THE REAL ECONOMY BULLETIN

TRENDS, DEVELOPMENTS AND DATA

SECOND QUARTER 2018

The Real Economy Bulletin is a TIPS review of quarterly trends, developments and data in the real economy, with an analysis of the main manufacturing industries and key data in Excel format.*

Note: The REB uses actual, not annualised, rates for GDP figures. Most reporting on quarterly growth in the GDP follows a convention of increasing the actual rate fourfold, which is how much the economy would grow if the quarterly growth rate persisted over the entire year – which almost never happens. This kind of reporting gives an exaggerated impression of the impact of GDP growth in a single quarter.

GDP growth

South Africa's GDP shrank by an estimated 0.17% in the second quarter of 2018. Excluding agriculture, however, the economy essentially stagnated over the quarter. Mining expanded by 1.2%, while manufacturing and the rest of the economy excluding agriculture remained essentially unchanged. The second quarter of reported decline in the GDP means that the economy officially entered a recession. More important, however, is that growth has been slow and uneven since 2014.

Growth in the South African economy remained precarious and slow in the second quarter of 2018, with a contraction of 0.17% in the economy as a whole. This continues a trend of slow and unstable growth that started in 2014, as Graph 1 shows. The instability emerges in the sharp divergence between a relatively strong expansion in the last three quarters of 2017, followed by contraction in the past two quarters. As a result, in the past 12 months or the year to June 2018, the GDP actually grew by 1.3% – the fastest rate since 2015 – when compared to the previous year due to relatively robust growth reported in the last two quarters of 2017.

*Available at www.tips.org.za/the-real-economy-bulletin

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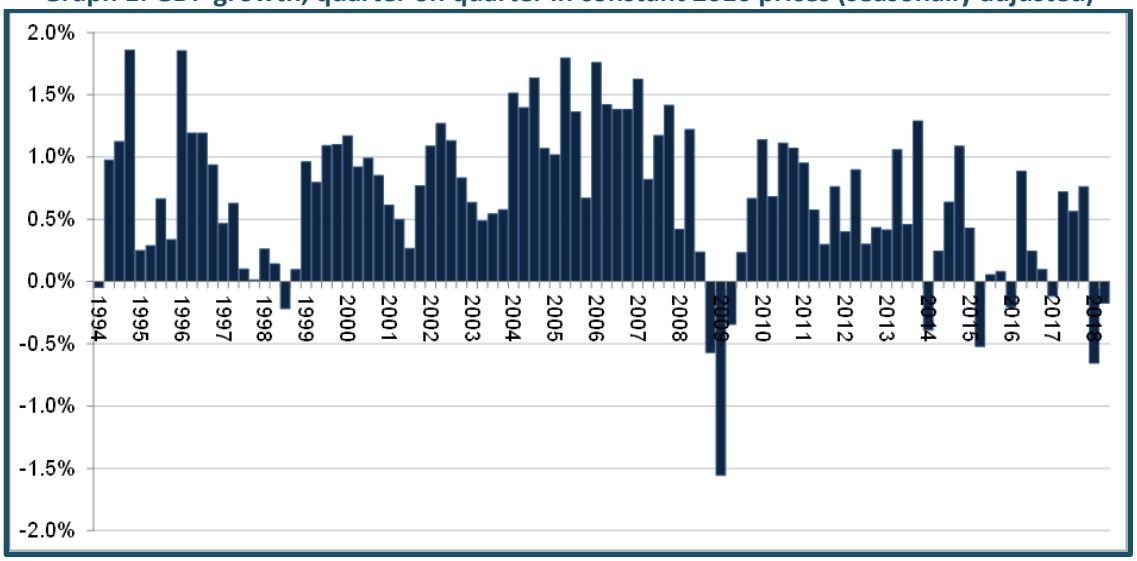
TRADE & INDUSTRIAL POLICY STRATEGIES

Graph 1: GDP growth, quarter on quarter in constant 2010 prices (seasonally adjusted)



Source: StatsSA GDP quarterly figures. Excel spreadsheet downloaded www.statssa.gov.za in August 2018.

The technical recession mainly reflected fluctuations in agriculture. A greater concern is the longer-term slowdown since 2014. It results from five longer-term developments.

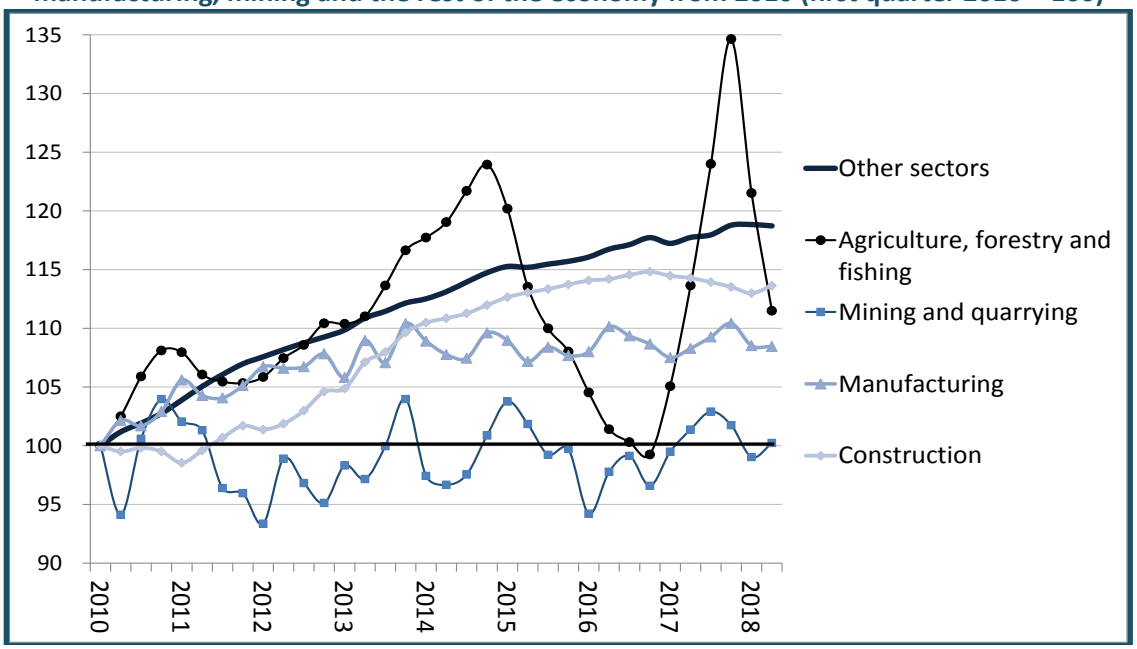
- The end of the commodity boom in 2011. The boom had powered relatively rapid growth based on mining exports from 2002 to 2012. The end affected both mining, the main export industry, and metals refineries, which have long been central to South African manufacturing.
- The rapid increase in electricity prices. Particularly in the 1990s, low-cost, coal-fuelled electricity encouraged energy-intensive metals refineries, notably in aluminium and steel production. In many cases, these plants are no longer viable at the higher electricity price, leading to substantial loss of capacity and jobs.
- The slowdown in public spending and investment, as the government battled to reduce the deficit after the stimulus package implemented from 2009 in response to the global financial crisis. The deficit peaked at peak at 5.3% of the GDP in 2013; it fell gradually to just under 4% in 2016/7; but in 2017/8 it climbed to 4.5% again, largely due to a drop in VAT revenue (See Graph 20 in *Briefing Note: Responding to the slowdown* on page 20).
- The visible weakening in government institutions in recent years undermined a key attraction of South Africa for both domestic and foreign investors. Corruption in South Africa remains moderate compared to many countries – but clean, sound and responsible government was a central selling point for investors in the democratic era, and that has now been eroded. Moreover, the institutional challenges that remain around the state-

owned companies and the South African Revenue Service (SARS) have constrained government spending by slowing down major investments and cutting into revenues.

- Given slow overall growth, the decline in agriculture due to the national drought in 2015 and the Western Cape drought in 2017/8 had disproportionate effects on overall economic growth. The growing uncertainty around weather reflects the impact of climate change, pointing to further challenges for the future.

The economic decline in the second quarter of 2018 was almost exclusively due to a reported 8.3% fall in agricultural production for that quarter alone. Graph 2 indicates the extraordinary volatility of reported agricultural growth compared to the rest of the GDP since the 2015 drought. It also shows that mining has been essentially flat since 2010, while manufacturing levelled out in 2013. The rest of the economy grew reasonably steadily, although increasingly slowly, until the last quarter of 2017. In the three quarters since then, it has contracted by 0.4%.

Graph 2. Indices of quarterly seasonally adjusted economic growth for agriculture, manufacturing, mining and the rest of the economy from 2010 (first quarter 2010 = 100)

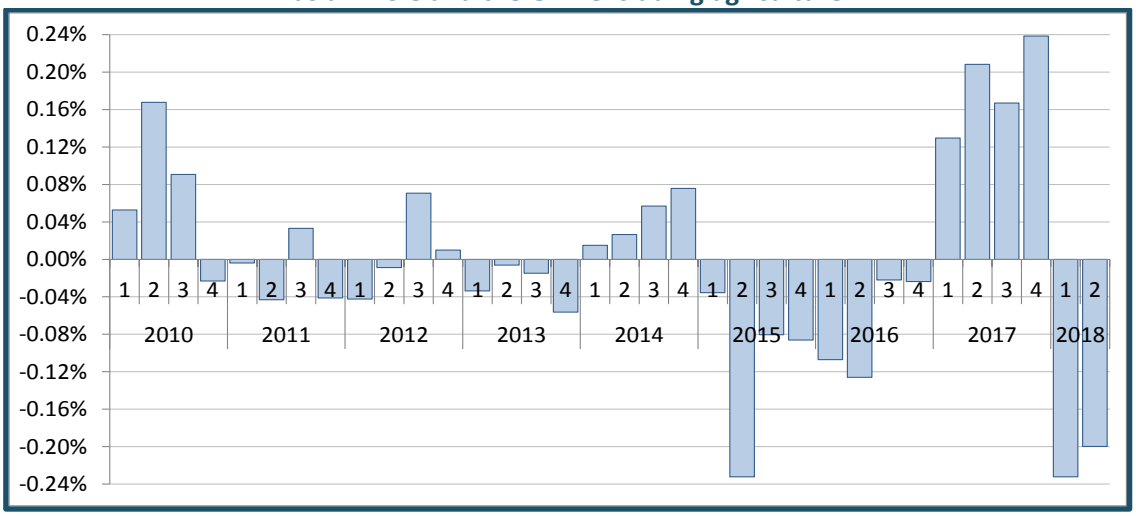


Source: StatsSA GDP quarterly figures. Excel spreadsheet downloaded www.statssa.gov.za in August 2018.

As Graph 3 shows, fluctuations in agricultural production have had a significant impact on GDP growth since 2015, even though the sector accounts for only 2% of the national economy. In part, the disproportionate influence of farming on GDP data reflects the extraordinarily sharp swings reported in its value add quarter on quarter. In part, it results because of slow growth

across the rest of the economy, which means large changes in agriculture often make the difference between overall growth and decline.

Graph 3: Difference in quarterly, seasonally adjusted growth between the GDP as a whole and the GDP excluding agriculture

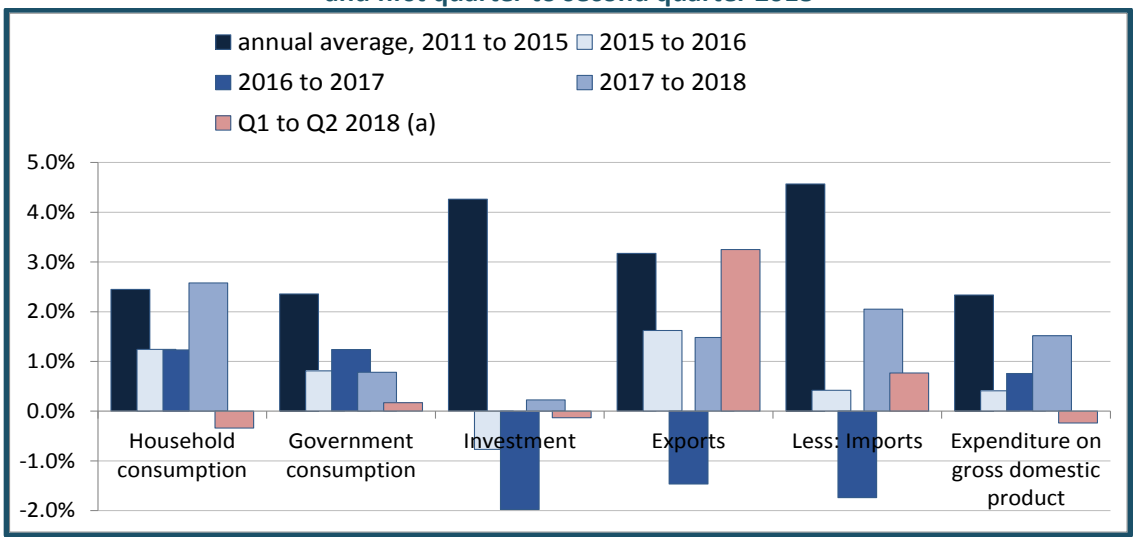


Source: StatsSA GDP quarterly figures. Excel spreadsheet downloaded www.statssa.gov.za August 2018

On the expenditure side, the reported fall in the GDP in the second quarter of 2018 was driven by a R14 billion decline in inventories, and to a lesser extent by a fall in household consumption. Statistics South Africa did not publish a sectoral breakdown of inventories for the quarter. Investment also turned negative, while growth in government consumption slowed sharply.

The decline in investment in the second quarter was entirely due to the public sector, as discussed in the section on investment below. A surge in exports was not sufficient to offset these negative factors, especially as it was accompanied by some growth in imports.

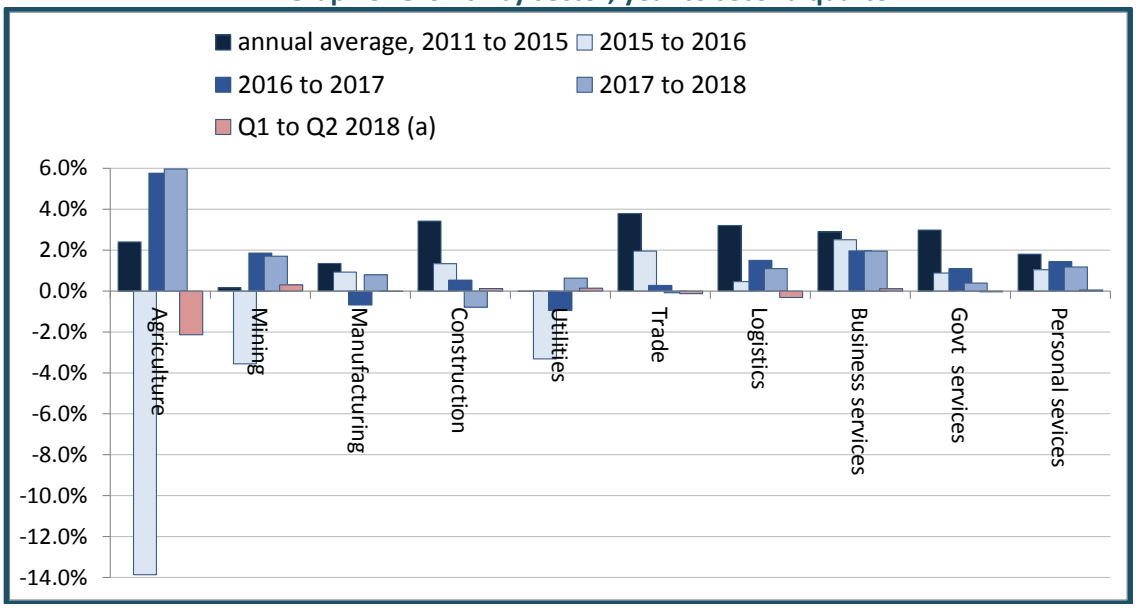
Graph 4: Change in expenditure on the GDP, year to second quarter and first quarter to second quarter 2018



Note: (a) seasonally adjusted. Source: StatsSA GDP quarterly figures. Excel spreadsheet downloaded from www.statssa.gov.za in June 2018.

Although most industries expanded in the past quarter, in every case their growth slowed compared to the previous year (see Graph 5). Similarly, if we look at the year to June 2018, most industries saw slower growth than in the year to June 2017.

Graph 5. Growth by sector, year to second quarter



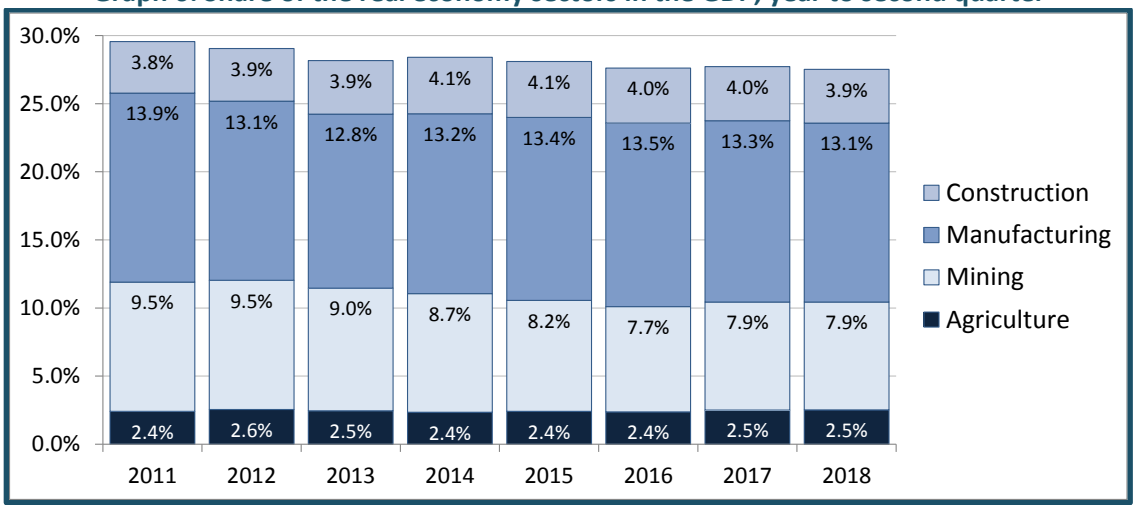
Note: (a) seasonally adjusted. Source: StatsSA GDP quarterly figures. Excel spreadsheet downloaded www.statssa.gov.za in September 2018.

The share of the real economy in the GDP continued to decline in the year to the second quarter (see Graph 6). The sharpest fall was in manufacturing, which dropped from 13.3% in the previous year to 13.1% in the year to June 2018.

Construction also continued to grow more slowly than the rest of the economy. In contrast, over the full year agriculture saw a slight increase in its share in the GDP, despite its sharp contraction in the second quarter.

The share of mining remained essentially unchanged for the year as a whole.

Graph 6: Share of the real economy sectors in the GDP, year to second quarter

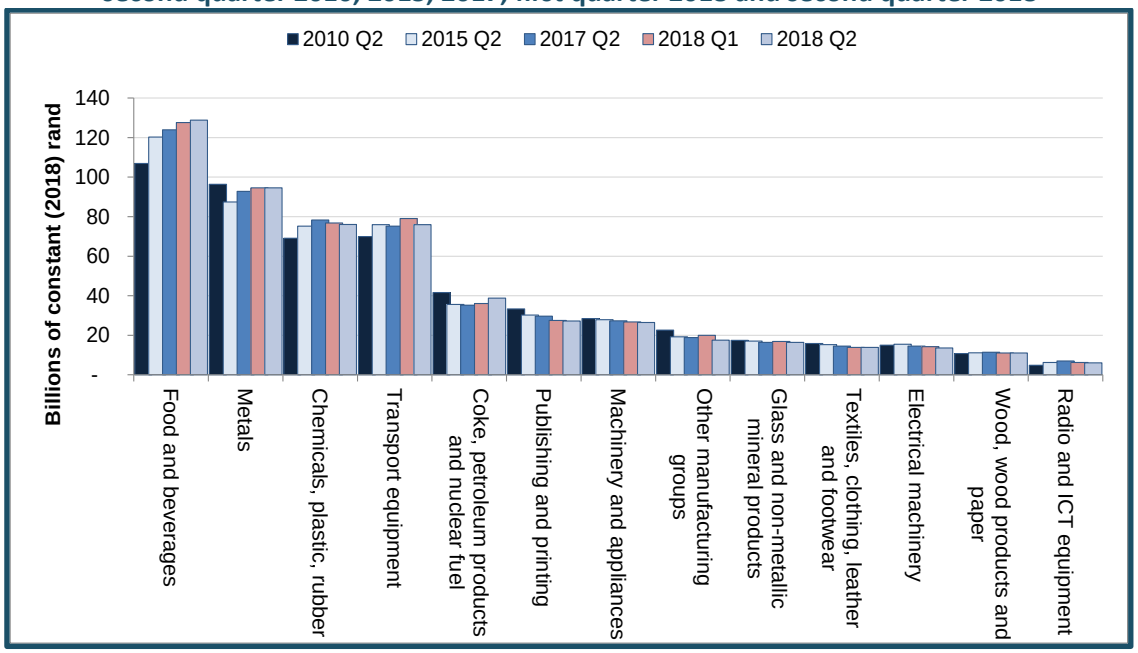


Source: StatsSA GDP quarterly figures. Excel spreadsheet downloaded from www.statssa.gov.za in June 2018.

Manufacturing sales reflected the broader economic trends. They increased by 1.9% (in constant 2018 rand) in the year to the second quarter of 2018, but declined by 1% between the first and second quarters of 2017 and 2018.

Growth was mainly driven by coke, petroleum and nuclear fuel, which saw sales grow by 10.2% year-on-year. Growth was also seen in food and beverages (3.9%); metals (1.9%); and transport equipment (1.0%). While glass and non-metallic mineral products sales remained stagnant in the year to the second quarter of 2018, various other subsectors saw declining sales. Some large drops are seen in radio and ICT equipment sales, which fell by 13.6%; publishing and printing, by 8.2%; and electrical machinery, by 6.7% (see Graph 7).

Graph 7: Manufacturing sales in constant (2018) rand (a), second quarter 2010, 2015, 2017, first quarter 2018 and second quarter 2018



StatsSA. Manufacturing volume and sales from 1998. Excel spreadsheet. Downloaded in August 2018.

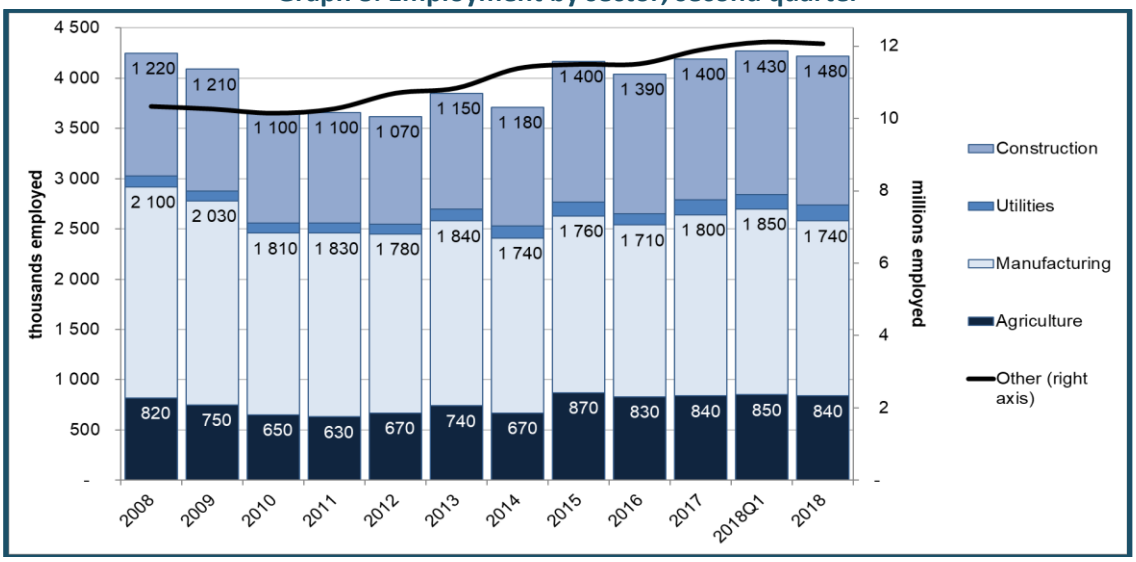
Employment

Despite the slowdown in the GDP, employment in both the real economy and the economy as a whole reportedly increased by around 1% from the second quarter of 2017 to the second quarter 2018. Manufacturing, however, lost some 55 000 jobs, or 3% of its total employment, over this period. Manufacturing typically sheds jobs in the second quarter, in a marked seasonal pattern, but at 110 000 the fall in the second quarter of 2018 was far larger than the norm.

The real economy (with the exclusion of mining, which is captured in a different statistical series) gained 46 000 jobs in the year to the second quarter of 2018, to reach 4.2 million in total.

Growth was mainly driven by the construction sector, which added some 80 000 jobs in this period. (See Graph 8) In the second quarter, the real economy as a whole typically sheds jobs; in 2018, it lost 46 000 positions or 0.8% of the total, slightly below the normal seasonal fall.

Graph 8: Employment by sector, second quarter



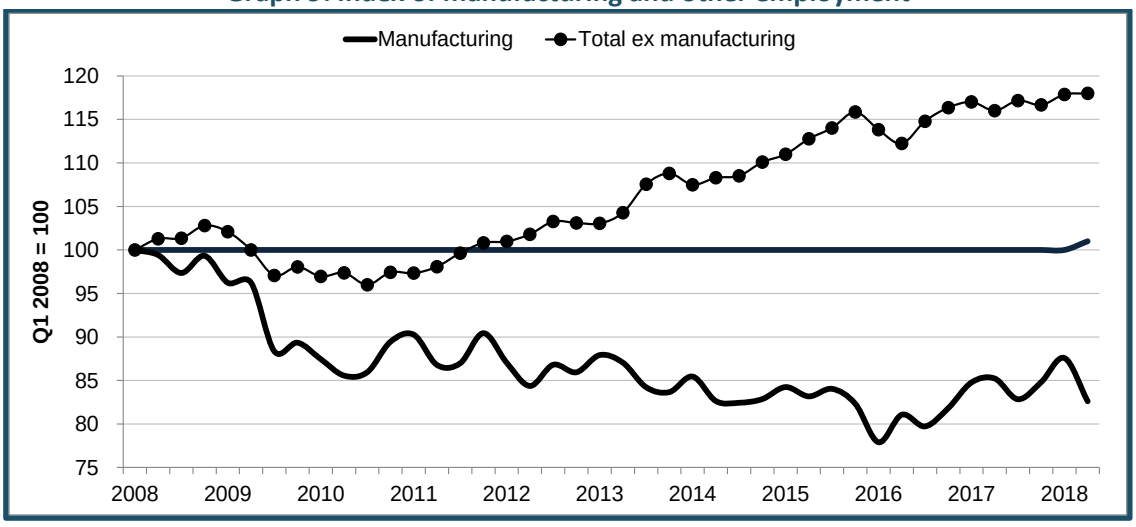
Source: StatsSA. QLFS trends 2008 - 2018Q2. Downloaded from www.statssa.gov.za in August 2018.

Manufacturing saw an unusually sharp fall in employment in the past quarter, losing 110 000 jobs. That meant it reportedly shed almost 6% of its jobs, compared to its normal seasonal decline of just over 1% in the second quarter.

In contrast, construction recovered 50 000 jobs, for growth of 3%, substantially more than its normal gains for the quarter. Still, since 2016 it has plateaued at just below 1.5 million. Despite the sharp reported fall in agricultural production, its employment remained essentially unchanged for the quarter. In most years, in contrast, it experiences substantial seasonal job losses as the second quarter sees the end of harvest for many crops.

As Graph 9 shows, the sharp decline in manufacturing employment in the second quarter of 2018 follows an unusually steep increase reported for employment in the previous six months. It appears that, despite the quarterly fluctuations, it has effectively levelled out at around 15% below its 2008 peak, before the global financial crisis, with virtually all job growth since then occurring in the rest of the economy.

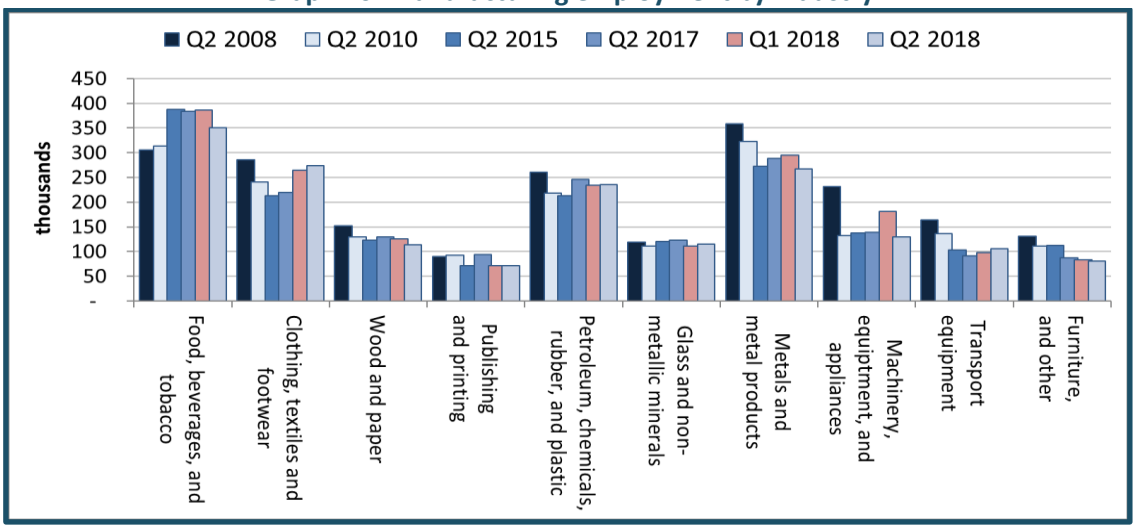
Graph 9: Index of manufacturing and other employment



Source: StatsSA. QLFS trends 2008 - 2018Q2. Downloaded from www.statssa.gov.za in August 2018.

Graph 10 disaggregates employment by manufacturing subsector. Year-on-year, the most impressive gains occurred in clothing, textiles and footwear, suggesting that the Department of Trade and Industry's support programme has begun to make progress. In contrast, two of the largest industries for employment – food and metals – showed a decline for the year, while chemicals and transport equipment gained jobs.

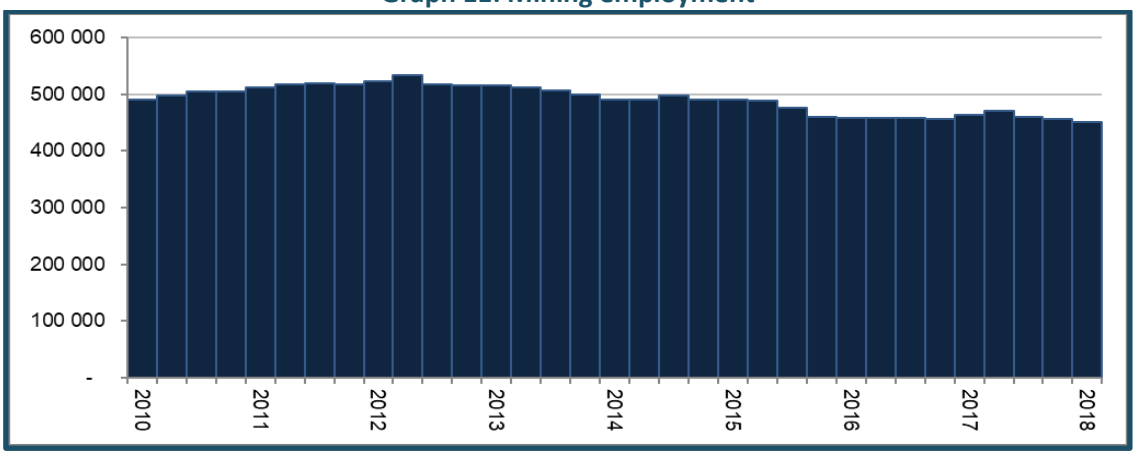
Graph 10. Manufacturing employment by industry



Source: StatsSA. QLFS trends. Electronic database. Downloaded from www.statssa.gov.za in August 2018.

Mining employment has declined since 2012, when the global metals boom ended. It lost 14 000 jobs in the year to the first quarter of 2018, falling to 450 000. Mining employment shrank by over a tenth from March 2012 to March 2018.

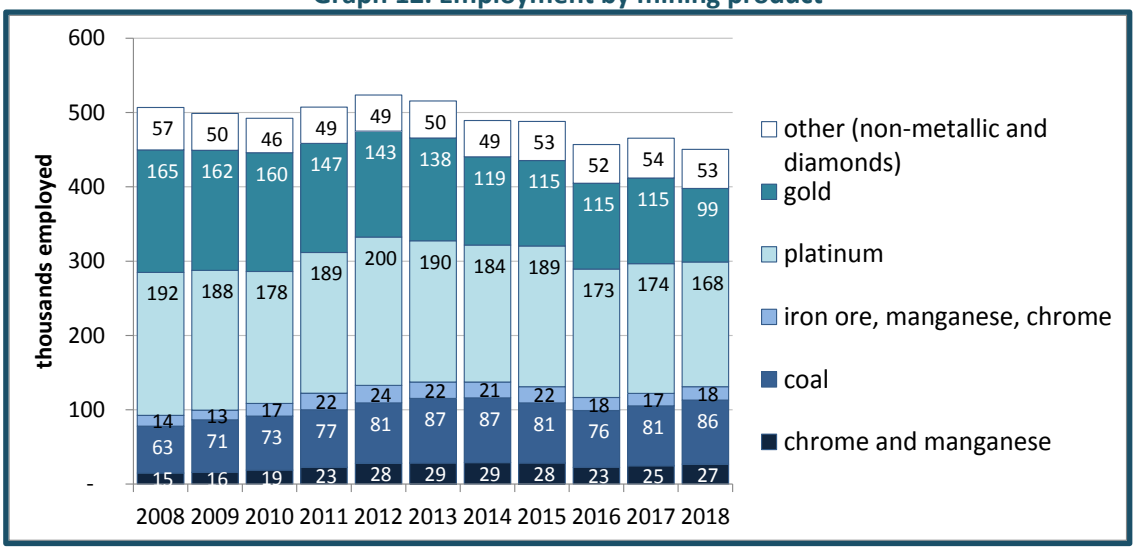
Graph 11: Mining employment



Source StatsSA. Quarterly Employment Statistics. August 2018

As Graph 12 shows, the bulk of job losses were in gold mining, continuing a long-term decline as that industry matures. From March 2012 to March 2018, gold lost 44 000 jobs, dropping from 27% of total mining employment to 22%. Platinum employment shrank by 32 000 in this period. Other mining – largely iron, manganese and chrome, diamonds and construction materials – mostly involved open pit operations and employed comparatively few people. It accounted for 40% of total mining jobs, and saw virtually no change in employment from 2012 to 2018.

Graph 12. Employment by mining product



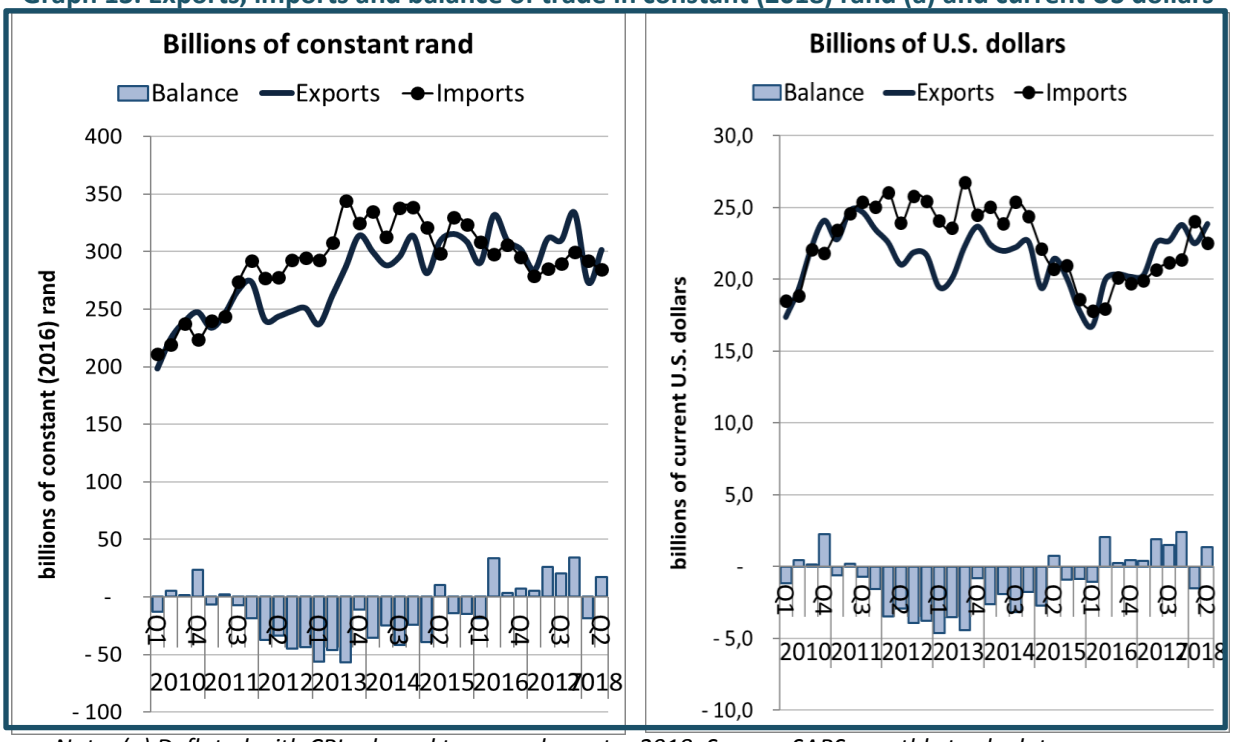
Source: Department of Mineral Resources. Monthly employment data. Downloaded from Quantec EasyData in August 2018.

International trade

The trade balance shows an improvement from the deficit seen in the first quarter of 2018. In the second quarter, the trade balance rose to a surplus of R17 billion. However, this is R9 billion (or 35%) less than the trade surplus in the second quarter of 2017.

The trade balance improved in the second quarter of 2018 after a deficit in the first quarter. In constant rand terms, trade turned in a surplus of R17 billion, up from a deficit of R19 billion in the first quarter. In dollar terms, the surplus amounted to US$1.3 billion, up from a deficit of US$1.5 billion in the first quarter (see Graph 13). Historically, periods of slow growth in South Africa have been associated with a balance of trade surplus, which helps explain the relatively strong balance of trade over the past two years.

Graph 13. Exports, imports and balance of trade in constant (2018) rand (a) and current US dollars



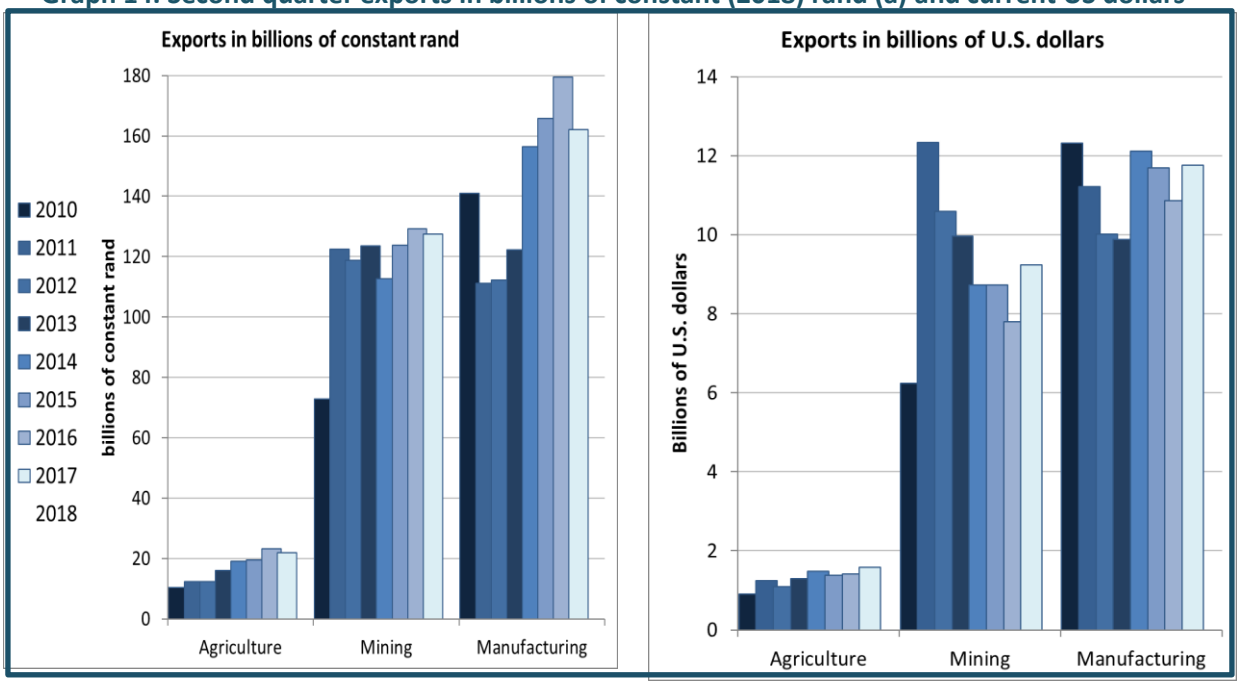
Note: (a) Deflated with CPI rebased to second quarter 2018. Source: SARS monthly trade data.

Exports in rand terms were depressed due to the relatively strong exchange rate in the year to June, although that reversed in the third quarter of 2018.

As Graph 14 shows, in the year to the second quarter of 2018, manufacturing exports declined sharply in constant rand terms from R162 billion to R154 billion. In dollar terms, however, they actually increased from US$11 billion to US$12 billion. In constant rand, agriculture exports remained essentially unchanged at R21.8 billion during the second quarters of 2017 and 2018, but climbed in dollar terms from US$1.6 billion to US$1.7 billion during the same period.

Mining exports declined in constant rand terms from R127.4 billion in the second quarter of 2017, to R125.4 billion in quarter two of 2018. In dollar terms, mining exports increased from US$9.2 billion in quarter two of 2017 to US$9.9 billion in quarter two of 2018.

Graph 14. Second quarter exports in billions of constant (2018) rand (a) and current US dollars

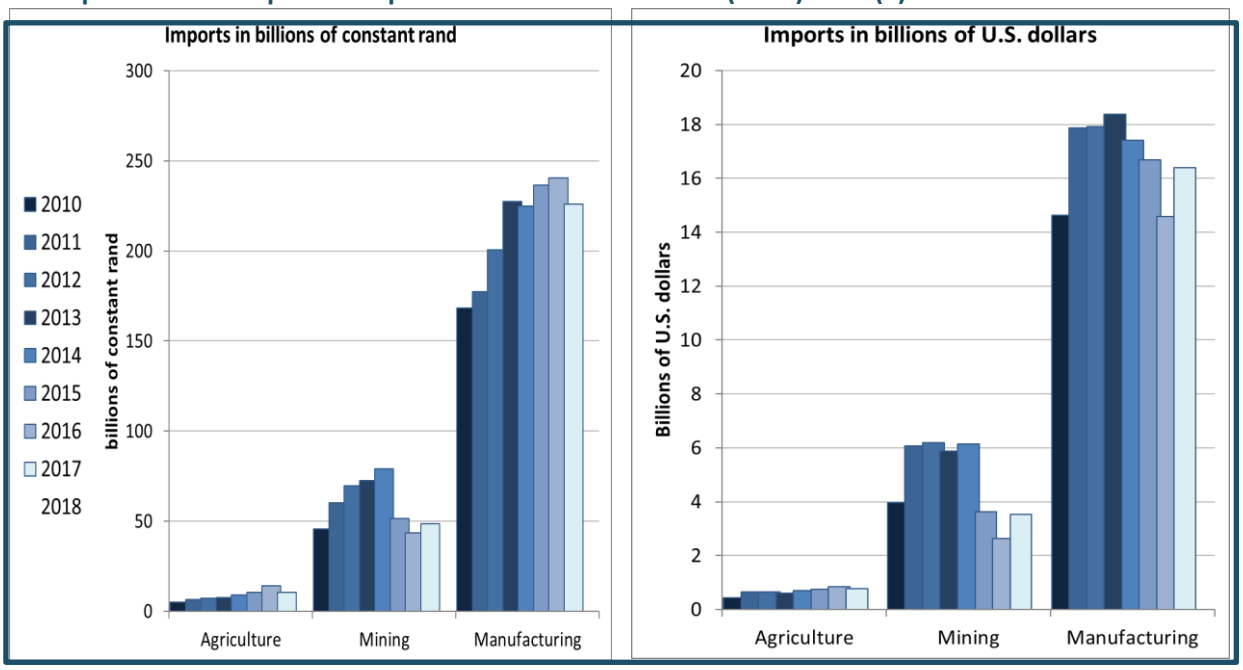


Note: (a) Deflated with CPI rebased to second quarter 2018. Source: SARS monthly trade data.

In constant rand terms, both agriculture and mining imports increased between the second quarter of 2017 and the second quarter of 2018, with the former rising to R10.7 billion (an increase of 1%), and the latter rising to R56.6 billion, from R48.7 billion.

Manufacturing imports declined by R8.9 billion, falling to R217.2 billion in the year to the second quarter of 2018. In US dollar terms, agriculture imports increased by 11% to US$0.85 billion, from US$0.76 billion in the second quarter of 2017. During the same period, mining imports rose to US$4.5 billion, growing by 11%. Manufacturing increased by 5%, rising to US$17.2 billion in the year to the second quarter of 2018 (see Graph 15).

Graph 15. Second quarter imports in billions of constant (2018) rand (a) and current US dollars



Note: (a) Deflated with CPI rebased to second quarter 2018. Source: SARS monthly trade data.

Table 1 disaggregates exports and imports according to manufacturing subsectors. In dollar terms, only transport equipment saw a decline. In constant rand, however, all but two subsectors saw decreases in exports in the second quarter of 2018. Transport equipment as well as metals and metal products saw the biggest declines, at R3.9 billion and R1.8 billion respectively. Exports of glass and non-metallic mineral products, along with chemicals, rubber and plastic, increased slightly, respectively by R0.09 billion (or 6%) and R0.48 billion (or 2%).

In the year to the second quarter of 2018, imports of machinery and appliances; transport equipment; clothing and footwear; and metals and metal products declined in constant rand terms. Transport equipment fell the most, by R7.1 billion, followed by machinery and appliances, which dropped R4.3 billion.

Clothing and footwear fell by R1.2 billion and metals and metal products by R2.4 billion. Imports of paper and publishing increased by R4.6 billion (or 127%) in the year to the second quarter of 2018, continuing on the R4.1 billion increase seen in the year to the first quarter of 2018. Chemicals, rubber and plastic; food and beverages; as well as glass and non-metallic mineral products imports increased by R1.6 billion (or 4%), R0.17 billion (or 2%) and R0.10 billion (or 3%) respectively.

Table 1. Trade by manufacturing subsectors

Industry	Value (billions)		% change from Q2 2017		Change in billions	
	USD	Rand	USD	Rand	USD	Rand
Exports						
Metals and metal products	2.9	36.5	4%	-5%	0.11	-1.82
Transport equipment	2.7	33.9	-3%	-10%	-0.07	-3.87
Machinery and appliances	2.1	26.4	9%	-1%	0.16	-0.14
Chemicals, rubber, plastic	2.0	25.2	11%	2%	0.20	0.48
Food and beverages	1.1	13.6	6%	-3%	0.06	-0.36
Clothing and footwear	0.5	6.2	9%	-1%	0.04	-0.04
Paper and publishing	0.4	5.1	0%	-9%	0.00	-0.48
Wood products	0.1	1.8	4%	-5%	0.01	-0.09
Glass and non-metallic mineral products	0.1	1.5	15%	6%	0.02	0.09
Imports						
Machinery and appliances	5.5	69.1	3%	-6%	0.15	-4.30
Transport equipment	4.0	50.4	-5%	-12%	-0.19	-7.06
Chemicals, rubber, plastic	3.4	42.8	14%	4%	0.40	1.60
Clothing and footwear	1.0	13.1	0%	-9%	0.00	-1.24
Metals and metal products	1.1	13.6	-7%	-15%	-0.09	-2.44
Food and beverages	0.8	10.4	11%	2%	0.08	0.17
Paper and publishing	0.7	8.2	147%	127%	0.39	4.59
Glass and non-metallic mineral products	0.3	3.3	12%	3%	0.03	0.10
Wood products	0.1	1.2	6%	-3%	0.01	-0.04

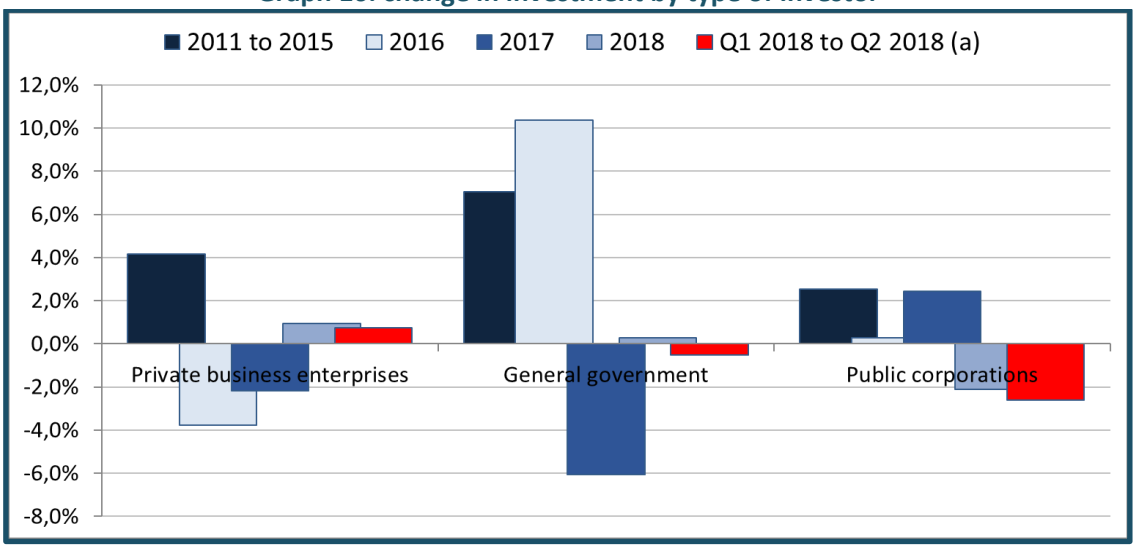
Note: (a) Deflated with CPI rebased to second quarter of 2018. Source: SARS monthly trade data.

Investment and profitability

Overall, investment declined, entirely due to a fall in investment by government and state-owned corporations. In contrast, in the year to the second quarter of 2018, private investment increased by 0.9%.

Private investment climbed 0.8% in the second quarter of 2018, contributing to a 0.9% increase in private investment in the year to the second quarter. In contrast, investment by the general government dropped by 0.5% in the second quarter, and investment by public corporations by some 2.6%. General government – that is, national and provincial departments and municipalities – eked out a small increase in investment in year-on-year terms. The state-owned corporations, however, which have been a central driver of investment since around 2005, saw their investments drop 2.1% in the year to the second quarter of 2018 (see Graph 16).

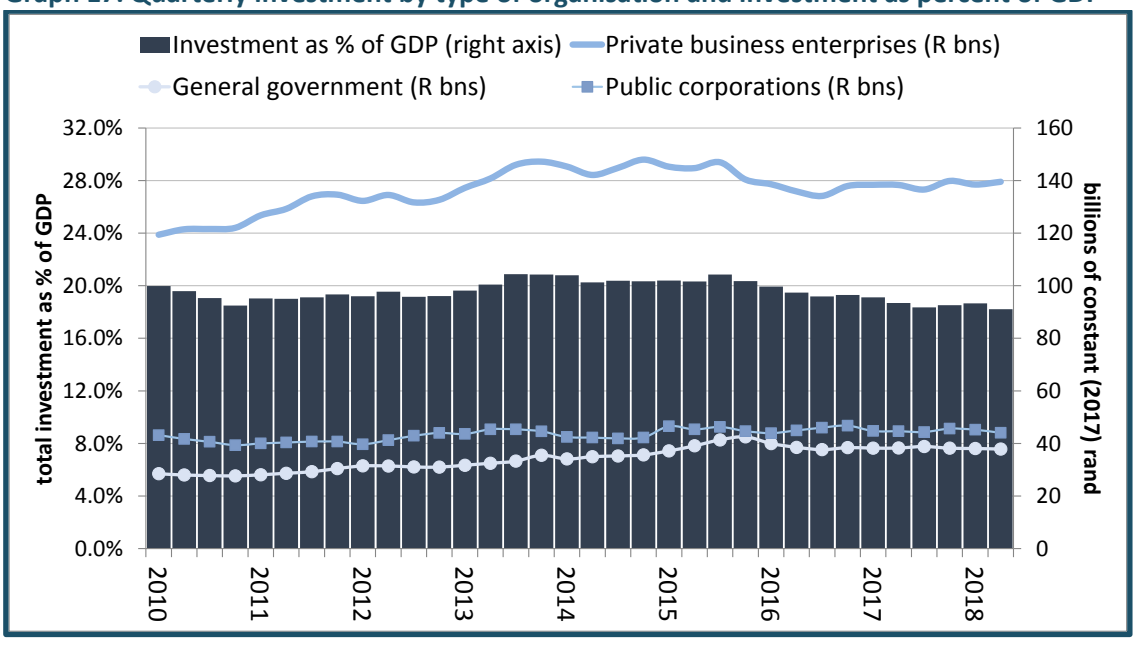
Graph 16. change in investment by type of investor



Note (a): seasonally adjusted. Source: StatsSA GDP quarterly figures. Excel spreadsheet downloaded from www.statssa.gov.za in September 2018.

As Graph 17 shows, the investment rate – that is, investment as a percentage of the GDP – continued to decline in the second quarter of 2018, despite the growth in private-sector investment. The rate has fallen steadily since 2015.

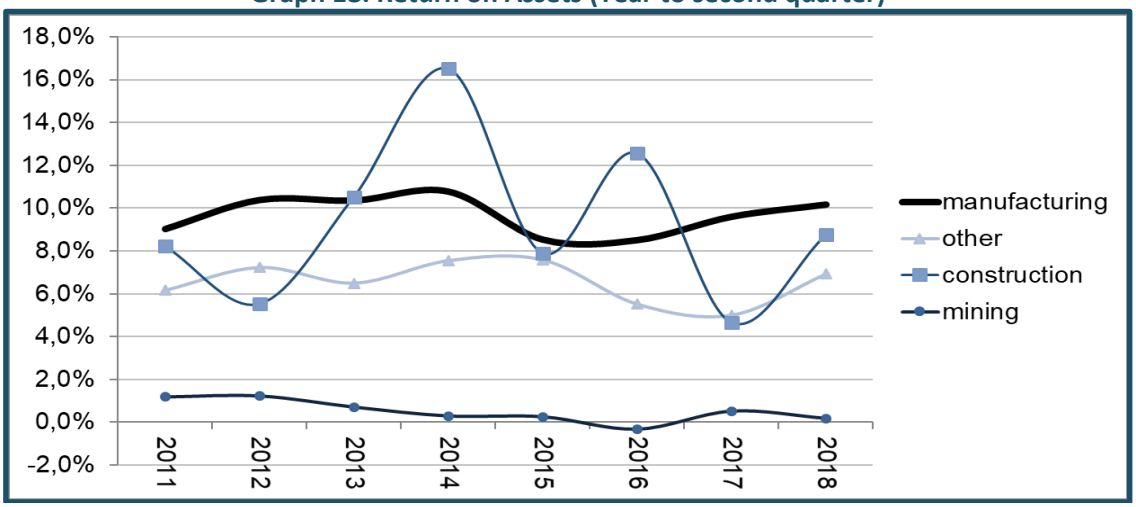
Graph 17. Quarterly investment by type of organisation and investment as percent of GDP



Source: StatsSA GDP quarterly figures. Excel spreadsheet downloaded from www.statssa.gov.za in June 2018.

Returns on assets in manufacturing continued to increase, reversing the fall in 2015. They climbed to 10.2% in 2018 from 9.6% in 2017. The mining industry, on the other hand, saw its return on assets fall to 0.2% in 2018, down from 0.5% in 2017, but better than the 0.3% loss in 2016 (see Graph 18). As with manufacturing, construction returns on assets improved, rising to 8.7% in 2018 from 4.7% in 2017. However, these returns remain below the rate of 12.6% in 2016.

Graph 18. Return on Assets (Year to second quarter)

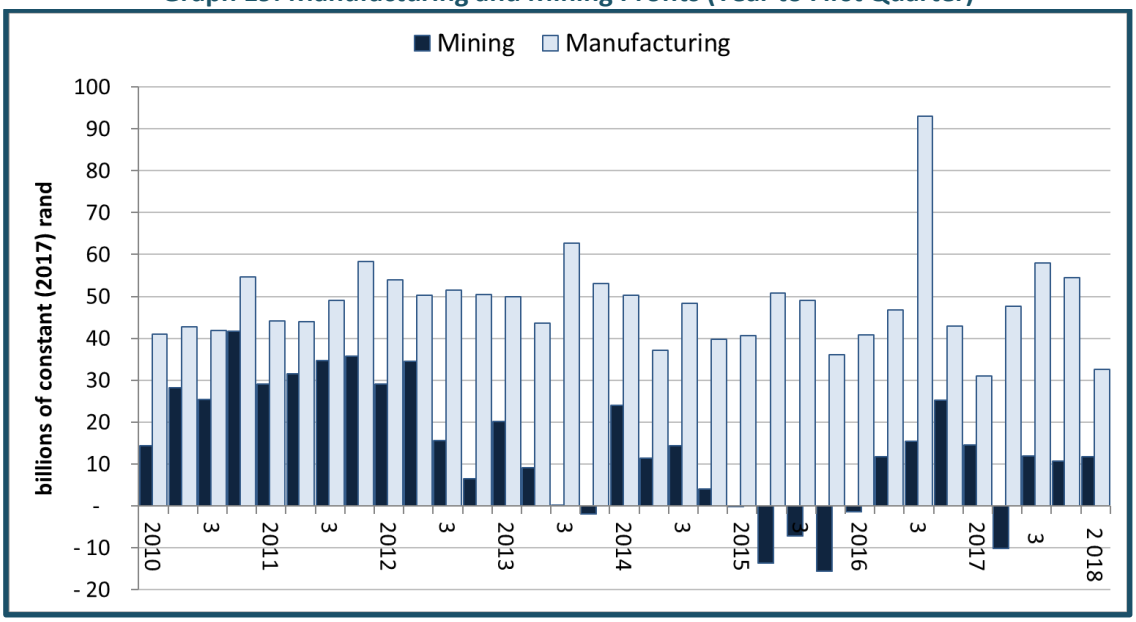


Source: StatsSA, Quarterly Financial Statistics.

Manufacturing profits increased in constant rand in the year to the first quarter of 2018, rising from R31 billion in the first quarter of 2017 to R33 billion in the first quarter of 2018. However, on a quarterly basis, profits declined by R22 billion from the fourth quarter.

Mining profits declined compared to the first quarter of 2017. Construction saw a substantial improvement in profits, rising to R7 billion in the first quarter of 2018, from R2 billion in the first quarter of 2017 (see Graph 19).

Graph 19. Manufacturing and Mining Profits (Year to First Quarter)



Source: StatsSA, Quarterly Financial Statistics

Foreign Direct Investment projects

Three new projects were reported in the TIPS Foreign Direct Investment (FDI) Tracker in the second quarter of 2018, with a total value of R11 billion.

Table 2. FDI tracker

Phase	Announced	Construction	Complete
Number of projects	3	1	3
Value	R11 billion	R6.6 billion	R3.5 billion
Industry	Manufacturing (2 projects) Wholesale and Retail Trade	Utilities	Manufacturing Recycling of waste scrap metal Manufacturing

Phase	Announced	Construction	Complete
Companies	TMH Africa (Transmashholding (TMH) 70% & Mjisa Investments (30%)) Shell South Africa Mercedes-Benz (Daimler AG)	Lekela Power (Joint Venture by Actis and Mainstream Renewable Power) & others	Air Liquide; Sasol DHT Holding Africa Whirlpool Corporation

Source: TIPS FDI tracker (2018)

Mercedes-Benz announced additional investment to expand its East London facility. This entails building a paint and body shop, and upgrading the assembly shop and logistics warehouses. The R9.5 billion pledged investment value is the highest for the quarter, and accounts for 45% of the R21.1 billion pledged so far. Government support in form of the Automotive Production and Development Programme played a role in the attracting the investment.

Shell South Africa will be investing R1 billion to expand its local retail offering. The company plans to develop filling stations and convenience stores in 22 new locations, as well as refurbish existing facilities. Additionally, TMH Africa, a partnership between Russian firm TMH and South African black-owned Mjisa Investments, recently bought out DCD Africa Manufacturing's rail manufacturing facility. The recently announced R500 million investment is to upgrade and modernise the facility to manufacture and service locomotives and other rolling stock. The company aims to supply Transnet and Prasa's rolling stock programme, with a view to expand into the rest of Africa.

Following the operationalisation of the Koebab and Leoriesfontein wind farms, Lekela Powers (joint venture between Actis and Mainstream Renewable Power) has commenced construction of the Kanganas and Perdekraal East Wind Farms. This follows the recent signing of the fourth round Renewable Energy Independent Power Producer agreements, with the project having initially gained preferred bidder status in 2015.

The wind farms are located in the Northern Cape and Western Cape respectively. Kanganas will have 140 MW generation capacity, while Perdekraal will have 110 MW generation capacity. The farms use imported Siemens SWT-2.3-108 wind turbines, although they should also be subject to local content provisions, and together will contribute a reported R1.6 billion to local community development. Commercial operation is expected to begin in 2020.

Three projects were completed during the second quarter. These projects are the air separation unit by Air Liquide on behalf of Sasol, the addition of a twin-tub washing machine line by Whirlpool and the refurbishment of a scrap metal recycling facility by DHT holdings.

The Air Liquide investment is valued at €200 million (R2.9 billion) and represents the largest oxygen production unit in the world, with a total production capacity of 5 000 tons of oxygen a day. The Secunda facility is Sasol's first outsourced supply of oxygen production.

Whirlpool's investment is another in which government's support played a crucial role through the efforts of InvestSA. The twin-tubs will be manufactured at the company's Mandeni facility at the Isithebe Industrial Estate. In addition to retaining 1 000 jobs, the facility supports the firms that feed into Whirlpool.

Finally, a Turkish firm, DHT Holdings, relaunched the Cape Town Iron and Steel Works (CISCO). This followed acquisition of the facility from Murray and Roberts following its closure in 2010 as a result of the global financial crisis. The investment of R550 million was a joint undertaking by DHT Holding and the IDC, which contributed R250 million to the project. The investment resulted in the refurbishment of the facility, which now has the capacity to process 500 000 tonnes of scrap steel per year, producing steel using electric arc furnaces. It also benefits from International Trade Administration Commission's price preference system for the export of ferrous and non-ferrous scrap metal, giving local firms first opportunity to purchase scrap metal at a 20% to 30% discount on the international price.

As indicated, there were no major updates for existing projects; however, there were two corporate social investment initiatives linked to an existing project identified.

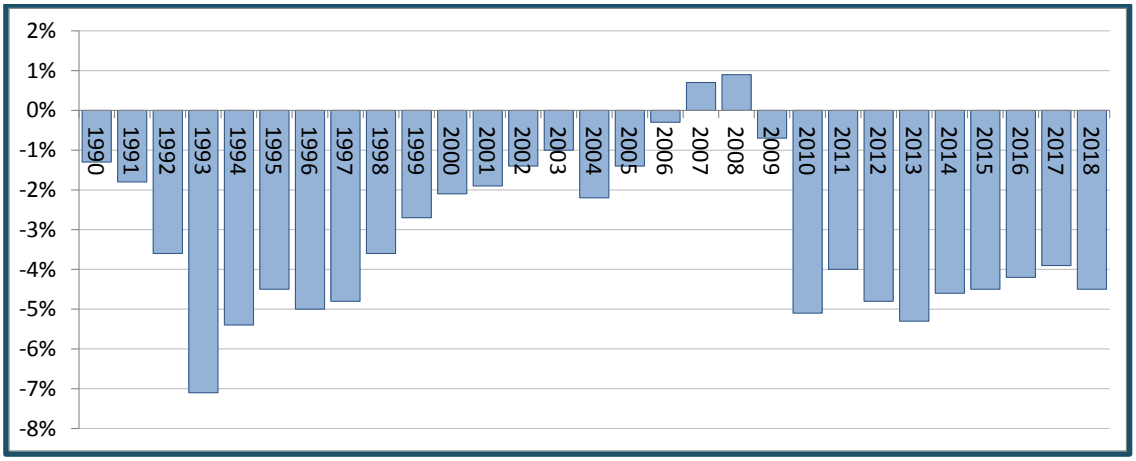
This was Volvo's recent expansion plans for the country, which had previously focused on the launch of Volvo Financial Services (VFS) Southern Africa, a commercial vehicle financier. The focus on commercial vehicles mirrors the company's recent pledge to invest R1.4 million in a specialised driver training academy to address the shortage of skilled drivers. The company also plans to introduce a R25 million initiative that aims to create one-year work placements for young people, targeting TVET college students. Both projects are linked to the government's Youth Employment Services (YES) and related initiatives.

Briefing Note: Responding to the slowdown

The figures for general government consumption and for public investment point to the pro-cyclical impact of the current fiscal policy, combined with consolidation at the state-owned corporations over the past year. The challenge is to return to a counter-cyclical stance given the limited fiscal space left by the relatively high deficit. Ideally, a stimulus package should be funded through off-budget sources.

In effect, the end of the commodity boom in 2011 meant that the stimulus undertaken in 2008 could not be reduced substantially. As a result, as the following graph shows, the deficit has fallen only slightly from its peak at 5.3% of the GDP in 2013. The failures around tax collection meant that the deficit climbed from just under 4% of the GDP in 2016/7 to 4.5% in 2017/8, largely due to a drop in VAT revenue.

Graph 20. The budget deficit as a percentage of the GDP



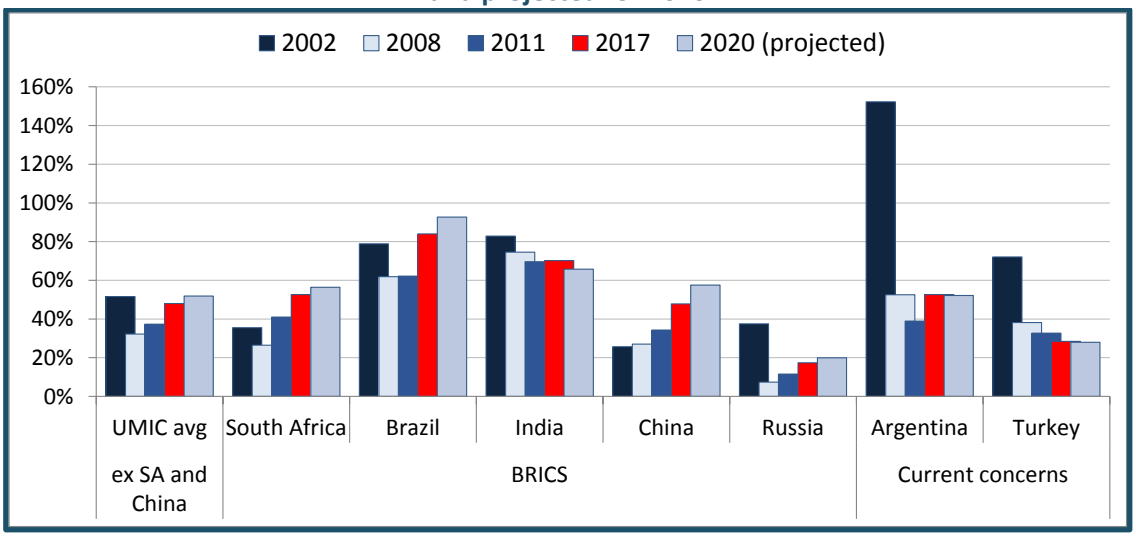
Source: South African Reserve Bank. Interactive dataset. Series on budget deficit as percentage of GDP. Downloaded from www.resbank.co.za in August 2018.

While the deficit is still on the high side, public debt stock in South Africa as a percentage of GDP is essentially at the norm for upper-middle-income economies. As Graph 21 shows, for South Africa the ratio of public debt to GDP remains substantially lower than India and Brazil, and is projected to be slightly lower than China in 2020. Turkey and Argentina (which ranks as a high-income economy) are both currently facing debt crises; they have lower public debt relative to the GDP, but substantially higher private foreign debt than South Africa.

Shifts in the global economy are a further constraint on efforts to finance a stimulus. The increase in interest rates in the US seems likely to encourage an outflow of capital from emerging markets like South Africa. South Africa's foreign debt is modest compared to other upper-middle-income economies, and much lower than Turkey, Brazil and Argentina, whose

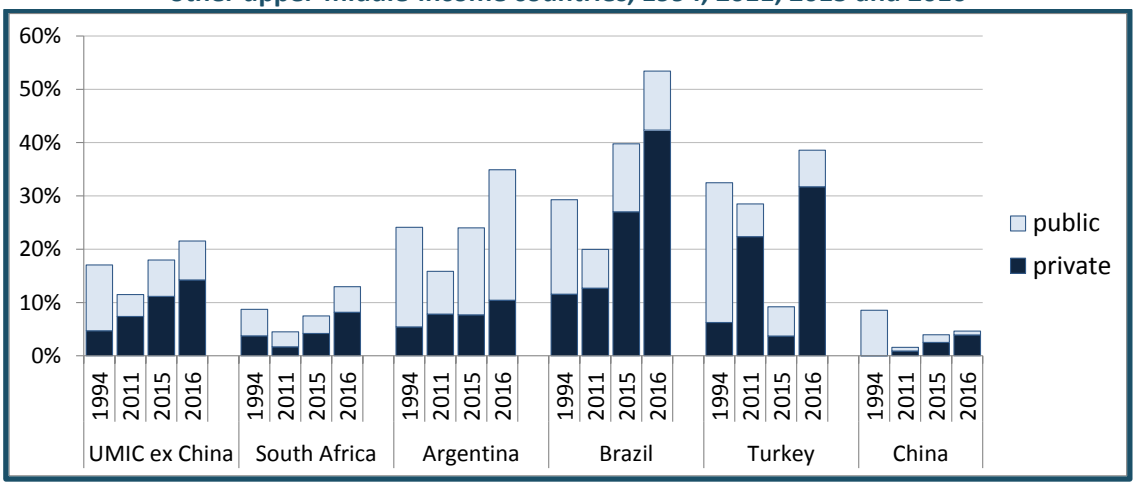
troubles have fuelled global concerns about emerging markets. It has, however, risen fairly rapidly in the past few years, in step with peer economies (see Graph 22).

Graph 21. Public debt as a percentage of GDP, 2002, 2008, 2011, 2017 and projected for 2020



Source: Calculated from IMF. World Economic Outlook. April 2018. Interactive dataset. Series on gross public debt as percentage of GDP and GDP for upper-middle-income economies (56 countries reporting).

Graph 22. Debt service payments as percentage of exports for South Africa and other upper-middle-income countries, 1994, 2011, 2015 and 2016



Source: Calculated from World Bank. World Development Indicators. Electronic database. Series on exports and private and public plus publicly guaranteed debt service. Downloaded from www.worldbank.org in September 2018.

South African private foreign debt is relatively low in part because companies have relied instead on portfolio investment through the stock market and on domestic debt. The bulk of government borrowing is also domestic. In contrast to countries that depend heavily on foreign loans, these financing mechanisms mean that while an outflow of funds would lead to further depreciation, it would not directly increase the cost of debt service for local companies.

Given the slowdown in growth combined with a relatively high and prolonged fiscal deficit, South Africa faces two challenges.

First is a need to identify ways to finance a stimulus package sustainably on a large enough scale. Modelling suggests that the stimulus package should be around R60 billion to have a significant impact on growth. Options include a further increase in the deficit; increased off-budget borrowing for capital investment, primarily by state-owned companies; and/or mobilising domestic funds that are currently held in passive investments, particularly in the social security funds and pensions.

Second is a need to develop consensus on the fundamental domestic causes of the economic slowdown since 2014. The noise around the decline in the GDP over the first half of 2018, which is mainly driven by unexplained fluctuations in agricultural output as well as declining state spending, should not distract from the fact that overall performance has been poor over the past five years. An effective response must address the following.

- Concerns around governance and the rule of law. South Africa is still less corrupt than many developing economies, but for decades its strong rule of law and clean government were selling points to investors, both domestic and foreign, as well as to taxpayers. It is therefore more important for South Africa than for other countries to re-establish visibly sound governance. That in turn requires a careful balancing between maintaining the rule of law and bringing about visible improvements in the lives of the majority. It is impossible to sustain good governance in highly inequitable and divided democracies.
- From 2011, producers have had to deal with the simultaneous end of both the global commodity boom and cheap electricity. Their response has been to diversify into other industries to some extent, notably auto exports, food processing and clothing – but also to downsize the metals industry, which has long been a pillar of the economy. There is a need for a much clearer and better defined strategy on how to address this challenge while simultaneously dealing with the structural economic factors that have entrenched high joblessness, not as a cyclical problem, but as an enduring feature of the economy.

Finally, the volatility in reported growth figures for agriculture should be analysed more carefully. They have a disproportionate impact on GDP numbers, which in turn affects investor and voter confidence. But there is no obvious economic reason for the current fluctuations in growth in the sector.

Briefing Note: The President's investment drive

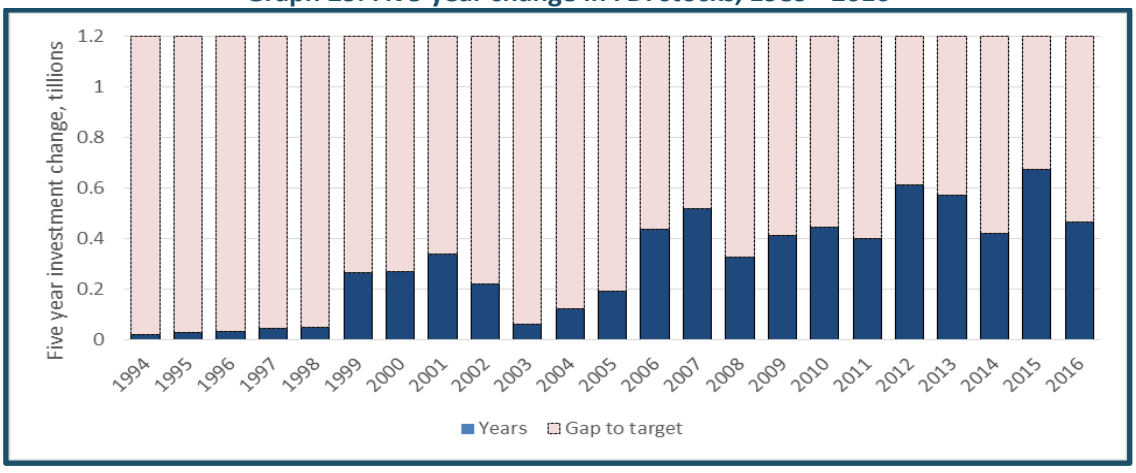
As part of the renewed push towards industrialisation, job creation and faster levels of economic growth, President Cyril Ramaphosa set an ambitious target of attracting US$100 billion in new investment within five years.

Adding between R1.2 trillion to R1.4 trillion in investment in the economy would make a significant contribution toward an economic turnaround. Key steps towards achieving that target including establishing a high-level team to identify opportunities, giving confidence to investors that the country is addressing long -term political stability, with the main facets of state capture being addressed, strategically targeted state visits with key trading partners and investor countries, and an investment conference planned to take place towards the end of the year.

Targeted state visits have led to grand pledges of investment into South Africa. These pledges boost to investor confidence and broader confidence in the country, but it is not clear how well they square with economic realities. Most investments require an underlying project logic. Caution is also important where the viability of these investments requires state off-take agreements or that government provide infrastructure on a large scale, such as water, electricity or new roads and rail.

The initiative was initially presented as focused on foreign direct investment (FDI), but quickly clarified as also targeting domestic investment. This clarification is important. When stacked up against existing FDI of R1.8 trillion, the target is over two-thirds of existing investment stocks. As can be seen in the graph below, no five-year period has come close to the new objective.

Graph 23. Five-year change in FDI stocks, 1989 - 2016



Source: TIPS calculations based on SARB 'Foreign liabilities: Total direct investment'

At the project level, a TIPS database of investment projects between 2016 and 2017 underscores the challenge of the target. The largest investments in the dataset – the construction of the Thabametsi and Khanyisa coal plants as independent power producers – together come to R40 billion. Thirty similar initiatives would be needed to hit the target. In practice, however, the vast majority of inward investment is a sprawl of much smaller projects. Most current projects are valued at less than R500 million, and prominently feature existing investors upgrading or expanding their facilities, a process that again is reliant on the context-specific identification of needs in existing productive structures.

The scale of the proposal can also be understood by comparing it to domestic investment. In 2017, total gross fixed capital formation in South Africa came to R870 billion; attracting R1.2 trillion, even if realised over a five-year period, would boost that amount by over 25% every year.

The President's initiative thus requires a new approach and strategy for government's investment promotion. Routes are being pursued to successfully unlock the level of investment targeted. In addition to recent state visits to and from China, the UK, Saudi Arabia, and the United Arab Emirates (all major trading partners), the President has ensured that key policy issues are being resolved. The most recent is the launch of the integrated energy plan and the resolution of the mining policy. The oil and gas framework is also close to being resolved. Reinvestment in the automotive sector, which has been the bedrock of manufacturing investment for the past few years, is also likely to continue; with recent steps toward finalisation of the new automotive incentive providing the policy continuity to maintain that sector's level of investment. Some of the proposed improvements to the incentive would likely see greater investment in the automotive supply chain, contributing to broader industrialisation efforts.

More effective efforts to leverage government procurement could deepen the impact of state investment, particularly if local content policies are revised to encourage sourcing both locally and from the surrounding region. However, caution needs to be given that the push to attracting new investment does not for example result in more expensive water[1] or electricity and the business case for these new investment projects are strong.

The target aside, greater clarity is required about the new administration's approach to investment. Debates in the past few years have been dominated by a shift away from trying to maximise investment levels in the abstract, to an effort to target investment to maximise the

[1] See recent TIPS research on the high cost of desalination: *Desalination in South Africa: Panacea or peril for industrial development?* Available at: http://www.tips.org.za/research-archive/sustainable-growth/item/3500-desalination-in-south-africa-panacea-or-peril-for-industrial-development.

value derived from each project. That means trying to encourage investor pledges around key impact metrics such as employment, local procurement, and community development.

In this context, while investment in mining should be welcomed – both as a symbol of the return to profitability of commodity industries and a chance to extend the livelihood of mines on which many jobs rely – the pattern of the commodity boom, in which companies extract enormous profits without appropriate investment in their long-term stability or in building a competitive domestic mining equipment industry, should not be repeated. Investment projects will also need to be considered with regard to geographic location, with highly centralised investment in the large metros likely to limit the impact on the most vulnerable in smaller cities and rural areas.

The President's emphasis on boosting investment is crucial, but getting commitments and projects is merely a first step. Assuring investments contribute to inclusive growth is a more complex challenge, but it is vitally important.

Briefing Note: Farming 4.0 – implications for South Africa

Agribots, aquaponics, smart collared cows, fenceless farming and e-shepherds, and aero/vertical farming are some of the emerging technologies that fuse the digital, physical, automated and scientific systems in the new agricultural revolution, sometimes called "Farming 4.0". The challenge is to achieve sustainable food security systems that incorporate scale production with affordable and cost-effective farming methods and environmental protection.

From a development perspective, the technological transformation should contribute to the national objectives of food security, job creation, an inclusive economy and transformation in ownership of the country's resources. Progress has been spearheaded by some commercial farmers, communities, provincial agriculture departments, and non-governmental organisations.

At national level, President Cyril Ramaphosa expressed in early 2018 that the agricultural revolution should be embedded in land reform, and that redistributed farms should be active in production.

The challenge, however, is that the new technologies may pose a threat to jobs. This threat takes two forms.

On the one hand, labour could simply be displaced. Currently 730 000 people are employed as formal farmworkers, many of them doing tasks such as herding and weeding that could become redundant. On the other hand, the new technologies frequently require extensive training on top of a secondary education to manage installation, programming and maintenance. In formal

agriculture, however, farmworkers have an average of eight years of education, among the lowest in any industry. Experience suggests that even if the shift to new technologies does not lead to a fall in the number of jobs, employers may replace existing workers with better educated (and better-paid) people.

Table 1 summarises the technological directions that define Farming 4.0.

Table 3: Farming 4.0 concepts

Type of change	Examples	Description
Produce differently using new technologies and innovations	Hydroponics, aquaponics, smart irrigation	Hydroponics refers to growing plants without soil, usually in an inert substrate like gravel or perlite. The plants are fed by nutrients dissolved in water. Aquaponics centre on the introduction of fish, where the water and the nutrients from the fish tank flow into a tank of vegetables and herbs, and in addition, the vegetables clean the water which flows back into the fish tank.
Produce using modifications and innovations of technology and techniques	Vertical / aero farming, freight farming	Vertical farming is the practice of producing agricultural products in vertically stacked layers using indoor farming techniques and controlled environment agriculture.
Incorporate cross industry technology and applications to production	Drone technology, remote farming, smart collared cows	Remote farming fence — move and monitor livestock remotely via smart gadgets.

Source: Adapted from De Clercq, Vats and Biel (2018)[2]

South Africa has more than 70 institutions operating in research, training, installation and sales of equipment and parts or whole systems, in the use of hydroponics and aquaponics technologies. These hydroponics and aquaponics technologies mitigate weather conditions and reduce the need for soil. However, at present, only a limited number of products can be grown, including but not limited to some leafy vegetables.

Modifications and innovations in space usage have also allowed for farming in urban spaces. These innovations involve the use of rooftops, balconies and window sills for planting, and are already in use in cities such as Johannesburg and Cape Town. Research shows that vertical gardening can use about 95% less water than conventional farms, and yield 75 times more crops per square meter. A recent addition is freight farming, which uses stacked shipping containers.

[2] De Clercq, M., Vats, A. and Biel, A. (2018). Agriculture 4.0: The future of farming technology. Dubai: World Government Summit.

This technique is affordable, repeatable and transportable. Entrepreneurs in Cape Town have already started fish farming in containers, bolstering the scope for aquaculture.

Cross-industry technologies and applications have been adapted for agricultural use. Drones are not a new concept, but they have been developed to monitor livestock health using infrared thermal cameras. They can perform routine checks of fence lines, monitor dam levels, livestock and wild game in a fraction of the time required by standard methods using ground travel. Already seven firms have received licensing from the South African Aviation Authority to use drone technology for various purposes, including agriculture.

Cost drivers for livestock include fencing as well as labour for herding. Smart gadgets make it possible to fence, move and monitor livestock remotely. Fenceless farming and e-shepherd involve a GPS-enabled animal collar and an app that allows farmers to create virtual grazing zones. Transponders on individual animals use audible cues that ensure animals stay within set boundaries. The system prevents over grazing and allows better land management. The e-shepherd is not yet known to be used in South Africa, which still relies on traditional collars with bells, herders and fencing.

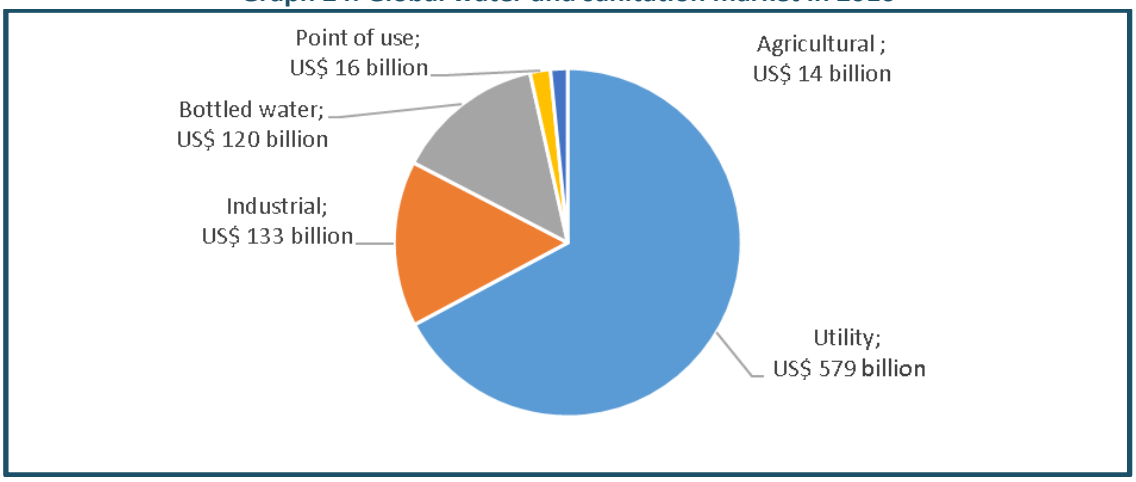
These farming technologies, some developed for completely different sectors, have found use in the agricultural sector. They represent an opportunity to improve capacity and output through increasing yields and productivity. There may be an impact on employment, however, and the full effects need to be understood.

Briefing Note: Water and sanitation markets: An opportunity for industrial development?

The evolution of the water and sanitation market in South Africa and globally opens opportunities for industrialisation. For this reason, the sector has been identified by the Industrial Policy Action Plan as a potential driver, notably through the establishment and growth of locally-designed and manufactured products and services.

The global water and sanitation market, including both capital and operational expenditures, was estimated at US$862 billion in 2016 (see Graph 24). For South Africa, the main opportunities emerge around the local production of goods now imported, with more limited scope for increasing exports.

Graph 24. Global water and sanitation market in 2016



Source: TIPS, based on data from Global Water Intelligence

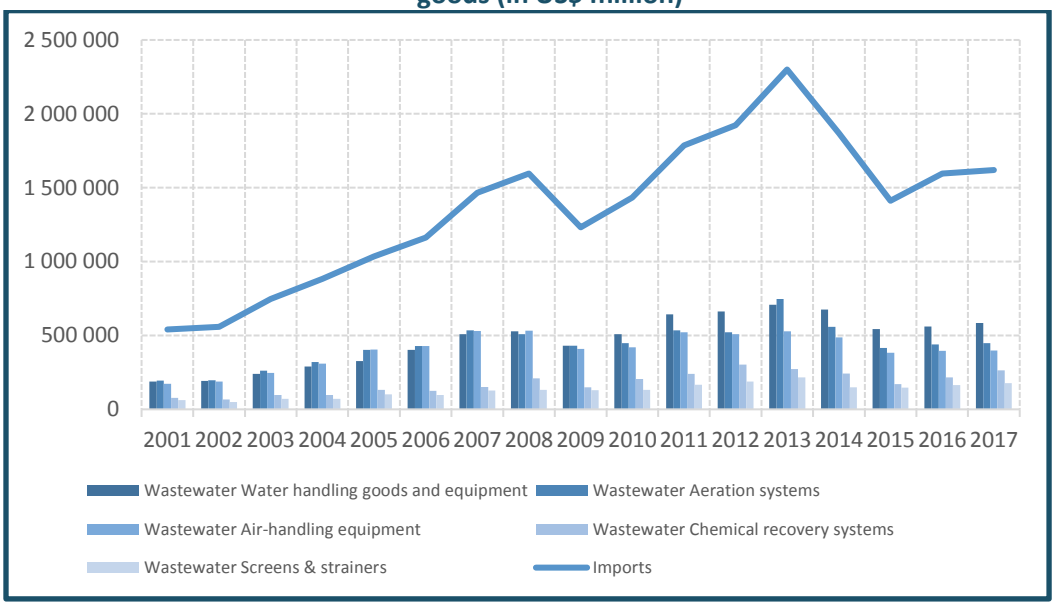
The global water and sanitation market is changing. Key challenges include heightened pressure on water security, notably due to climate change, the need to bridge the water and sanitation access gap, tighter environmental and health regulations, manage ageing and/or degrading infrastructure, and address weakening financial sustainability. The result has been a series of systemic responses, including increased focus on demand management; a stronger drive towards sustainability; heightened interest in technological innovation; in some cases, stronger utility autonomy and private sector participation; and rising water tariffs. Broadly there has been a shift from large infrastructure projects to the rehabilitation of existing infrastructure and the implementation of smart, digital solutions.

The South African market is heavily dependent on imports. Despite noteworthy exports, imports of water- and wastewater-related products are materially larger. This could open opportunities for import substitution, particularly for pipes, pumps and valves (50% of total South African equipment market) as well as automation and control equipment (16%) which accounts for the bulk of the equipment demand in the country.

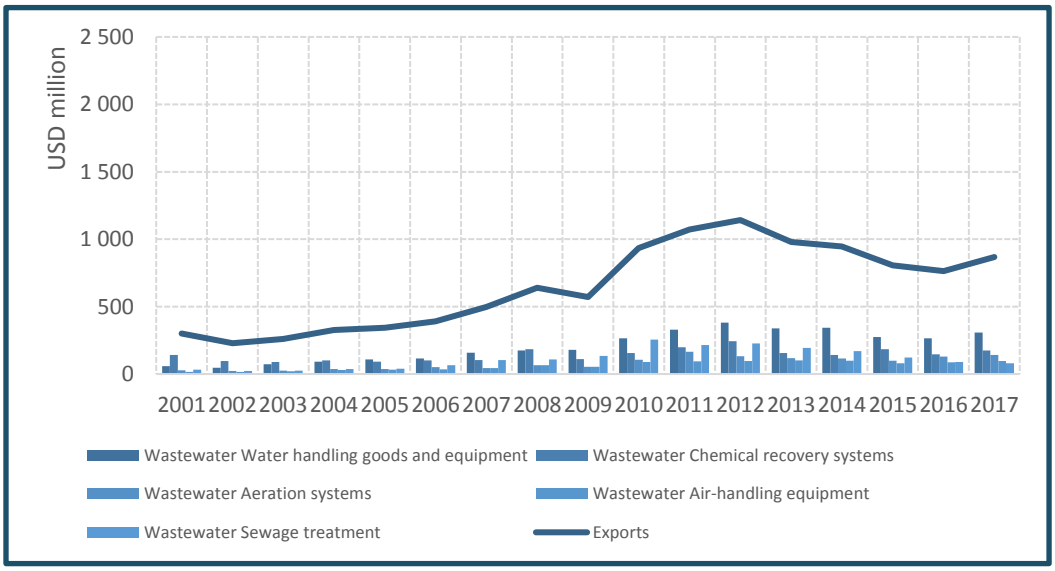
Engaging on the export market would appear more difficult off the existing basis. South Africa currently supplies only 0.2% of global trade in water- and wastewater-related goods and, although the market is fairly disaggregated, competition is fierce. The market is dominated by civil works and engineering, which are generally highly localised, and most equipment and technologies originate from a limited number of countries. In addition, while the supply market is relatively disaggregated, strong, leading firms operate in most countries.

Figure 1: South Africa's import/export of water- and wastewater-related goods (in US$ million)

Imports



Exports



Source: TIPS, based on Trade Map data,
Note: Imports and exports depict total South African trade in water- and wastewater-related goods. Other categories represent the leading five categories (out of 18). These are not additive due to some products featuring in more than one category.

The existing industrial base could, however, provide the capabilities to position local firms as stronger suppliers on a number of export markets. The move towards smart, digital, decentralised and efficient and circular systems appears to be a notable opportunity. Whether or not South Africa can seize emerging opportunities will depend on the country's ability to align industrial development with water and sanitation policy and objectives.

The full report is available on the TIPS's website: *Global water and sanitation market dynamics: Implications for South Africa's industrial development*.