer No 292, 2012.

2. Manufacturing in South Africa: A bird's eye view

Manufacturing is an important part of South Africa's economy, contributing 12% of GDP, 12% to formal sector employment and 42% of the rand value of exports in 2019. Manufacturing has strong linkages with a variety of supplier and supporting industries, particularly mining and agriculture, as well as service providers.² The sector, which contributed about 23% of GDP at its height in the early 1980s has been in sharp decline since the early 1990s (Figure 1). Manufacturing's share of formal non-agricultural employment has followed a similar trend, declining from 25% in 1970 to reach an all-time low of 12% in 2019.

Real manufacturing gross value added (GVA) grew strongly during the commodity boom period, rising at an average annual rate of 4.2% between 2000 and 2008, but contracted by 10.6% in 2009. Growth post the great financial crisis (GFC) was a tepid 1.3% (Figure 2).

Figure 1: Manufacturing's share in GDP & employment

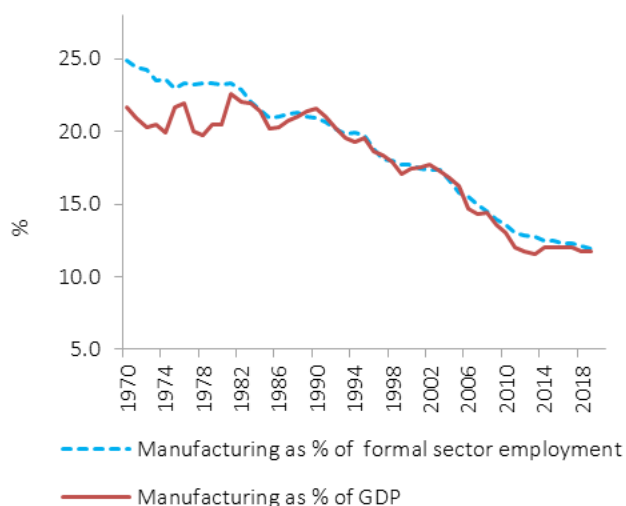
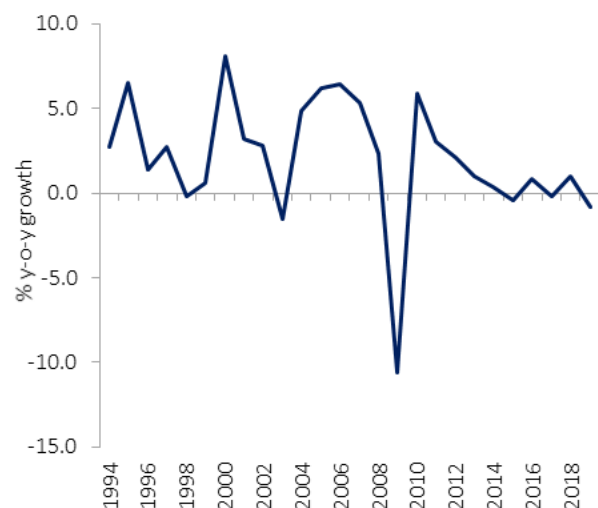


Figure 2: Manufacturing GVA growth



Manufacturing capacity utilisation and investment

Capacity utilisation, which peaked at around 86% in the mid-2000s, fell considerably during the global financial crisis and settled at a lower level (Figure 3). The sustained lower level of capacity utilisation, by creating 'stranded' assets, disincentivised investment. Figure 4 points to dampened investment both in absolute and relative terms post 2010, resulting in destruction of capital (Figure 5). With the decline in capital stock came job losses, with approximately 150,000 jobs lost between 2008 and 2016 (SARB QB 2017). The sustained decline in manufacturing capital stock post 2009 supports the view that the sector is de-industrialising. The combination of weak demand

² According to IDC (2019), manufacturing's GDP and employment multipliers are respectively 4 and 5.02. See also the DTI's Industrial Policy Action Plan 2018/19-2020/21.

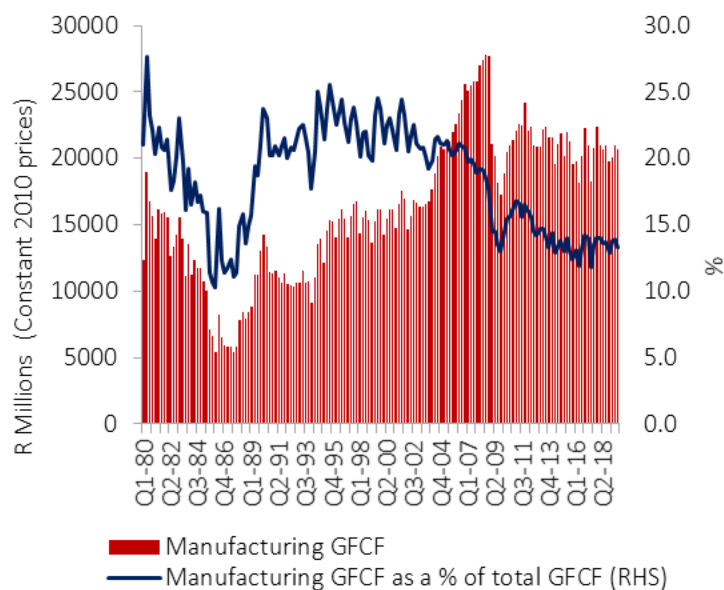
post the GFC (both domestic and global), political climate and rising electricity prices (Figure 6) may explain the sharp decline in capital stock.³

Figure 3: Capacity utilisation



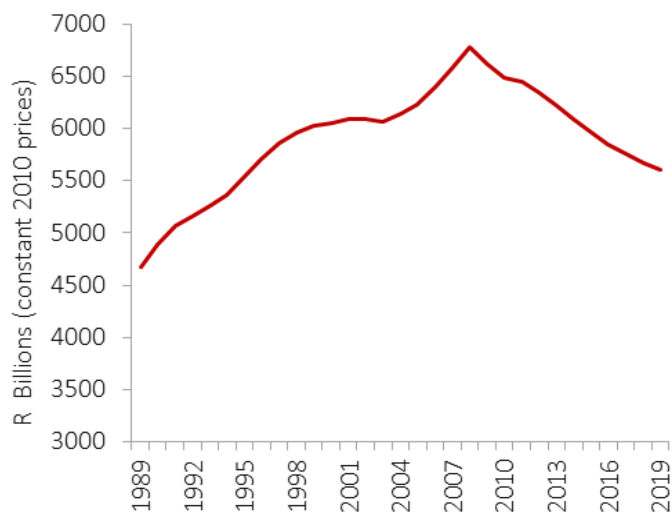
Source: StatsSA

Figure 4: Manufacturing investment



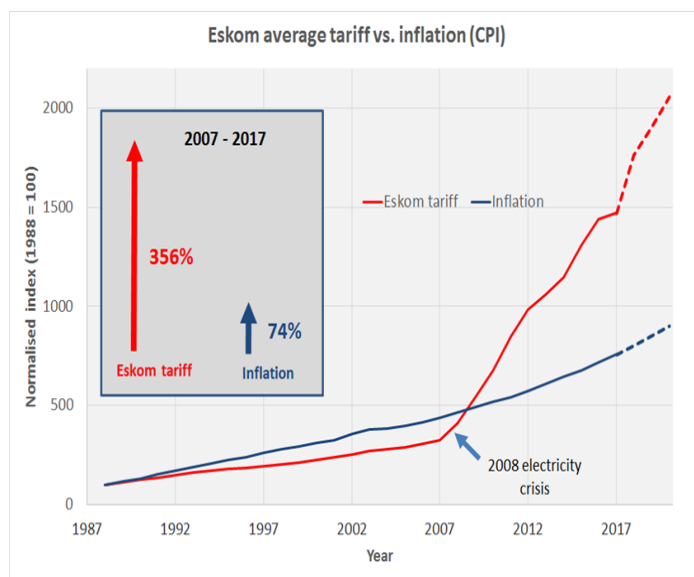
Source: SARB

Figure 5: Manufacturing capital stock



Source: SARB

Figure 6: Evolution of electricity prices



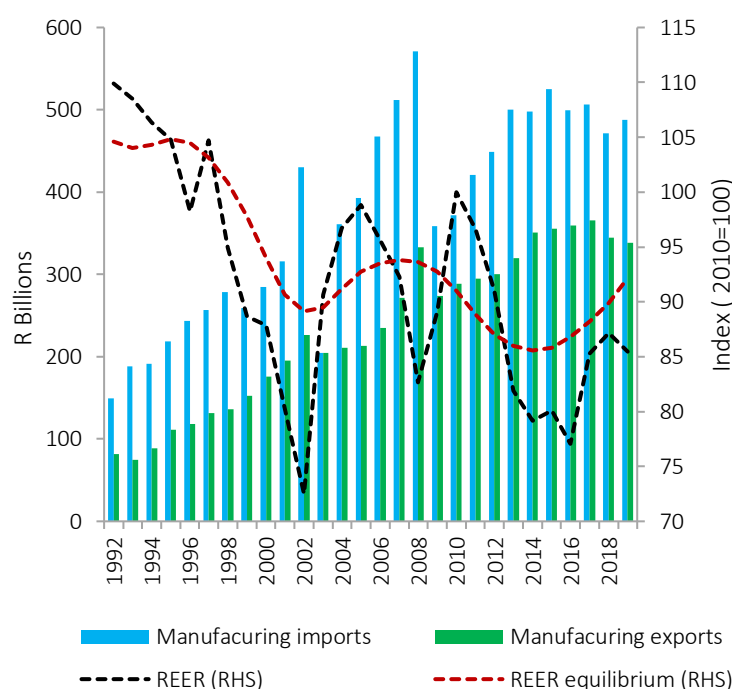
Source: Power Optimal

implying a persistent manufacturing real trade deficit (Figures 7 & 8). This raises the question of competitiveness of South African manufacturing.

³ The BER Manufacturing Survey identifies political climate and insufficient demand as major constraints. Rising electricity prices hit the energy intensive sectors the hardest, except perhaps for those with long term price agreements with Eskom.

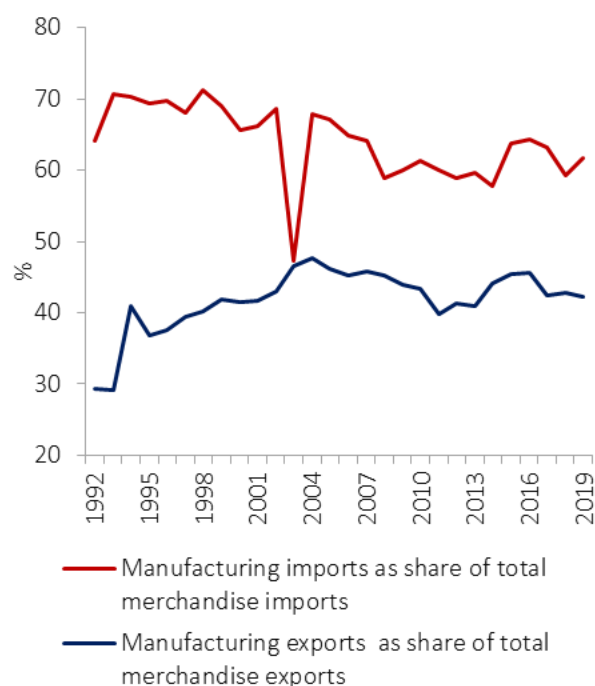
The real effective exchange rate has oscillated between episodes of appreciation and depreciation in line with commodity price cycles. The real exchange rate was overvalued between 2003 and 2007 and between 2009 and 2012. The data suggests a weak response of manufactured exports to real exchange rate depreciations, though episodes of overvaluation seem to coincide with much weaker export performance.⁴ Somewhat paradoxically, imports appear to respond positively to real rand depreciations, suggesting that the quantum of imports is not unaffected by the exchange rate. The import compressions in 2003, 2009 and 2010 however seem to suggest a lagged response of imports to depreciations.⁵

Figure 7: Real manufactured imports and exports



Source: DTI, SARB

Figure 8: Share of manufactured imports/exports



Source: Authors' calculations, DTI

Sophistication of South African manufacturing

Sophistication or technology intensity of manufacturing is a measure of the direct R&D intensity and R&D embodied in intermediate and investment goods, and is an important indicator of robustness and competitiveness of manufacturing.⁶ South Africa is ranked the regional lead in sub-Saharan Africa, and 45th globally, with respect to the competitiveness and industrial development index (CIP)⁷, but is the lowest ranked BRICS member. The CIP is composed of three dimensions. *Dimension 1* assesses a country's capacity to produce and export manufactured goods,⁸ *Dimension 2* assesses technological deepening and upgrading⁹ and *Dimension 3* assesses a country's world impact.¹⁰ South Africa is ranked 67/150 in dimension 1; 52/150 in dimension 2; and

⁴ Edwards and Hlatshwayo (2019) find evidence of weak response of exports to rand depreciation.

⁵ The sharp fall in manufactured imports in 2003 (Figures 7 & 8) appears to be anomalous.

⁶ Hatzichronoglou, T. (1997), "Revision of the High-Technology Sector and Product Classification". OECD Science, Technology and Industry Working Papers, No. 1997/02.

⁷ Competitive industrial performance report 2018, UNIDO.

⁸ Measured by manufacturing value added per capita and manufacturing exports per capita.

⁹ Measured by industrialization intensity and export quality.

¹⁰ Measured by impact of a country on world MVA and impact on world manufacturing exports.

36/150 in dimension 3, indicating that the country does relatively poorly with respect to competitiveness of manufacturing as well as technology intensity of manufacturing.

Technology intensive goods are more likely to command higher unit margins and to be more globally competitive. High sophistication in manufacturing engenders economic complexity and provides scope for knowledge spillovers across industries, and thus diversification of the economy.¹¹ Despite having the most advanced manufacturing sector in the continent, South Africa has done poorly in deepening technology intensity. The share of medium- and high-tech manufacturing value added in total manufacturing value added fell from a high of 32% in 1995 to 24% in 2017 (Figure 9), suggesting declining competitiveness.¹²

Figure 9: Sophistication of manufacturing



Source: UNIDO

Encouragingly, the share of medium- and high-tech manufactured exports in total manufactured exports increased from 31% in 1990 to 47% in 2017. A possible interpretation of this (in light of the declining share of medium and high tech MVA) is that South African manufacturers seem to be exploiting niche markets, wherein they supply increasingly more technology intensive goods. In other words, while the composition of the export basket is becoming more tech-intensive, the domestically oriented manufacturing subsector is becoming less competitive. This is consistent with the decline in the share of South Africa's MVA in world MVA and share of manufactured exports in world manufacturing exports,¹³ as well as the decline in manufacturing fixed capital stock (Figure 5).

¹¹ In turn, diversification engenders resilience of the economy by reducing vulnerability to price shocks (Aiginger, 2014).

¹² The 1990s saw substantial economic and trade liberalization as South Africa re-integrated into the global economy. The sector, largely built on the back of protectionist policies and subsidies, appears to have initially struggled to cope with global competition.

¹³ Unido data.

3. South Africa an outlier?

South Africa's experience with de-industrialisation is shared by other emerging markets, in particular, Brazil and Mauritius, though some have bucked the trend (Figure 10). Indeed, South Africa performs worse than many developed countries (Figure 11 & Table 1). Ordinarily, the expectation would be that manufacturing's share in GDP would be higher for emerging economies like South Africa, given their low per capita income—the inverted U relationship.

Figure 10: Manufacturing's share in GDP (EM's)

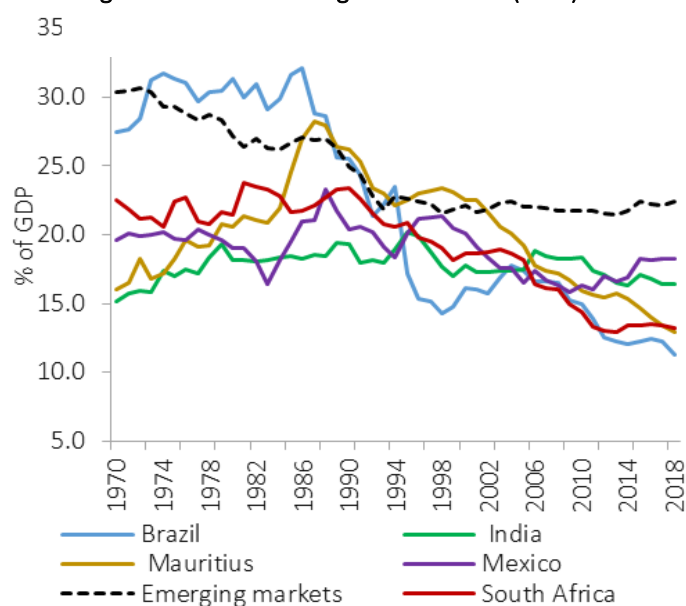
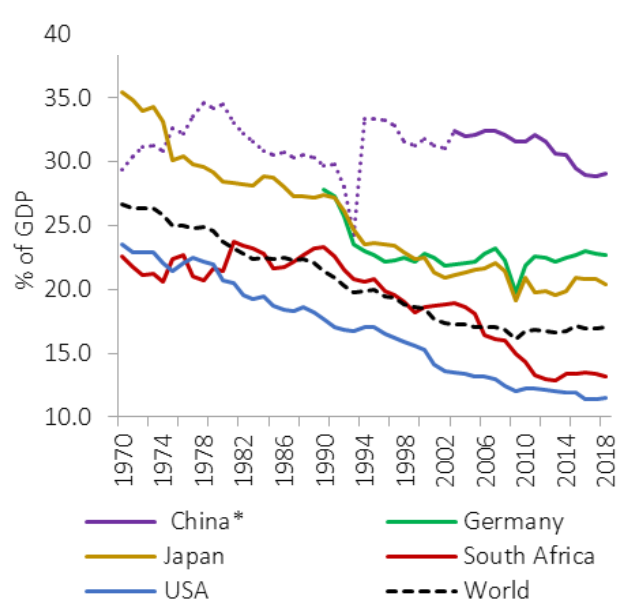


Figure 11: Manufacturing's share in GDP (All)



* Values for China in the dotted line were either estimated or imputed
Source: UNCTAD

Table 1: Share of Employment in Manufacturing, 1973-2010

Country	1973	1990	2000	2010	% change
USA	24.8	18.0	14.4	10.1	-14.7
Canada	22.0	15.8	15.3	10.3	-11.7
Australia	23.3	14.4	12.0	8.9	-14.4
Japan	27.8	24.3	20.7	16.9	-10.9
France	28.8	21.0	17.6	13.1	-15.7
Germany	36.7	31.6	23.9	21.2	-15.5
Italy	27.9	22.6	23.6	18.8	-9.1
Netherlands	25.3	19.1	14.8	10.6	-14.7
Sweden	27.6	21.0	18.0	12.7	-14.9
South Africa ¹⁴	18.5	17.7	14.9	13.3	-5.2

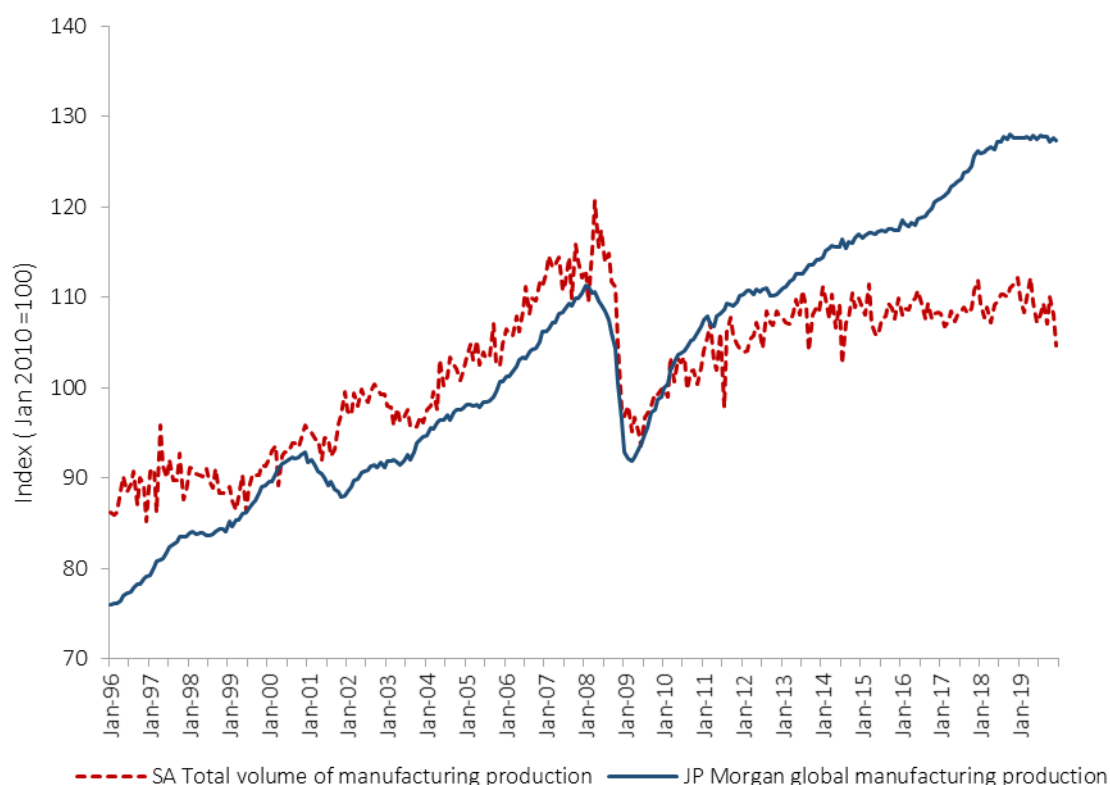
Source: Lawrence (2018)

It is also instructive to compare South Africa and global manufacturing production indices. Since 1996, South Africa's industrial production has trailed behind global manufacturing production, but appeared to grow at more or less the same pace, with the two series tracking each other relatively well up until 2010, where South Africa seems to decouple from the global trajectory (Figure 12). This suggests that, since 2010, SA manufacturing might

¹⁴ Data for South Africa is from UNIDO (2019) as well as Jenkins and Edwards (2015).

be more influenced by idiosyncratic factors than global ones. This could be explained in part by weak domestic demand, high electricity prices and electricity shortages, weak performance of mining sector, and the unfavourable political climate.¹⁵

Figure 12: Decoupling of SA manufacturing from global manufacturing



Source: StatsSA and JP Morgan

The poor performance of South Africa's manufacturing sector documented above is suggestive of premature de-industrialisation.

4. The South Africa's manufacturing sector: A closer look

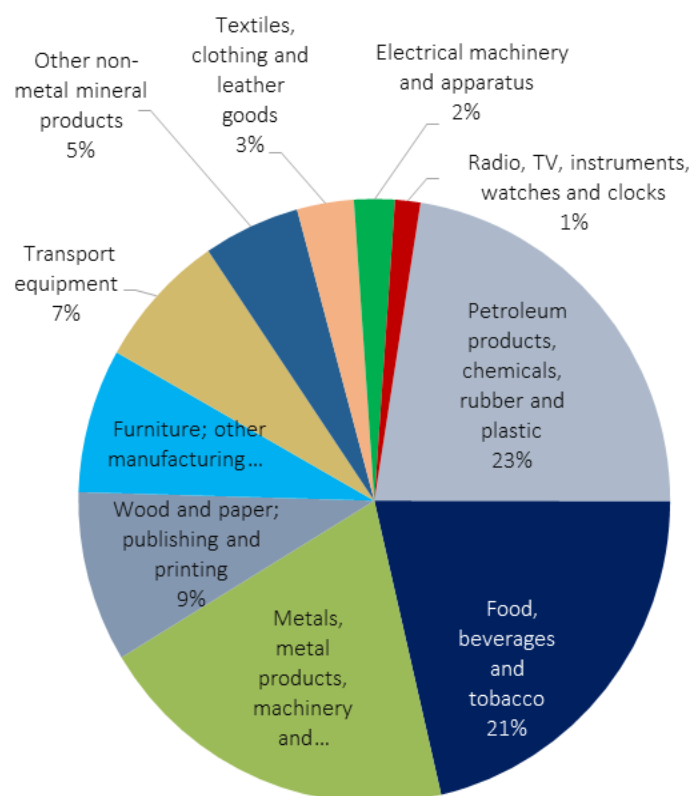
Figure 12 decomposes the manufacturing sector into ten constituent subsectors. Petroleum and chemical products is the largest subsector over the 1993-2017 period, contributing 23% of total manufacturing value added, followed by food and beverages (21%) and metals and machinery (20%). These three comprise 64% of total manufacturing activity in South Africa.¹⁶ The more labour intensive subsectors, including wood and paper,

¹⁵Skills shortages and the resultant wage premia for highly skilled labour, as well as the strong bargaining power of unions could also explain the deterioration in manufacturing.

¹⁶ The high concentration of manufacturing in these three industries makes South Africa exposed and vulnerable to internal and external events (see DTI; IPAP 2018/9-2020/21), and may partly explain the country's premature de-industrialisation.

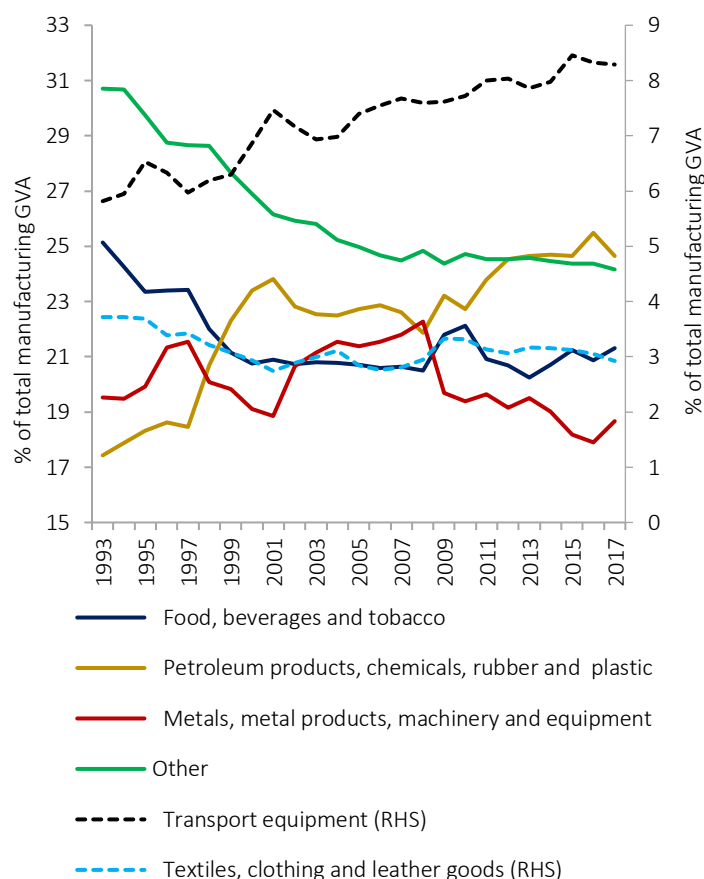
publishing and printing; furniture and other manufacturing, textiles, and electrical machinery and equipment, contribute the balance of MVA.

Figure 13: Manufacturing sub-sector shares: 1993-2017



Source: Authors' calculations, StatsSA

Figure 14: Evolution of MVA: selected sub-sectors



Source: Authors' calculations, StatsSA

The metals and food subsectors shares in total manufacturing have trended lower over the period, with a notable decline for the metals subsector post the GFC (Figure 14). This coincides with the period of heightened electricity blackouts in South Africa and rising electricity prices, which could have dented momentum in this subsector.¹⁷ The decline also coincides with the period of reduced global demand post the GFC, particularly in Europe, a major market for South African manufactured products. The transport equipment's share, albeit still small, has increased along with the chemicals sector.¹⁸ Labour intensive manufacturing, most of which is captured by the 'other' category in the graph, have fallen as share of total MVA while textiles decreased during the 1990s but has remained broadly unchanged following that period.¹⁹

Table 2 breaks the study period into three distinct time periods: the liberalisation period (1993-1999), during which South Africa implemented various trade reforms; the commodity boom period (2000-2007) and the post

¹⁷ Cheap electricity, especially in the 1990s, encouraged energy-intensive metals refineries particularly in aluminium and steel production- many of which are no longer viable because of higher electricity prices (see: Woods et al, 2018. The Real Economy Bulletin: TIPS).

¹⁸ The growth in the transport equipment can be attributed, at least in part, to the substantial incentives afforded to the auto sector through the MIDP and APDP programmes.

¹⁹ Textiles, clothing and leather is one of the sectors that have received substantial retooling support from government.

GFC period (2008-2017). For the sector as a whole, GVA increased by 14.4% during the 1993-1999 period, by 30.5% during the commodity boom period, but stalled post the GFC (Table 2).²⁰ Metals, metal products, machinery and equipment, as well as other non-metal mineral products were the main drag to growth post GFC.

Table 2: Percent change in gross value added

	1993-1999	2000-2007	2008-2017
	% change in GVA		
Manufacturing	14.4	30.5	1.1
Food, beverages and tobacco	-3.8	29.7	5.2
Textiles, clothing and leather goods	-5.3	24.7	0.4
Wood and paper; publishing and printing	7.3	9.3	1.0
Petroleum products, chemicals, rubber and plastic	46.4	26.1	14.0
Other non-metal mineral products	-7.4	24.7	-18.7
Metals, metal products, machinery and equipment	16.2	49.0	-15.2
Electrical machinery and apparatus	37.2	30.4	5.9
Radio, TV, instruments, watches and clocks	-15.6	36.9	31.0
Transport equipment	23.8	45.8	10.4
Furniture; other manufacturing	2.5	21.0	-0.8

Source: Authors' calculations, StatsSA

While a few subsectors struggled during the 1993-1999 period, possibly as they grappled with liberalisation of the economy, the 2000s was a period of strong growth, aided by increased domestic and foreign demand, the commodity super cycle, and a sound macroeconomic environment.

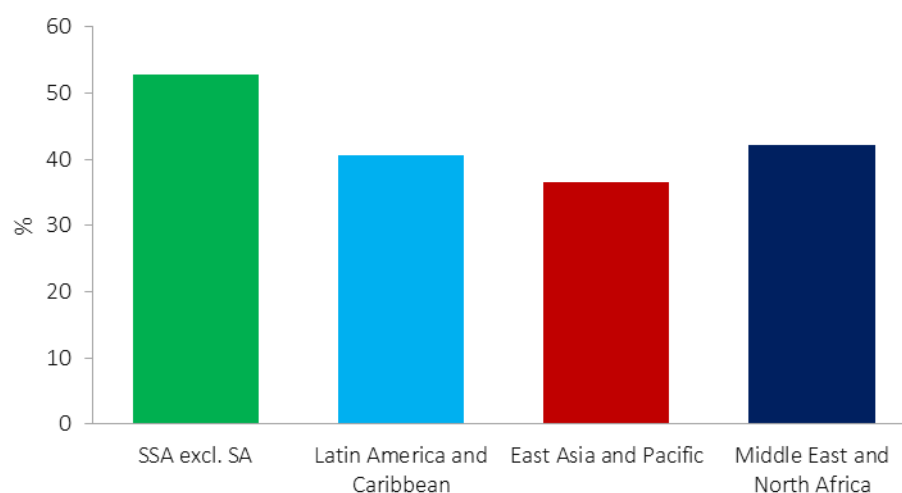
A closer look at the food, metals and petroleum subsectors

The food and beverages sector benefitted from a growing consumer market in Sub-Saharan Africa on the back of robust economic growth, spurred in part by the commodity boom, the presence of many South African retail chains in the continent, and the region's high propensity to consume food and beverages (Figure 14). The World Bank (2010) notes that household and non-profit institutions serving households (NPISHs) consumption expenditure per capita for the region expanded by an average of 4.4% per annum between 2000-07, after having contracted by 0.3% per annum between 1993-99. Post the GFC, growth in household expenditure was muted at 0.3%. In South Africa, rising unemployment and lower economic growth in the aftermath of the GFC have slowed household consumption growth.²¹

²⁰ Abstracting from the impact of GFC, manufacturing GVA increased by 6.8% between 2010 and 2017.

²¹ Amendments to the National Credit Act in 2013 may also have played a role.

Figure 15: Household expenditure on food and beverages by region



Source: Authors calculations, World Bank

Manufacturing in South Africa was built around the so-called minerals-energy complex (MEC)²², with many manufacturing subsectors relying on the demand or supply from the mining sector. The metals and machinery, petroleum products, electrical machinery, wood, as well as transport equipment are some of the largest suppliers to the mining sector.²³ Resultantly, their performance is inextricably tied with that of the mining sector and in turn the global commodity price cycle.

Strong growth and demand in the region during the commodity boom benefited the metals and metal products sector, which saw an increase in exports of machinery and equipment for the mining sectors on the continent, transport equipment, electrical machinery, parts and accessories, etc. However, the slump in commodity prices post GFC took along with it the capital investment and demand, hence the sharp decline in metals, metal products, machinery and equipment.

The petroleum products subsector exhibits strong performance across the three periods, with the strongest GVA expansion in the 1990s. The dynamics are largely driven by Sasol, the dominant player in this subsector. During the 1990s, Sasol invested heavily in R&D in the chemicals sectors, which allowed the conglomerate to diversify its product range and enhance competitiveness.²⁴ Simultaneously, it developed joint ventures with international companies, growing its international footprint.

The intrinsically labour-intensive sectors such as textiles, clothing and leather, furniture, other manufacturing, wood and paper, publishing and printing, seem to be struggling to attain global competitiveness.²⁵ Well-designed industrial policies could be devised to turn these subsectors around and enhance competitiveness. South Africa could learn from countries like China who have enhanced competitiveness in similar industries by among other

²² The MEC characterises the origins of manufacturing in South Africa, which was initially financed by the mining sector profits and the availability of cheap electricity, fostering a pattern of industrialization which is capital and energy intensive (heavy manufacturing). Additionally, government incentives continue to be geared towards easier access to capital thus reinforcing this pattern (see EN 2019-22: Getting industrial policy right).

²³ IDC, (2013). http://www.tips.org.za/files/interface_between_mining_and_manufacturing_-_j_maia.pdf

²⁴ Verhoef, G.2003. Innovation for globalisation or globalisation of innovation: Sasol in the chemical industry during the 1990s. South African Journal of Economic History. Volume 18, Issue 1_2; 188–212.

²⁵Zalk, N. 2014. [online]: <https://www.econ3x3.org/article/what-role-manufacturing-boosting-economic-growth-and-employment-south-africa>

things offsetting employment wages with higher social wages (cheap housing close to factories, affordable healthcare and public transport).²⁶

5. Conclusion

Manufacturing remains important for economic growth and employment in South Africa. However, the sector appears to be de-industrialising. While South Africa is not an outlier with regards to the diminishing role of manufacturing, it is concerning given its status as a developing economy, with high unemployment, poverty and inequality. Also concerning is the high concentration of manufacturing in the capital-intensive mineral-energy complex. Labour-intensive manufacturing subsectors continue to perform poorly, with detrimental impacts for employment. The implication of this is that South Africa, more than ever before, needs (industrial) policies geared at building capabilities in the sector and developing new sources of competitive advantage to arrest/reverse de-industrialisation (see [EN2019-22](#) for a discussion on how to get “industrial policy right”).

²⁶ Zalk, N. 2014. *ibid*