THE REAL ECONOMY BULLETIN

TRENDS, DEVELOPMENTS AND DATA

FIRST QUARTER 2018

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

GDP growth

South Africa's GDP shrank by an estimated 0.5% in the first quarter of 2018, although the estimated decline may be overstated for technical reasons. The contraction partially offset the gains in growth experienced in the last three quarters of 2017.

The first quarter of 2018 saw the economy shrink over the previous quarter, partially offsetting the gains in growth experienced in the last three quarters of 2017 (see Graph 1). That period of growth represented the most stable and prolonged period of growth reported since 2014.

GDP estimates have shown negative growth in the first quarter in the past three years, with the 0,5% fall reported in 2018 following falls of 0.2% and 0.4% in the first quarters of 2016 and 2017 respectively. This pattern appears to reflect difficulties in managing the seasonal adjustment of the GDP estimates. Together with a very unusual petroleum export in late 2017 and the impact of the drought on harvests in the Western Cape, that suggests that the decline in the GDP in the first quarter of 2018, and the growth in most of 2017, may have been exaggerated.

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

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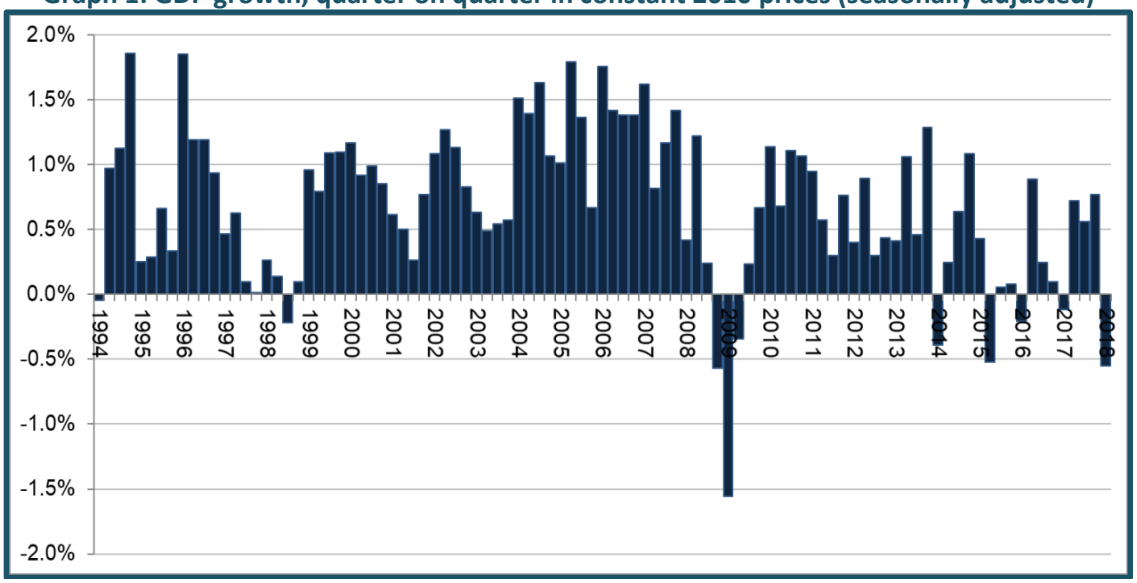
Graph 1: GDP growth, quarter on quarter in constant 2010 prices (seasonally adjusted)



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

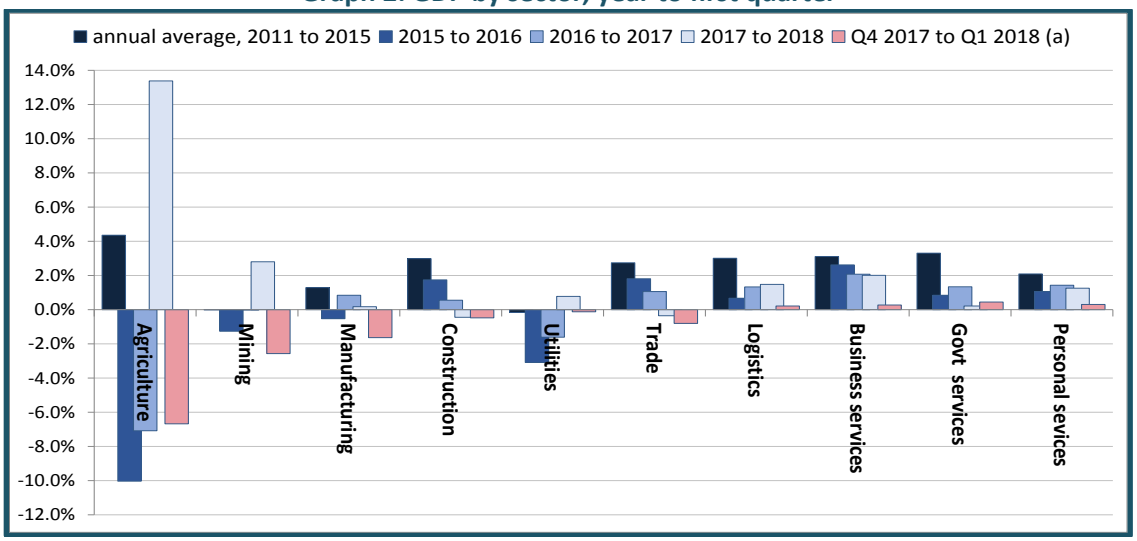
At a sectoral level the strong recovery in agricultural sector growth in 2017 through the end of the 2015/16 drought was partially offset by a 6.7% decline in reported growth between the fourth quarter of 2017 and the first quarter of 2018. This was presumably attributable to the drought in the Cape areas, which affected wheat and citrus harvests in the first quarter of 2018. The seasonal variation in the data suggests that the increased frequency and intensity of droughts since 2014 have generally made it harder to undertake seasonal adjustments of GDP estimates.

The manufacturing sector grew by 0.2% in the year to the first quarter of 2018, but shrank 1.6% in the first quarter of 2018 compared to the fourth quarter of 2017. The decline in manufacturing occurred on the back of declining demand and exports in the first quarter of 2018. Mining expanded by 2.8% in the year to the first quarter of 2018. It contracted some 2.6% in the first quarter of 2018, however, mostly due to problems in platinum and the steel value chain.

The construction sector witnessed a continued decline of 0.4% in the year to the first quarter of 2018 and shrank by 0.5% from the final quarter of 2017 to the first quarter of 2018.

A decline in government services contributed 10% to the reported fall in the GDP in the first quarter of 2018, reflecting the impact of the current austerity policy.

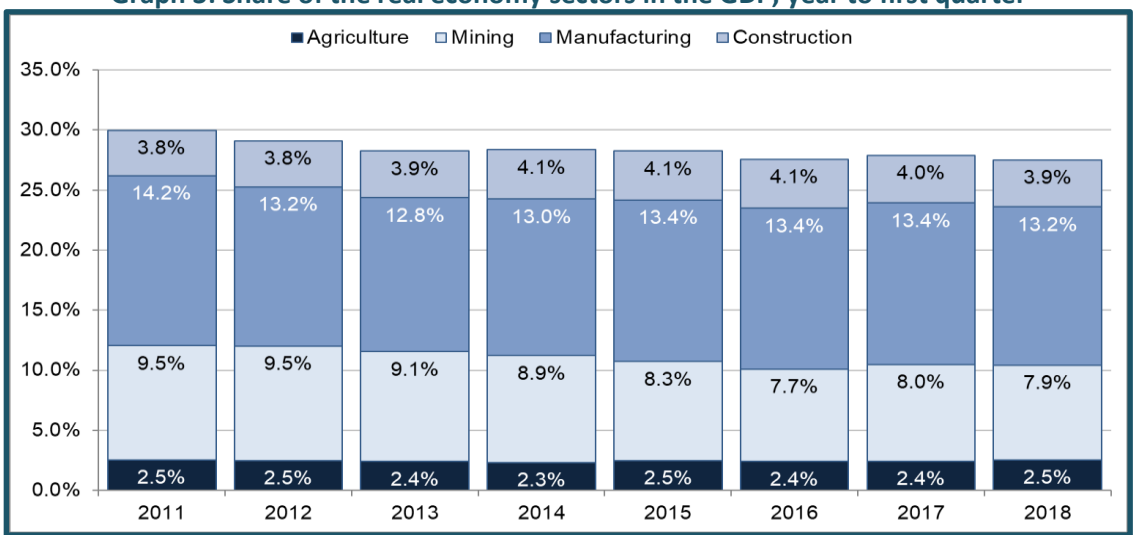
Graph 2: GDP by sector, year to first quarter



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

The share of the real economy in GDP has remained at just below the 28% mark over the past three years, with the relative shares of the each of the real economy sectors remaining almost the same in that period (see Graph 3). Mining fell from 2011, when the commodity boom ended, to 2015, and then its share stabilised at around 8%; manufacturing also stabilised, although its share shrank slightly in 2018; and construction continued the decline of recent years. The recovery in agriculture was evident from the increase in its share in the GDP from 2,4% in 2016 and 2017 to 2.5% in 2018, partially offset by the decline due to the Western Cape drought in the first quarter of 2018.

Graph 3: Share of the real economy sectors in the GDP, year to first quarter

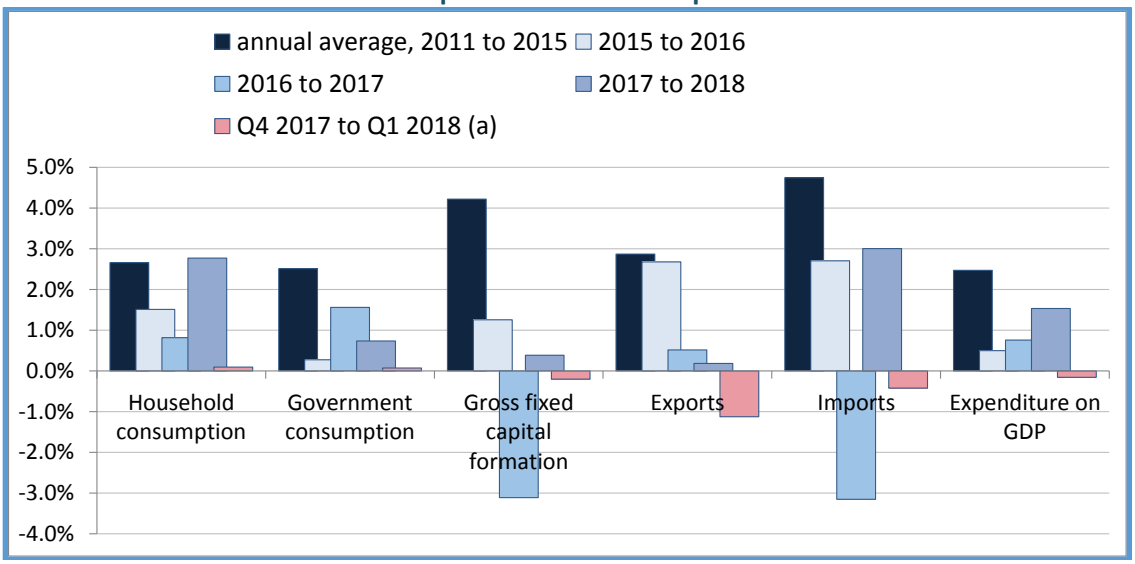


Source: StatsSA GDP quarterly figures. Excel spreadsheet downloaded from www.statssa.gov.za in June 2018.

On the expenditure side of the GDP estimate, household expenditure was the principal driver of growth in the year to the first quarter of 2018, reaching 2.8% (see Graph 4). Government expenditure grew by a relatively low 0.7% over that time period, a significant slowdown compared to the 1.6% growth experienced in the year prior, indicative of fiscal consolidation.

Expenditure on exports grew 0.2%, reflecting lower growth compared to previous years. In the first quarter of 2018, expenditure on exports fell by 1.1%. In the same quarter, the reported value of exports dropped due to a highly unusual R10-billion export of petroleum in the final quarter of 2017. As discussed in the briefing note on page 16 on the GDP estimates, this once-off export was equal in size to around two months of petroleum imports, and not in line with South Africa's normal trade patterns. Expenditure on imports grew by 3% over the past year, overcoming the 3% decline between 2016 and 2017.

Graph 4: Change in expenditure on the GDP, year to first quarter and fourth quarter 2017 to first quarter 2018

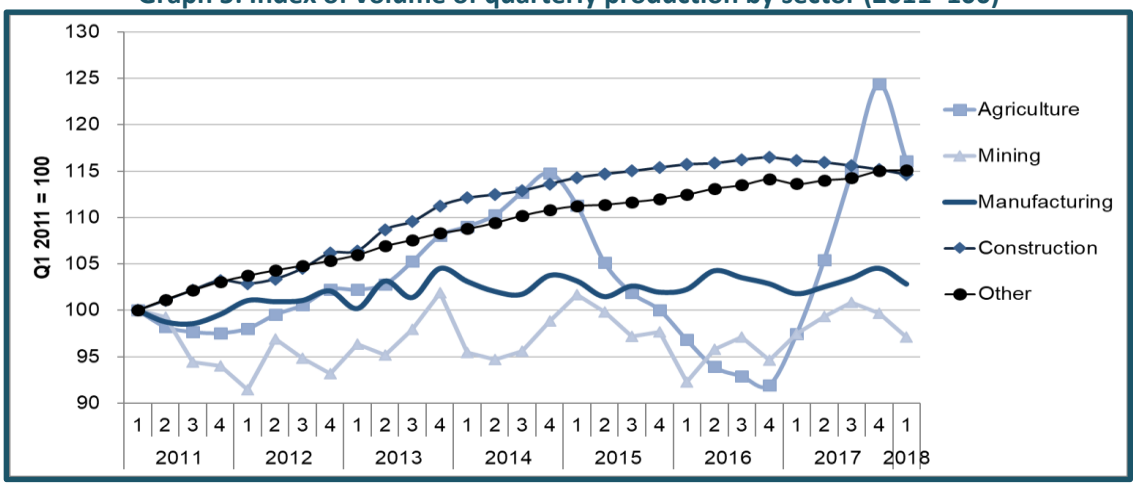


Note: (a) seasonally adjusted, not annualised. Source: StatsSA GDP quarterly figures. Excel spreadsheet downloaded from www.statssa.gov.za in June 2018.

Production data reveal that agricultural output declined in the first quarter of 2018, after a sustained recovery in 2017 from the 2015/16 drought (see Graph 5). As indicated, this was presumably attributable to lower than expected harvests in the Western Cape.

Manufacturing output also experienced a decline in the first quarter of 2018 after growth in 2017, although it remained higher than a year earlier. Mining continued its fall from its most recent peak in the third quarter of 2017, falling in the fourth quarter of 2017 and continuing this decline in the first quarter of 2018. The construction sector saw continued declines in production in the first quarter of 2018 from the fourth quarter of 2016.

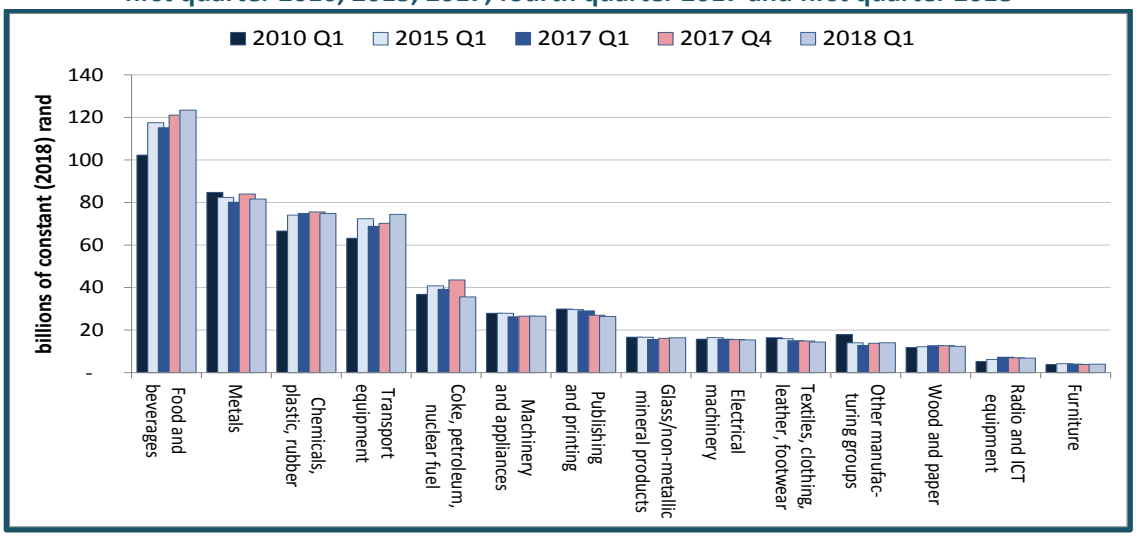
Graph 5: Index of volume of quarterly production by sector (2011=100)



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

Manufacturing sales increased by 1.9% (in constant 2018 rand) between the first quarters of 2017 and 2018, while experiencing a decline of 1% in the last quarter. Over the past year, growth was sharply divided by sector. Three large industries were principally responsible for growth: food and beverages, which saw sales growth of 7.1%; transport equipment (8.2%); and metals (1.9%). Smaller industries including machinery and appliances; glass and non-metallic mineral products; and other manufacturing groups saw growth rates of between 1% and 9.6%. The other manufacturing industries (coke, petroleum products and nuclear fuel; publishing and printing; electrical machinery; clothing and footwear; wood and paper; radio and ICT equipment; and furniture) all saw falling sales (see Graph 6).

Graph 6: Manufacturing sales in constant (2018) rand (a), first quarter 2010, 2015, 2017, fourth quarter 2017 and first quarter 2018



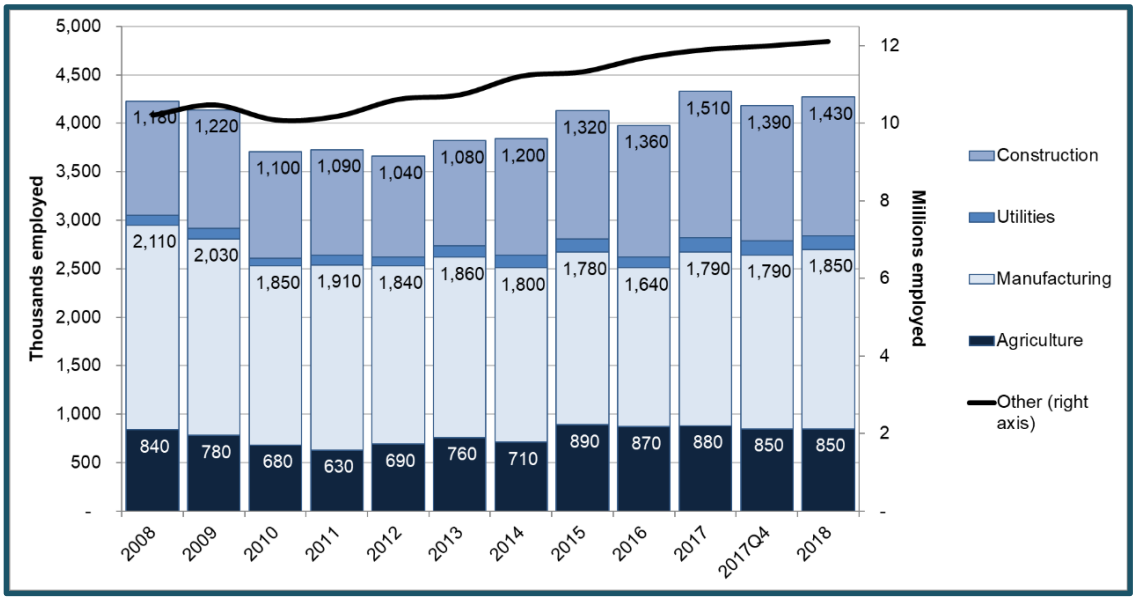
Note: (a) Deflated with CPI rebased to first quarter 2018. Source: StatsSA. Manufacturing volume and sales. Excel spreadsheet. Downloaded in May 2018.

Employment

Employment in the real economy declined by 1.1% between the first quarters of 2017 and 2018, although total employment climbed by 1.2%. Manufacturing employment expanded, but agriculture, construction, utilities saw losses in employment compared to a year earlier.

Employment in the real economy (excluding mining which is captured in a different series) grew by 2% (90 000 jobs) from 4.18 million jobs to 4.27 million jobs between the fourth quarter of 2017 and the first quarter of 2018. Employment in the real economy was nonetheless 40 000 lower in the first quarter of 2018 than it was in the first quarter of 2017 (see Graph 7).

Graph 7: Employment by sector, first quarter

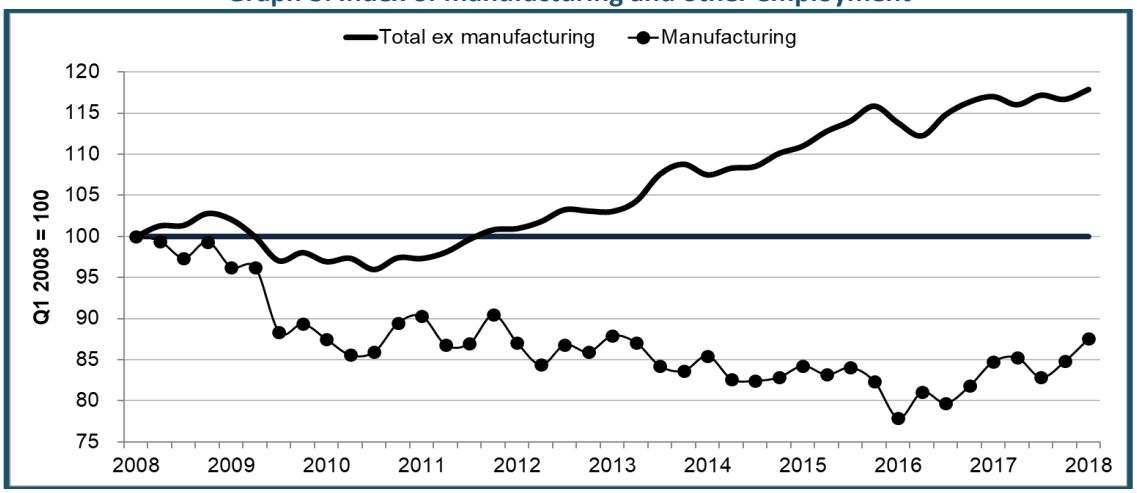


Source: StatsSA. QLFS trends 2008 - 2018Q1. Downloaded from www.statssa.gov.za in May 2018.

In the last quarter, manufacturing and construction employment each increased by 3% (58 000 jobs in manufacturing and 40 000 in construction). In contrast, agricultural and utilities employment declined by 0.3% (3 000 jobs) and 4% (6 000 jobs), respectively. These developments appear to be seasonal, with similar patterns in the first quarter of 2017. From quarter one in 2017 to 2018, agriculture declined by 3% (28 000 jobs); manufacturing increased by 3% (59 000 jobs); utilities declined by 2% (2 000 jobs); and construction declined by
5% (75 000 jobs).

Manufacturing employment continued to recover after hitting a low point in the first quarter of 2016, as Graph 8 shows. In the two years to the first quarter of 2018 it climbed by 138 000 jobs, partially reversing the loss of 470 000 jobs from 2010 to 2016. In the year to first quarter 2018 manufacturing employment increased by 3%, or 59 000 jobs.

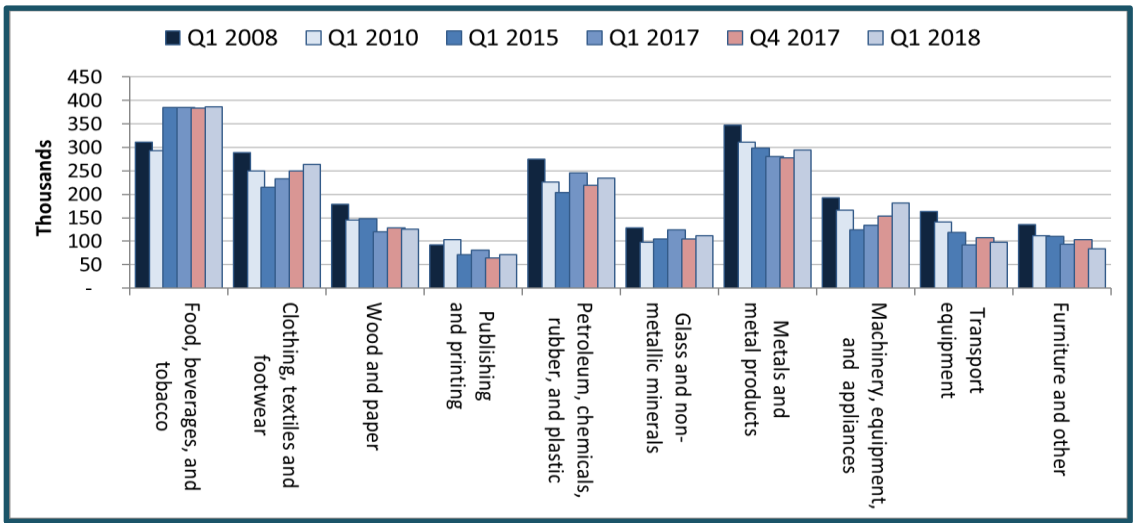
Graph 8: Index of manufacturing and other employment



Source: StatsSA. QLFS trends 2008 - 2018Q1. Downloaded from www.statssa.gov.za in May 2017.

Graph 9 disaggregates employment by manufacturing subsector. In the year to the first quarter of 2018, the bulk of new employment emerged in machinery and equipment and clothing, textiles and footwear. Together, these industries generated almost 80 000 net new jobs in the year to March 2018, continuing a three-year recovery. Metals and metal products saw a small uptick after years of shrinking employment, while furniture remained in a long-term decline. The other manufacturing industries were essentially stable.

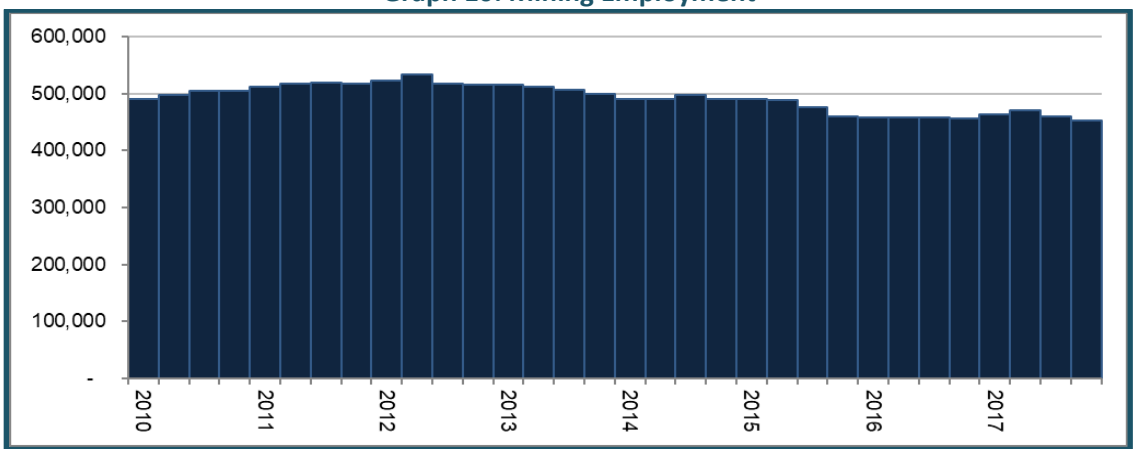
Graph 9: Manufacturing employment by industry



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

Mining employment fell for the final six months of 2017 (see Graph 10). It reached a 2017 peak at 471 000 jobs in the second quarter, but subsequently declined to 453 000 jobs in the final quarter. For the entire year, this represented a net loss of 11 000 jobs in 2017, or a decline of 2%.

Graph 10: Mining Employment



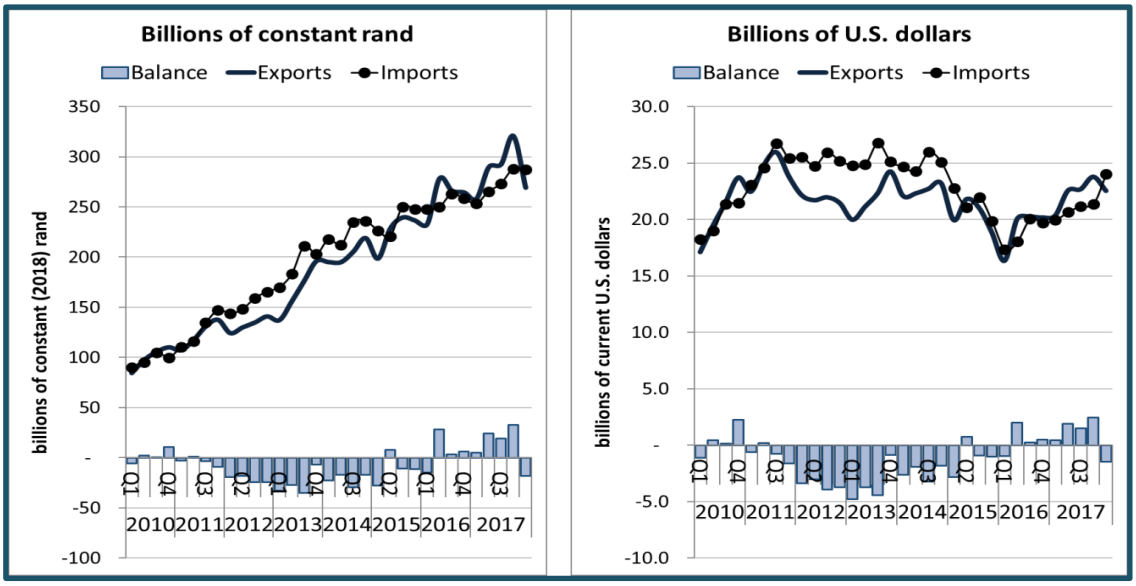
Source: Statistics South Africa. Quarterly Employment Statistics.

International trade

In the first quarter of 2018, South Africa experienced a trade deficit of R18 billion, a change from the trade surplus in 2017. Agriculture experienced the largest percentage decline in exports. In manufacturing, notable export growth was seen in exports of metals and metal products (2%).

The first quarter of 2018 saw the trade balance turn negative in both rand and dollar terms, reaching a deficit of R18 billion and US$1.5 billion, respectively (see Graph 11). That contrasted with the positive balance for all of 2017. In January the rand was at its strongest since the start of 2015, which likely drove the trade deficit.

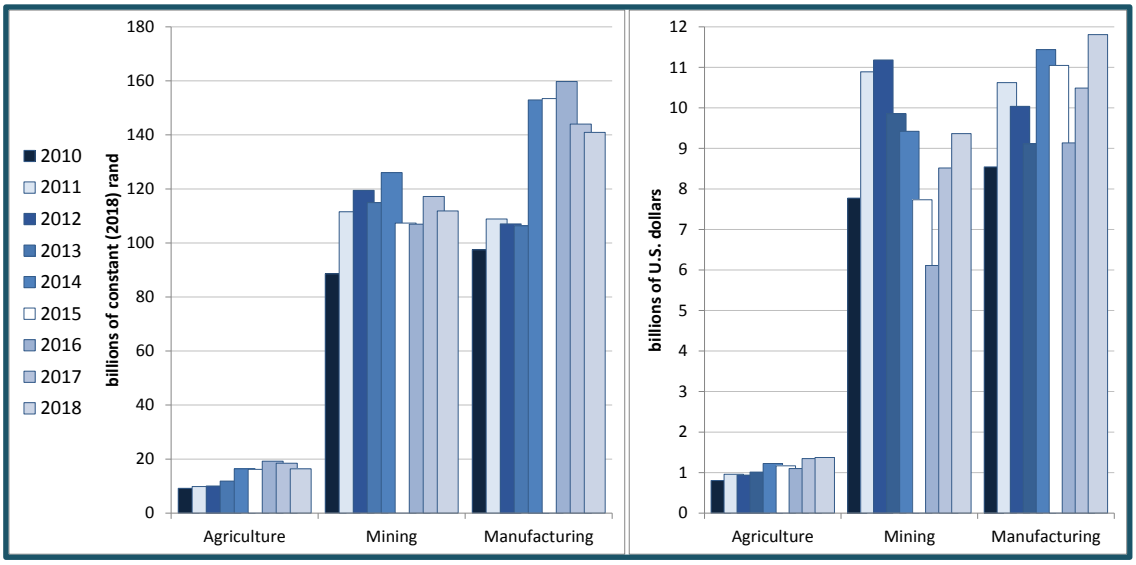
Graph 11: Exports, imports and balance of trade in constant (2018) rand (a) and current US dollars



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

In the year to the March 2018, the strengthening of the rand more than offset fairly robust growth in exports in dollar terms. In constant rand, manufacturing exports declined from R144 billion to R141 billion, for a 2% fall. In contrast, they climbed in dollar terms from US$10.5 billion to US$11.8 billion, for a 13% increase. Agriculture showed the largest percentage decline in rand, falling 11% in rand terms in the year to the first quarter of 2018 (see Graph 12). Agricultural exports dropped from R18.5 billion to R16.4 billion between the first quarters of 2017 and 2018. In dollar terms, however, they increased from US$1.34 billion to US$1.37 billion dollars, growing by 2% over the same period. Mining exports dropped from R117.2 billion to R111.8 billion between the first quarters of 2017 and 2018, contracting by 5%. In dollar terms, mining exports expanded 10%, rising from US$8.5 billion to US$9.4 billion.

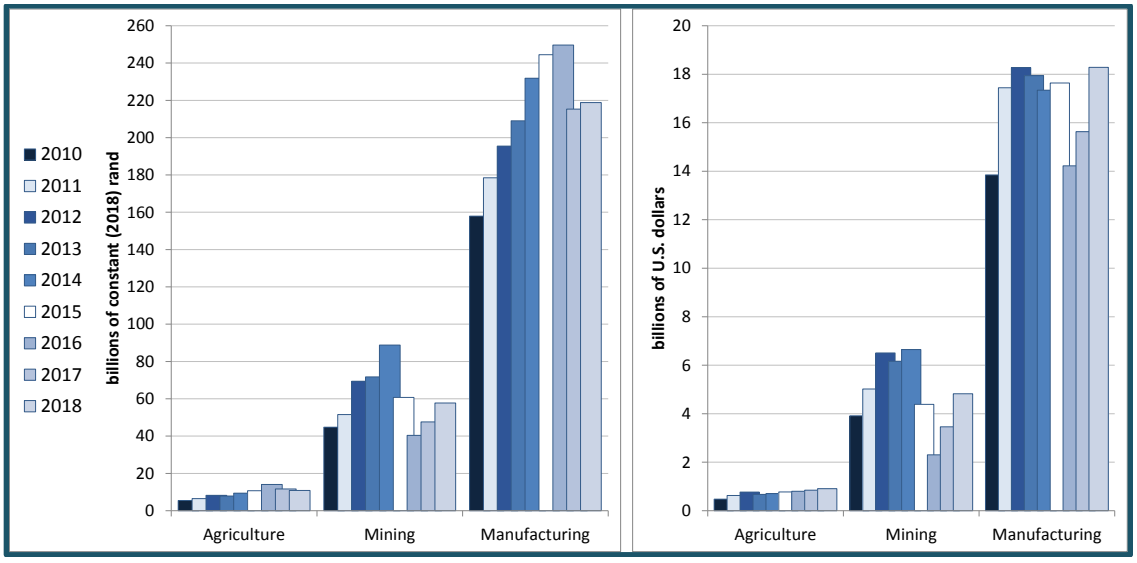
Graph 12: Fourth quarter exports in billions of constant (2018) rand (a) and current US dollars



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

In terms of imports, mining – which for imports consists primarily of petroleum – saw the largest growth in both rand and dollar terms as global oil prices pressed higher (see Graph 13). Between the first quarter of 2017 and 2018, mining imports grew from R47.6 billion to R57.7 billion, or some 21%. In dollar terms, mining imports increased from US$3.5 billion to US$4.8 billion, for a 39% jump. Manufacturing imports increased from R215.3 billion to R218.8 billion, a mere 2%, but in dollar terms they rose 17%, from US$15.6 billion to US$18.3 billion. Agricultural imports declined in rand terms while increasing in dollar terms. Between the first quarter of 2017 and 2018 agricultural imports dropped from R11.6 billion to 10.9 billion, shrinking by 7%. In dollar terms, they rose from US$0.84 billion to US$0.90 billion, or 8%.

Graph 13: Fourth quarter imports in billions of constant (2017) rand (a) and current US dollars



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

Table 1 disaggregates exports and imports according to manufacturing subsectors. The manufacturing export basket is dominated by metals and metal products; transport equipment; machinery and appliances; and chemicals, rubber and plastic. In these major export industries the main changes emerged in metal and metal products, transport equipment, and machinery and appliances. Exports of metals and metal products increased from the first quarter of 2017 to the first quarter of 2018 by 2% (R0.81 billion) in constant (2018) rand terms. In contrast, exports of transport equipment and machinery and appliances declined by 3%, or by R0.91 billion and R0.84 billion respectively, over the same period.

Table 1: Trade by manufacturing subsectors

Industry	Value (billions)		% change from Q1 2017		Change in billions	
	USD	Rand	USD	Rand	USD	Rand
Exports						
Metals and metal products	2.9	35.2	18%	2%	0.45	0.81
Transport equipment	2.5	29.5	12%	-3%	0.26	-0.91
Machinery and appliances	2.0	23.6	11%	-3%	0.20	-0.84
Chemicals, rubber, plastic	2.0	23.4	15%	0%	0.26	-0.01
Food and beverages	1.0	11.9	22%	6%	0.18	0.66
Clothing and footwear	0.5	5.6	11%	-4%	0.05	-0.23
Paper and publishing	0.4	4.9	-4%	-17%	-0.02	-0.97
Wood products	0.1	1.7	11%	-3%	0.01	-0.06
Glass and non-metallic mineral products	0.1	1.4	28%	11%	0.03	0.14

Industry	Value (billions)		% change from Q1 2017		Change in billions	
	USD	Rand	USD	Rand	USD	Rand
Imports						
Machinery and appliances	5.9	70.6	17%	2%	0.87	1.33
Transport equipment	3.8	45.3	7%	-7%	0.26	-3.24
Chemicals, rubber, plastic	3.7	44.7	24%	8%	0.73	3.33
Clothing and footwear	1.3	15.4	20%	4%	0.21	0.55
Metals and metal products	1.2	14.7	10%	-4%	0.11	-0.67
Food and beverages	0.9	10.6	-3%	-16%	-0.02	-1.94
Paper and publishing	0.7	8.0	133%	102%	0.38	4.06
Glass and non-metallic mineral products	0.3	3.4	28%	11%	0.06	0.35
Wood products	0.1	1.4	13%	-2%	0.01	-0.03

Note: (a) Deflated with CPI rebased to fourth quarter 2017 Source: SARS monthly trade data

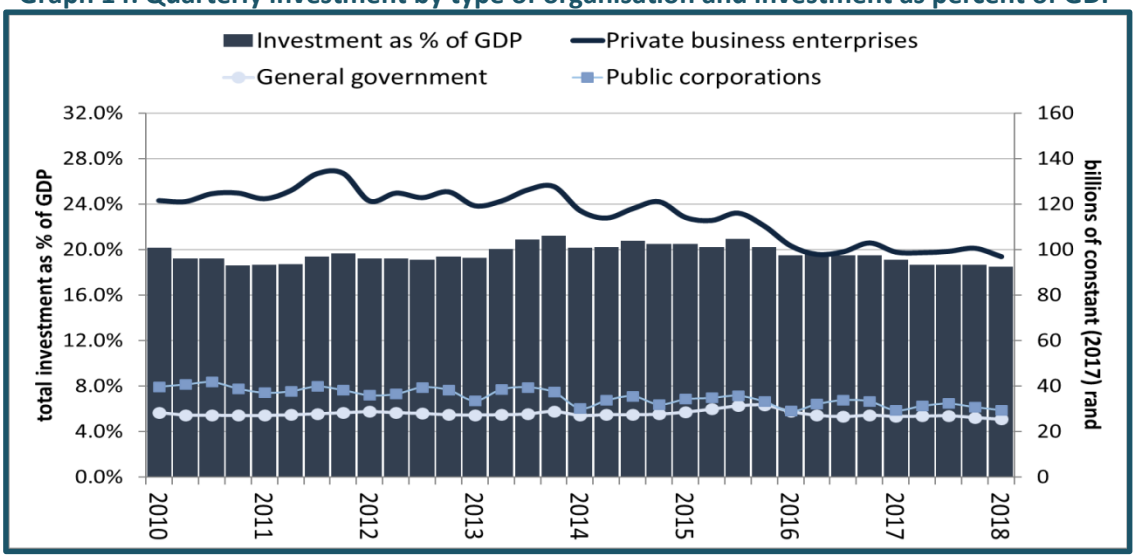
On the import side, the four largest categories of imports are machinery and appliances; transport equipment; chemicals, rubber and plastic; and clothing and footwear. Among these, imports of transport equipment fell by 7% (R3.24 billion) from the first quarter of 2017 in constant (2018) rand terms. Chemicals, rubber and plastic imports saw the largest increase among large import categories, increasing by 8% (R3.33 billion) over the period. Machinery and appliances and clothing and footwear increased by 2% (R1.33 billion) and 4% (R0.55 billion) respectively.

Investment and profitability

Investment started declining in 2012 with the end of the commodity boom, with an accelerating decline from 2015. In the first quarter of 2018 it was 18% lower than six years earlier. In the year to March 2018, private investment dropped 2%, public enterprises saw no change, and general government investment contracted 5%, reflecting the turn toward austerity.

Investment as a percentage of GDP fell from 19.1% to 18.5% from the year to the first quarter of 2017 to the year to first quarter of 2018 (see Graph 14). That was down from around 20% through 2015. Total investment dropped by 2% in the year to March 2018. Overall, investment fell at 4% a year from the first quarter of 2012 to the first quarter of 2016. Since then it has fallen an average of 2% a year.

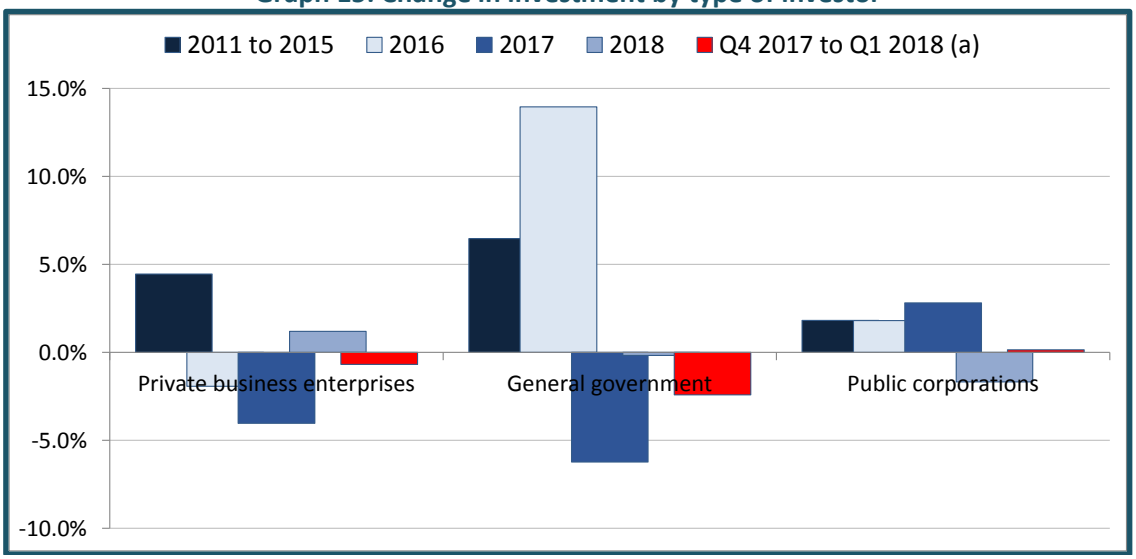
Graph 14: Quarterly investment by type of organisation and investment as percent of GDP



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

In the year to March 2018, the sharpest fall occurred in general government investment, at 5%, reflecting the shift toward austerity. Fiscal restraint usually leads to sharper falls in capital spending, which is easier to restrain because it is project-based and often contracted out. Investment by public corporations remained virtually unchanged. Private investment, which constitutes the bulk of all investment, fell by 2% in the year to March 2018.

Graph 15: Change in investment by type of investor

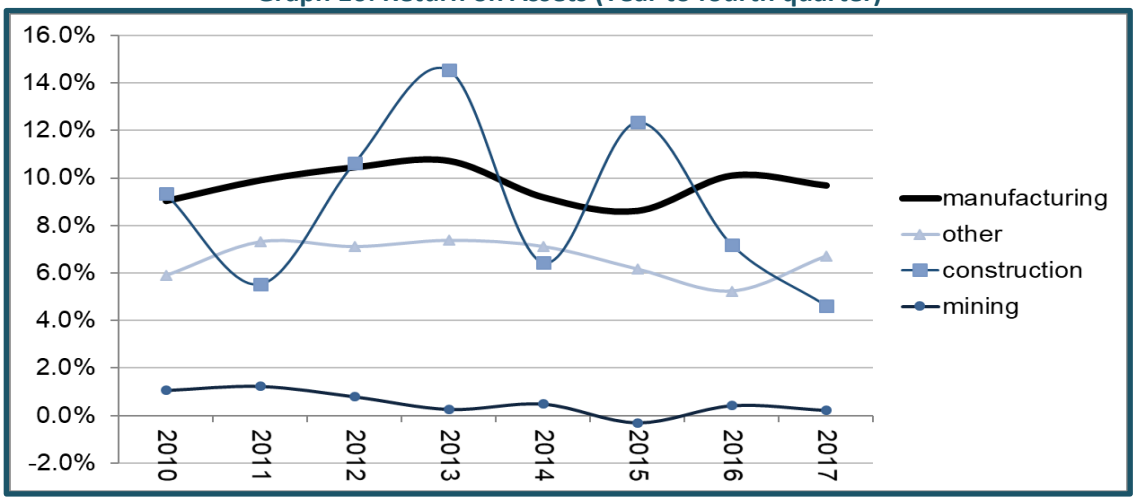


Note: (a) seasonally adjusted. Source: StatsSA GDP quarterly figures. Excel spreadsheet downloaded from www.statssa.gov.za in June 2018.

The latest profitability data cover 2017. They show a 9.7% return on assets in manufacturing for 2017, slightly lower than the 2016 level of 10.1% but higher than the 8.6% figure for 2015 (see Graph 16). Returns in mining remained very weak, at 0.2% in 2017 compared to 0.4% in

2016. Returns on assets in construction continued to decline, falling to 4.6% in 2017 compared to 7.2% in 2016.

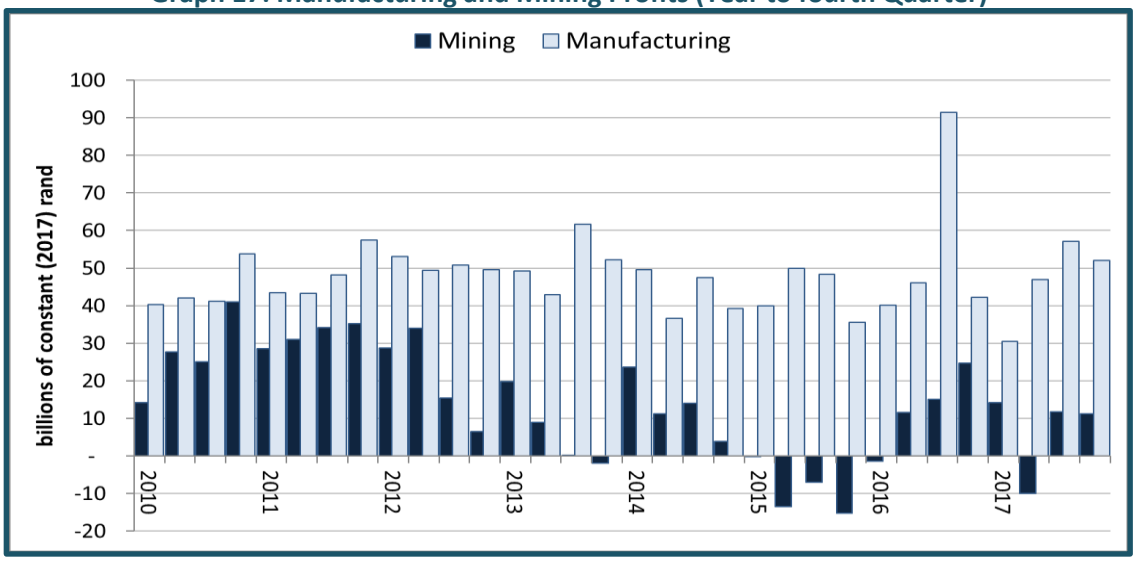
Graph 16: Return on Assets (Year to fourth quarter)



Source: StatsSA, Quarterly Financial Statistics.

Manufacturing profits increased over the course of 2017, rising from R30 billion in the first quarter to R52 billion in the last quarter, in constant (Q4 2017) rand. Over the same period, mining profits declined from R14 billion to R11 billion (see Graph 17). Throughout 2017, the mining sector saw substantial variability in profits, moving from a R14 billion gain in the first quarter of 2017 to a loss of R10 billion in the second quarter, and then recovering to R11 billion in the final quarter of 2017. The construction sector remained profitable in 2017, with a profit of R3 billion in the final quarter of 2017, up from R2 billion in the third quarter.

Graph 17: Manufacturing and Mining Profits (Year to fourth Quarter)



Source: Statistics South Africa. Quarterly Financial Statistics.

Foreign Direct Investment projects

The number of new projects reported in the TIPS Foreign Direct Investment (FDI) Monitor dropped to four in the first quarter of 2018, down from eight reported a year earlier.

The TIPS FDI Monitor tracks major foreign-owned projects, analysing new and updated investments on a quarterly basis. New investment projects refer to projects not previously captured in the database and updated projects refer to any substantial change in previously captured projects.

In the first quarter of 2018 the Monitor identified four investment projects, two new projects in mining and two updated projects in renewable energy. This is half the number of projects identified in the first quarter of 2017. The mining projects are both at exploratory and pre-feasibility stages while the renewable projects were both completed in 2017. Monitoring managed to identify only investment values for the two renewable projects, which have a total investment value of R16.4 billion.

The first project in mining is the Prieska Zinc Copper Project being developed by Australian-based Orion Minerals. Orion is undertaking a project aimed at the treatment of sulphide zinc/copper mineralisation in the Northern Cape, 270 km from Kimberly. The Prieska Zinc Copper Project has a deposit recorded as one of the world's top 30 volcanogenic massive sulphide deposits. The mine was operated from 1971 to 1991, after which it was closed and the site rehabilitated. It has a historical production of more than 430 000 tonnes of copper and more than a million tonnes of zinc. With major infrastructure in place, the project is being fast-tracked to feasibility, having completed the development of a mineral flow sheet. The Bankable Feasibility Study (BFS) and Environmental Impact Assessment (EIA) are underway parallel to resource drilling, underground inspections, and establishing activities. There are two major phases of drilling targeting near surface mineralisation that are expected to be amenable to open pit mining. The Deep Sulphite Target below the historical mine is expected to form the cornerstone of the company's development strategy. The project is expected to produce about 12 000 to 15 000 tonnes a year of copper concentrate and 20 000 to 25 000 tonnes a year of zinc concentrate – consistent with the mine's historical output.

The second mining project identified this quarter is the Thorny River Diamond Project by Botswana Diamonds, an established Ireland-based diamond exploration company with operations in South Africa and Botswana. The Thorny River Diamond Project is a consolidation of the Frischgewaagt, Hartbeesfontein and Doornrivier properties in Limpopo. It would be the company's second exploration operation in South Africa. The company has started a six-month scoping study to determine commercial potential following extensive field work generating volume and grade estimates. The project has a modelled *in situ* grade range of 46 carats per hundred tonnes (cpht) to 74 cpht and a diamond value range of $120/ct to $220/ct; however, this will be refined by the study.

Projects under the Renewable Energy Independent Power Producer Programme (REIPPP) that recently commenced commercial operations are the Khobab and Loeriesfontein wind farms

and Xina Solar One parabolic trough plant. The wind farms were connected to the Eskom grid by December 2017 and the energy generated will be sold to Eskom as part of a 20-year power supply agreement. They are owned by a consortium led by Lekela Power, a joint venture between Actis, based in London, and Mainstream Renewable Power, an Ireland-based energy company. Other members include Thebe Investment Corporation; the IDEAS Managed Fund; Futuregrowth Asset Management; Genesis Eco-Energy, in partnership with Lereko Metier Sustainable Capital; and the Khobab and Loeriesfontein Community Trusts.

The R7-billion project is located in the Northern Cape Province Hantam Municipality. The wind farms stand adjacent to each other with a generation capacity of 140 megawatts each and comprise a total of 122 wind turbine generators, spanning 6 653 hectares. Collectively the farms have the capacity to power an estimated 240 000 South African households. Most of the 99m turbine towers were locally manufactured at the Gestamp Wind Turbine Tower Factory in the Western Cape.

Closing out projects this quarter include the Xina Solar One Project in Pofadder in the Northern Cape. Abengoa, a Spanish energy company, owns 40% of the project and was developer on the project. The Industrial Development Corporation (IDC), the Public Investment Corporation (PIC) and the KaXu Community Trust owns the balance. The project is one of three renewable projects developed by Abengoa in South Africa and is valued at R9.4 billion. The solar power plant uses parabolic trough technology with a thermal energy storage system using molten salts. It is expected to power about 95 000 households, preventing 348 000 tonnes per year of carbon emissions. The project is reported to form the largest solar complex in Africa with a total installed capacity of 100 megawatts.

More than 40% of the investment in the Abengoa project comprised local content, with equipment and materials used in the construction of the plant such as pipes, pumps, valves, mirrors, steel structures and mechanical assemblies all sourced locally. According to Dominic Goncalves, Abengoa's vice-president for business development, the company views South Africa as a key market with great business opportunities because of growing populations and the need to increase power generation. It is the only project that reported employment, with 1 300 jobs created at the peak of construction falling to 80 permanent jobs during the operation phase that has now commenced.

Briefing Note: Challenges around the GDP data for first quarter 2018

The recent data on the GDP appear to overstate the economic slowdown, as shown among others by a comparison with longer-term trends and employment data. The data show that the economy contracted by just over half a percent (although the release only provides annualised data, showing a 2,2% fall, which is effectively four times the actually decline).

The data apparently overstate the slowdown for three reasons.

- There was an extraordinary and unexplained R10-billion export of crude petroleum in the fourth quarter of 2017. South Africa does not export substantial amounts of petroleum, and instead imports around R5 billion a month. This sale of petroleum in October and November 2017 led to a once-off spike in exports in the fourth quarter of 2017, followed necessarily by a decline when exports normalised in the first quarter of 2018.
- It appears that the seasonally adjusted figures for agricultural output did not adequately take into account the effects of the drought in the Western Cape. The result was a large correction in the first quarter of 2018, as the harvest data came in for the affected region.
- Generally, the seasonal adjustment of the GDP data has apparently become less consistent since 2014. As a result, the first quarter has become much more likely to show a growth slowdown than the other quarters – precisely the effect that seasonal adjustment should avoid.

These findings do not mean that the economy did not slow down in the first quarter, but rather that the data overstate the slowdown. The real concerns arising from the GDP data are:

- The long-term slowdown in the GDP since the end of the commodity boom in 2011, with South Africa falling substantially behind peer economies for the first time since 1994;
- The decline in investment across the private and public sectors; and
- Continued volatility in the mining value chain, with a crisis affecting the steel industry and a decline in platinum.

The TIPS Policy Brief ***Challenges around the GDP data for first quarter 2018*** assesses the GDP trends and why the latest quarter appears out of step; then reviews the factors that might lead to an overstatement of the slowdown; and finally outlines the areas of concern.

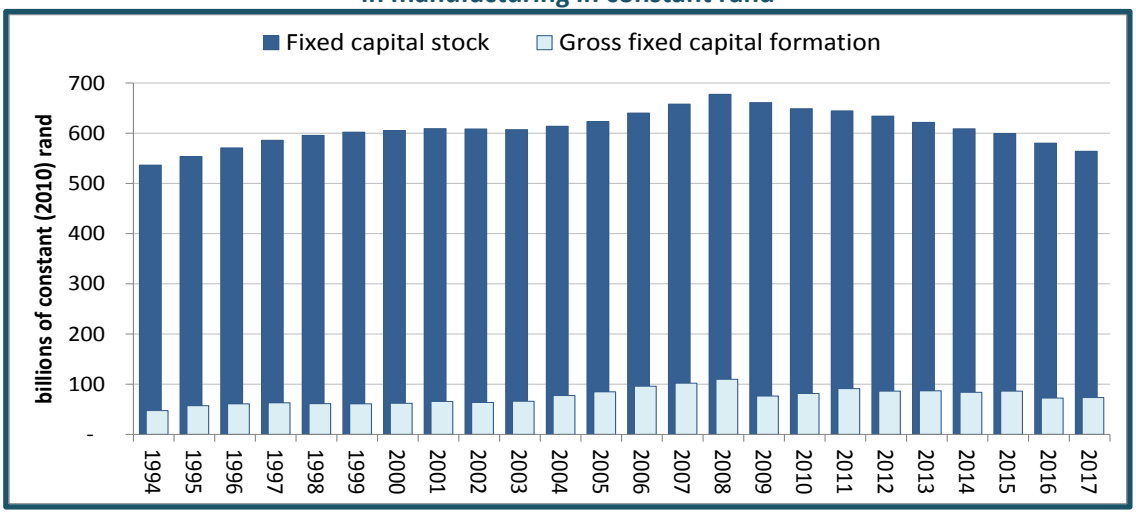
Briefing Note: Map to a million – what's the map to a million about?

Can the manufacturing sector create a million jobs? The Manufacturing Circle certainly think so and have outlined a process to create a million direct manufacturing jobs over a period of 10 years in their recently released ***Map to a Million New Jobs in a Decade***. Given the current number of people employed in the manufacturing sector, that would equate to creating 4.5% net new jobs in manufacturing each year for the next 10 years. For 2018 that would be just over 80 000 jobs, and all going well it would rise to almost 120 000 jobs in 2028.

Between the fourth quarter of 2016 and the fourth quarter of 2017, the Statistics South Africa Quarterly Labour Force Survey showed that 60 000 net new jobs were created in manufacturing. So it is possible to create tens of thousands of jobs a year, however the number of people employed in manufacturing today is well below the peak of manufacturing employment in 2008 (before the financial crisis), and even 2011 (before the commodity price decline). The Manufacturing Circle is, however, clear in their report that a number of areas need to be addressed by both government and the private sector to achieve that target. The jobs will not be created without specific interventions.

The cost of new jobs depends on the amount of capital required. The average amount of capital per job ranges from under R100 000 for clothing to R500 000 for food processing, to close to R1 million in auto and steel and R4 million for basic chemicals. If we can skew investment toward more labour-intensive industries, increasing manufacturing employment by 80 000 in 2018 would require around R30 billion net investment a year (that is, after meeting depreciation costs), and R45 billion to reach 120 000 new jobs in 2028.

Graph 18. Fixed capital stock and gross fixed capital formation (a) in manufacturing in constant rand



Note: (a) Includes depreciation as well as new investment. Source: South African Reserve Bank. Online statistical queries. Electronic database. Series on capital stock and gross fixed capital formation in manufacturing. Downloaded from www.resbank.co.za in June 2018.

In practice, the value of capital stock in manufacturing declined steadily after the global financial crisis in 2008/9, as Graph 18 shows. After climbing by 26% from 1994 to 2008, it dropped 17% through 2017. These trends meant that annual investment was not high enough to offset depreciation. According to Quantec estimates, petroleum refineries and basic chemicals alone accounted for over a third of the unmet depreciation costs.

While investment is mainly funded through financing to be repaid from future earnings, a comparison to manufacturing profits shows the ambitious nature of these targets. Statistics South Africa's quarterly financial statistics showed that the manufacturing sector generated profits after tax and depreciation of R145 billion in 2017. By extension, to generate the targeted jobs, investment over and above depreciation would have to equal around a fifth of profits.

Investment in itself is necessary, but not sufficient, for job creation. Indeed, the number of formal manufacturing jobs appears to have declined steadily through the 2000s, even when investment in the sector was rising. Furthermore, the Manufacturing Circle argues that the sector has significant underutilised capacity that would be the starting point for job creation.

To bring back underutilised capacity and unlock significant new investment the Manufacturing Circle argue that this would require a supportive environment from the state, for example in addressing key input costs and support for raising aggregate demand in the economy; collaboration and engagement between the state and the private sector on key issues such as skills training and trade support measures; and areas for the private sector itself to address, including through local procurement and support of the Proudly South African campaign.

The President in his State of the Nation Address and more recent announcements puts industrialisation high on the agenda, and the efforts to attract massive foreign direct investment would be a strong boost for the manufacturing sector.

Support for manufacturing from the Presidency along with the ongoing support provided by the Department of Trade and Industry (the dti) and through the Industrial Policy Action plan, as well as overall strengthening of economic performance in the country could see South Africa achieving that target of a million new jobs in manufacturing over a decade. It will, however, require significant commitment from both public and private sector; increased use of underutilised capacity; and, over time, a massive increase in new investment in manufacturing.

Briefing Note: Desalination: panacea or peril for South Africa?

The desalination of water has been identified as a potential source for water in the country. The recent series of droughts has underscored the critical importance of an adequate water supply. In this context, many voices have hailed desalination as South Africa's cure to water security woes. Critics, however, cite its high cost and potential environmental harm as rendering the technology unfit.

Over the past 30 years, desalination technology has evolved as a viable, albeit costly means of producing water, opening up non-traditional sources of water like brackish water[1] and seawater. Desalination of water from any source occurs broadly via two processes: thermal evaporation and membrane separation. *Thermal evaporation* involves the evaporation and condensation of saline water to purify it, and is most prevalent in the Middle East, which has cheap fuel and has historically used facilities that co-generate energy and water. Since heat is a vital input in thermal desalination, the process is typically coupled with power plants and refineries that discharge significant quantities of waste heat. *Desalination via reverse osmosis (RO)* is the prevalent membrane separation process in which pressure is applied to saline water, forcing it through a selectively permeable membrane, which purifies the water and removes the salt.

The key cost drivers of desalination technologies relate to their high energy intensity; membrane maintenance due to their expense and short life; the risk of failure in high-pressure pumping systems; the growth of bacteria on membranes affecting the quality of desalinated water (also known as fouling); and the chemicals required in various parts of the system. Major developments in RO technology have lowered costs. Still, compared to other water technologies, desalination remains costly.

Besides the high capital and operating costs of the plant itself, civil works to accommodate connections to the reticulation system add to an already expensive technology. In addition, the threat to marine life and ecosystems is also a concern. While the environmental damage may be mitigated to some extent, it cannot be fully avoided.

To date, the implementation of seawater desalination in South Africa has been limited to a few small-scale desalination projects. Most South African desalination projects are not currently in operation. They include the following:

- A R20 million, 15 ML/day plant in Mossel Bay operated by Veolia, which is the largest in the country, and has been moth-balled due to adequate water in the region;
- A 2 ML/day seawater desalination plant in Knysna operated by Veolia which incorporates an energy recovery system to save on energy costs;
- A 2 ML/day seawater desalination plant operated by Veolia in Plettenberg Bay;

[1] Brackish waters can be found in natural sources like aquifers and inland lakes, or from industrial sources like mines.

- A 1.7 ML/day seawater desalination plant for the Cederberg Municipality in the Western Cape, with the option to upgrade to 5 ML/day;
- A desalination plant located in Sedgefield, owned and operated by the Knysna Municipality, and maintained by Grahamtek;
- the Cannon Rocks & Boknes Communities desalination plant which produces 750 m^3 of water per day from groundwater; and
- A mobile desalination plant in Richard's Bay providing 10 000 m^3 of water per day and supplying approximately 150 000 people.

In addition, the eThekwini municipality was considering the construction of a 100 million litre per day plant combining seawater with wastewater.

The high energy costs associated with seawater desalination have largely blocked its implementation thus far.

The largest desalination plant in the country, operated by Veolia, was mothballed due to the high cost of producing water. In that case, the cost of water was approximately double that of water sourced from a dam: R16 per kilolitre for desalinated water as compared R9 per kilolitre.

More recent emergency disaster-relief plants, of the kind installed in the Western Cape, have been estimated to cost up to R40 per kilolitre. Three seawater desalination plants, which cost R250 million each, were expected to be running by March 2018 (the Monwabisi, Strandfontein and V&A Waterfront desalination projects). As of May 2018, none of these three plants were providing water into the reticulation system. The V&A Waterfront plant was dealing with issues around water quality, while the start dates for the Monwabisi and Strandfontein facilities were delayed, without notice for how long.

Experience in other countries, such as Australia, also suggests that the technology can place an excessive financial burden on the fiscus and consumers. In the worst cases, such countries were left with "white elephant" projects that provide no water while draining away limited tax revenues. A similar outcome has already been seen in the Western Cape where plans for desalination have been curtailed in favour of more cost-effective projects, such as tapping into aquifers.

While on the surface desalination may appear appealing, any decision has to take into account its risks and costs. The experience thus far is that funding and the affordability of the fresh water produced will constrain its successful rollout.