Elect4roTRADE & INDUSTRIAL POLICY STRATEGIES

MANUFACTURING SUBSECTORS

Electronics and appliances

December 2017

Industrial policy aims to promote diversification and tailor interventions to the needs of individual manufacturing industries. To support evidence-based policymaking, TIPS has completed a series of notes on the main manufacturing subsectors in South Africa. These notes provide information on the contribution to the GDP, employment, profitability and assets, the market structure and dominant producers, major inputs and international trade. They bring together data from Statistics South Africa, Quantec and Who Owns Whom to provide a more detailed overview of each sector.

This note summarises key data and information on the electronics and appliances subsector as of December 2017. It will be updated as information becomes available.

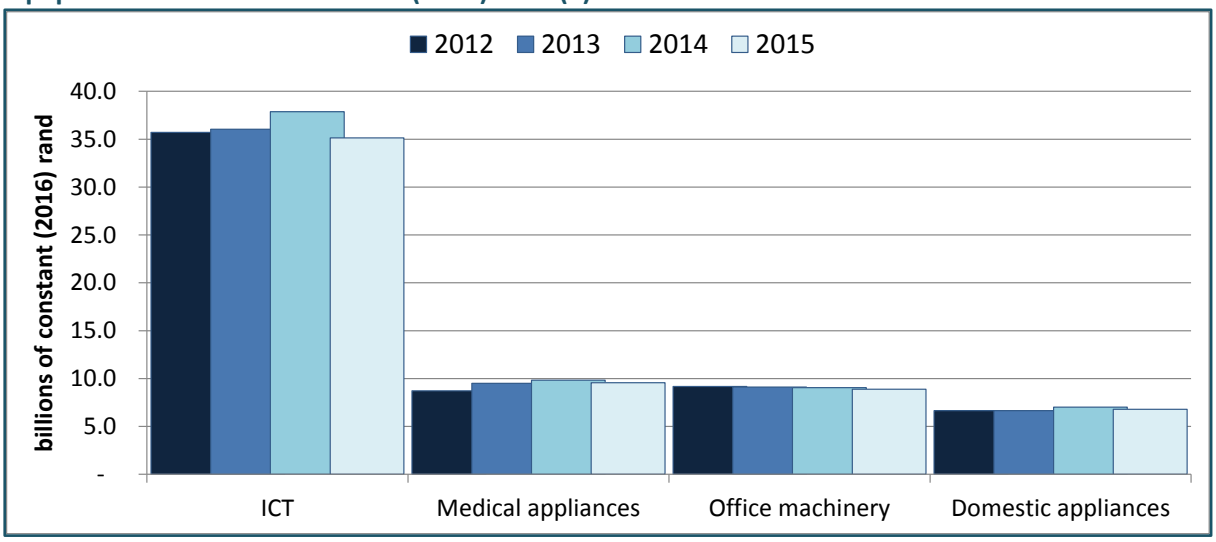
Electronics and appliances refers principally to consumer equipment products. Electronics is also a core component for capital equipment as well as business services and communications. The industry covers SIC 37 (precision instruments, which includes information and communications technology, or ICT). It also includes parts of electric machinery (SIC 36), mostly some inputs to electronics, and machinery (SIC 35), which includes domestic and office machinery.

1 Contribution to GDP

Data for the contribution of manufacturing industries to the GDP (that is, for value add by industry) comes from two sources: the GDP data published by Statistics South Africa, and Quantec, which develops estimates based on the Statistics South Africa figures for sales, production and employment by industry and sub-industries. The figures are not identical, although they typically show the same trends. This provides both.

As noted, both data sources only provide information separately for value added by precision instruments (radio, TV, instruments, watches and clocks, which includes cellphones and medical equipment). That means that the data provided in this note excludes household appliances and office equipment, which are subsumed under machinery. As the following graph shows, however, three quarters of production in the industry counted as precision instruments. The figures in Graph 1 refer to gross output, which is substantially greater than value added because it includes the cost of (mainly imported) inputs. Data for value added is not available separately for household and office equipment.

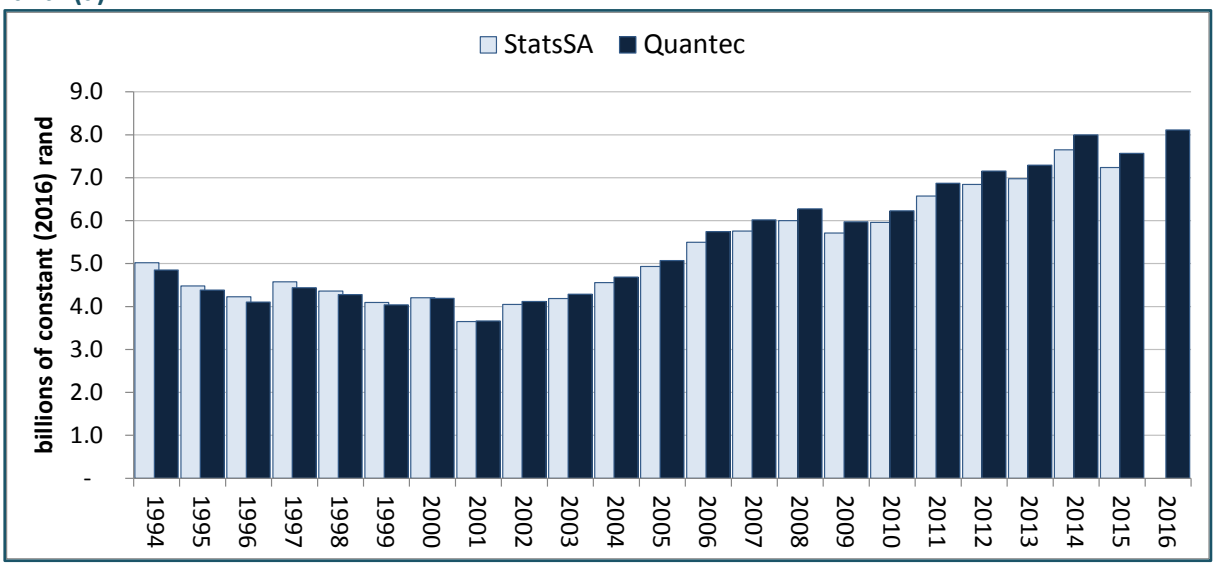
Graph 1. Gross value of domestic output of precision instruments, household appliances and office equipment in billions of constant (2016) rand (a)



Note: (a) Deflated with CPI. Source: Calculated from Statistics South Africa. GDP P0441. Annual quarter and regional revisions. Q4 2016. Excel spreadsheet. Supply tables for relevant years. Series on radio and television equipment, medical and domestic appliances, and office machinery.

While Quantec and Statistics South Africa figures diverge somewhat on value added by ICT and precision instruments, they show identical growth rates. Both find that value added in the industry grew significantly more rapidly and with greater stability than the rest of the economy until 2014. It expanded 5% a year before 2008; dropped 5% during the global financial crisis in 2008/9; but then recovered to grow at 6% a year through 2014. It contracted some 5% in 2015 but, according to Quantec estimates, it then recovered to 2014 levels.

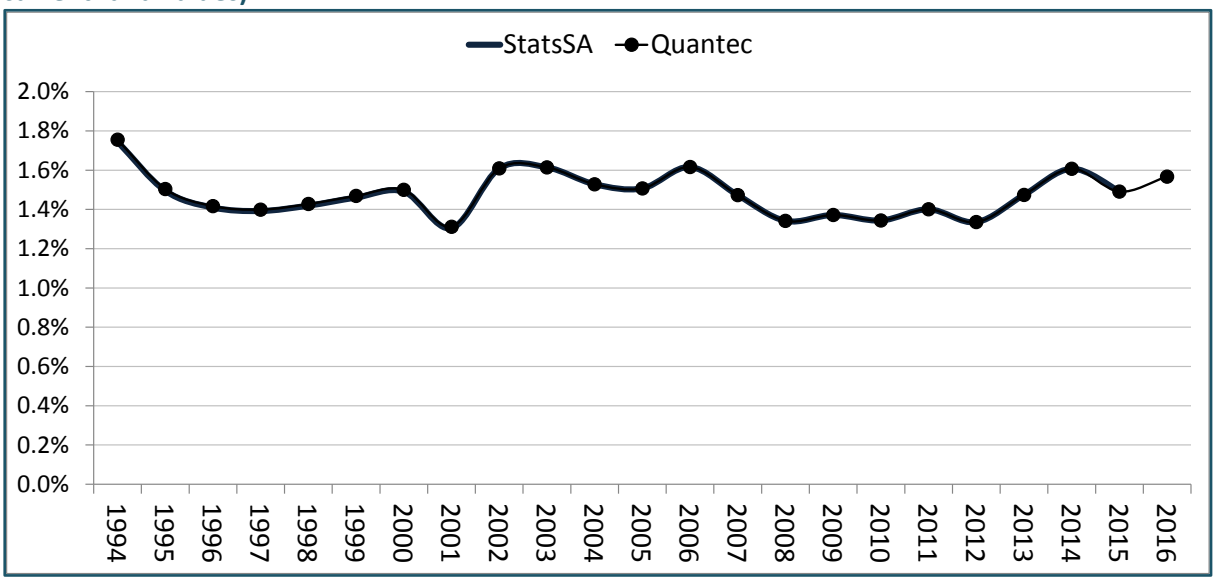
Graph 2. Value added ICT and precision instruments, 1994 to 2016, in billions of constant (2016) rand. (a)



Note: (a) Deflated by calculating the deflator used in the sources from figures in current and constant rand, and then rebasing to 2016. Source: Statistics South Africa, GDP P0441. Annual quarter and regional revisions. Q4 2016. Excel spreadsheet. Series on manufacturing subsectors in current and constant rand. Downloaded from www.statssa.gov.za in September 2017; and Quantec EasyData. Standardised regional data. Database in electronic format. Series on value added in current and constant rand. Downloaded from www.quanis1.easydata.co.za in September 2017.

The share of electronics and appliances value added in manufacturing, in current rand, fluctuated around 1,5% a year from 2008 to 2016, according to Quantec and Statistics South Africa data. The share declined despite rapid growth in constant rand because of differences in the implicit depreciation rate for ICT and precision instruments compared to manufacturing as a whole.

Graph 3. Electronics and appliances contribution to manufacturing value added (calculated using current rand values)



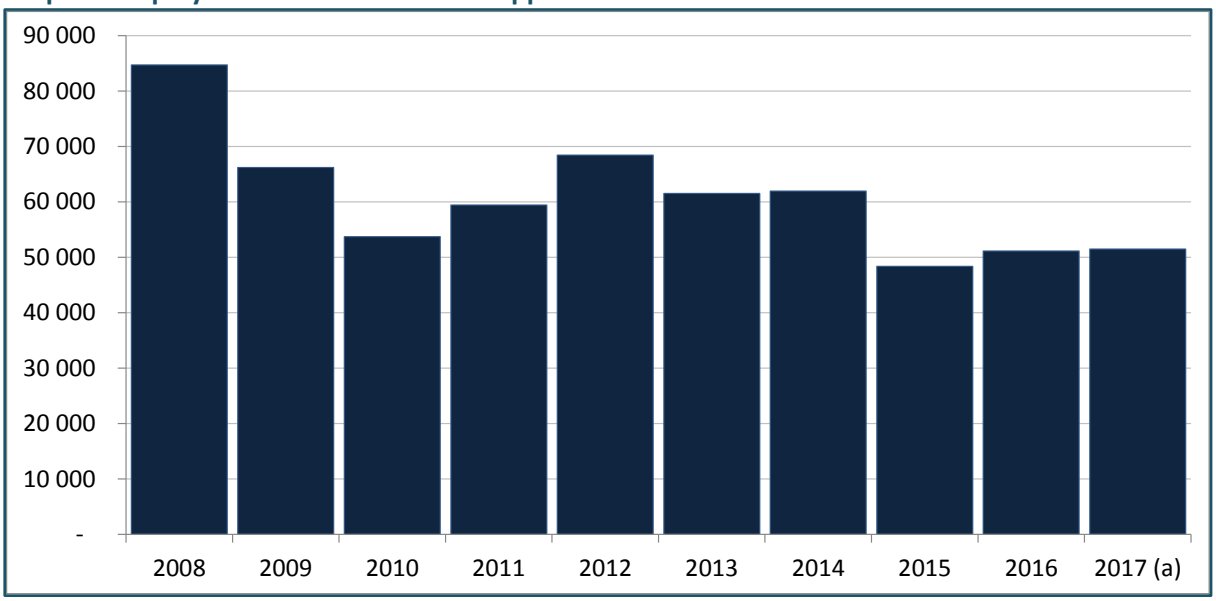
Source: Calculated from Statistics South Africa, GDP P0441. Annual quarter and regional revisions. Q4 2016. Excel spreadsheet. Series on manufacturing subsectors in current rand. Downloaded from www.statssa.gov.za in September 2017; and Quantec EasyData. Standardised regional data. Database in electronic format. Series on value added in current rand. Downloaded from www.quanis1.easydata.co.za in September 2017.

2 Employment

Employment data provided in this section draw on Statistics South Africa's Quarterly Labour Force Survey, which was introduced in 2008. Its annual figures, in the Labour Market Dynamics, are averages of the quarterly findings. This methodology is used to derive annual data for total employment by industry in 2016 and the year to the third quarter of 2017.

Employment in electronics and appliances dropped sharply from 2008 to 2010, during the global financial crisis, falling from 85 000 to under 55 000 jobs for a loss of over a third. Recovery from the job losses was shortlived, and since 2015 it has fluctuated around 50 000.

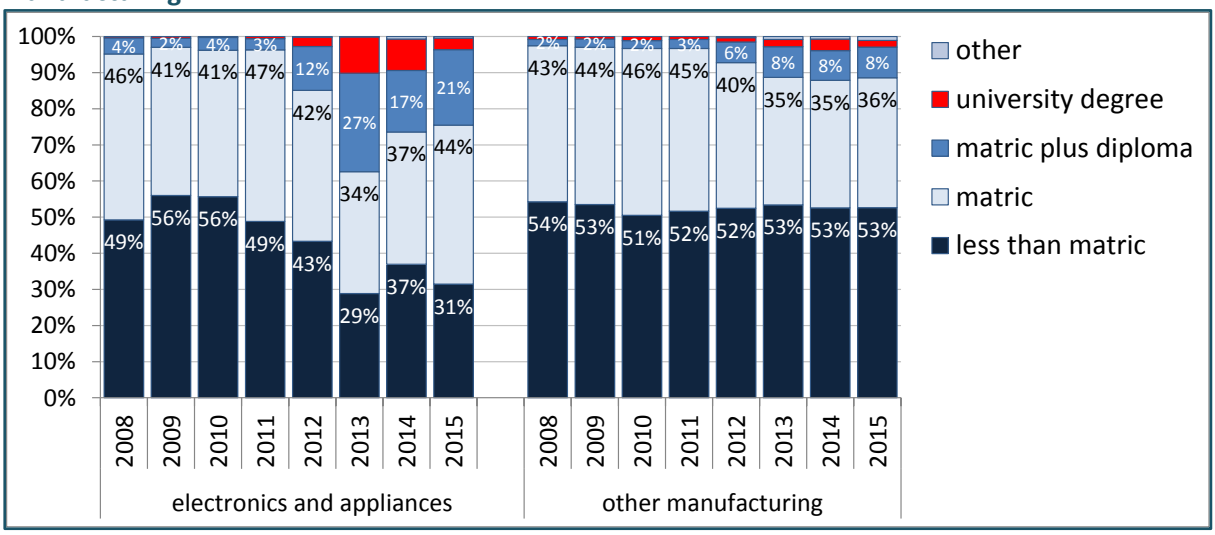
Graph 4. Employment in electronics and appliances



Note: (a) Calendar years except for 2017, which is the year to the third quarter. Source: Calculated from Statistics South Africa. Labour Market Dynamics. 2008 to 2015. Series on employment by industry. Electronic databases. Downloaded from www.statssa.gov.za Nesstar facility in September 2017; and Quarterly Labour Force Survey. Q1 2016 to Q3 2017. Series on employment by industry. Electronic databases. Downloaded from www.statssa.gov.za Nesstar facility in December 2017.

Education levels in electronics and appliances were significantly higher than in the rest of manufacturing. In 2015, a quarter of workers in the industry had a tertiary diploma or degree, compared to around a tenth of those in the rest of manufacturing. Some 44% had matric, compared to 36% in the rest of manufacturing, and less than a third had less than matric.

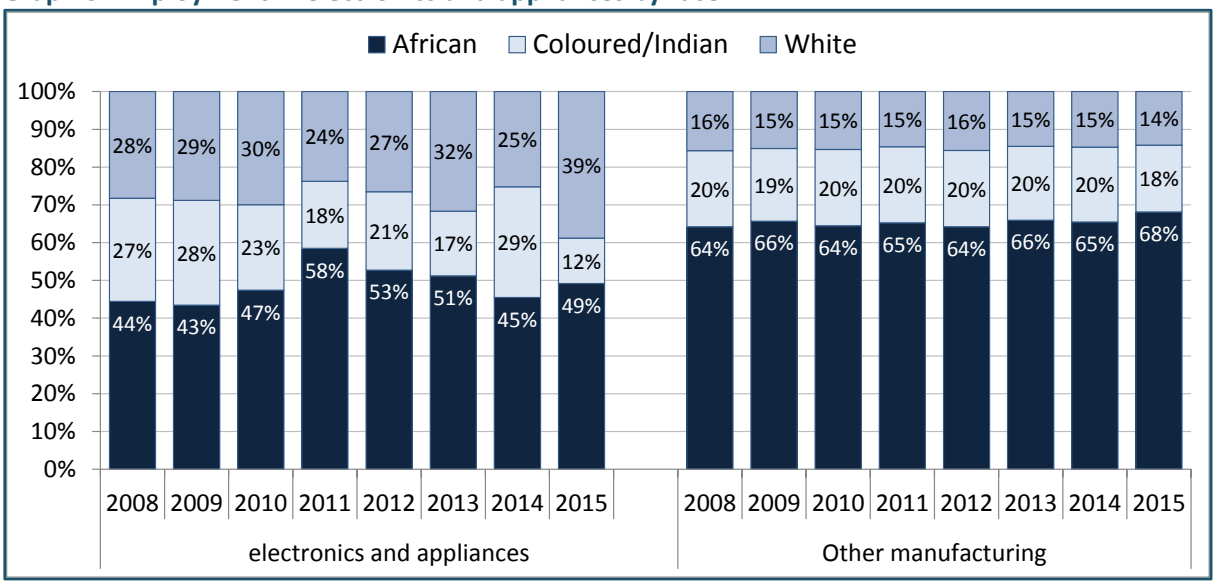
Graph 5. Employment by education level in electronics and appliances compared to other manufacturing



Source: Statistics South Africa. Labour Market Dynamics. Relevant years. Series on employment by industry and education. Electronic databases. Downloaded from www.statssa.gov.za Nesstar facility in September 2017.

Workers in electronics and appliances were less likely to be African than in the rest of manufacturing. In 2015, Africans constituted 49% of employment in electronics and appliances, compared to 68% in other manufacturing. In contrast, 39% of workers in the industry were white, compared to 14% in the rest of manufacturing.

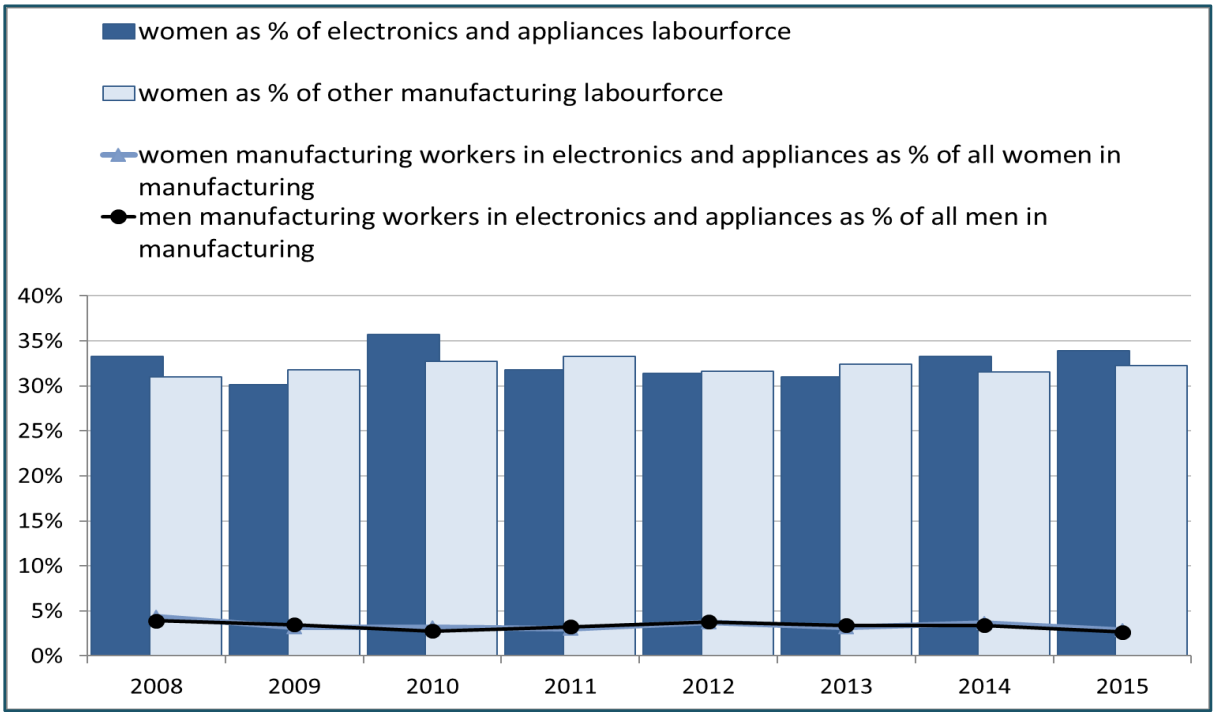
Graph 6. Employment in electronics and appliances by race



Source: Statistics South Africa. Labour Market Dynamics. Relevant years. Series on employment by industry and population group. Electronic databases. Downloaded from www.statssa.gov.za Nesstar facility in September 2017.

Women made up around 33% of the labour force in electronics and appliances, similar to the rest of manufacturing. For both women and men, around 3% of the manufacturing labour force was in electronics and appliances.

Graph 7. Employment in electronics and appliances and other manufacturing by gender



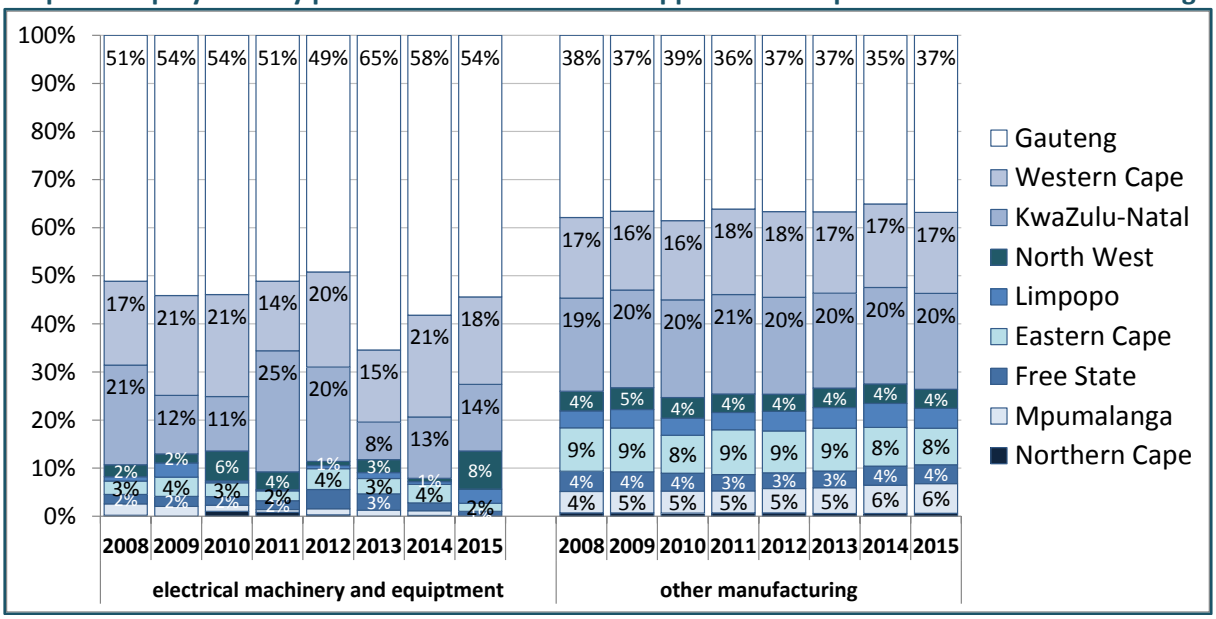
Source: Statistics South Africa. Labour Market Dynamics. Relevant years. Series on employment by industry and gender. Electronic databases. Downloaded from www.statssa.gov.za Nesstar facility in September 2017.

3 Location

Statistics South Africa provides information on employment by province. As the following graph shows, Gauteng was by far the largest employer in electronics and appliances. It accounted for around half the labour force, compared to just over a third in manufacturing as a whole.

The next two most important provinces were the Western Cape and KwaZulu-Natal. KwaZulu-Natal was less important for electronics and appliances employment than it was for other manufacturing.

Graph 8. Employment by province in electronics and appliances compared to other manufacturing



Source: Statistics South Africa. Labour Market Dynamics. Relevant years. Series on employment by industry and province. Electronic databases. Downloaded from www.statssa.gov.za Nesstar facility in September 2017.

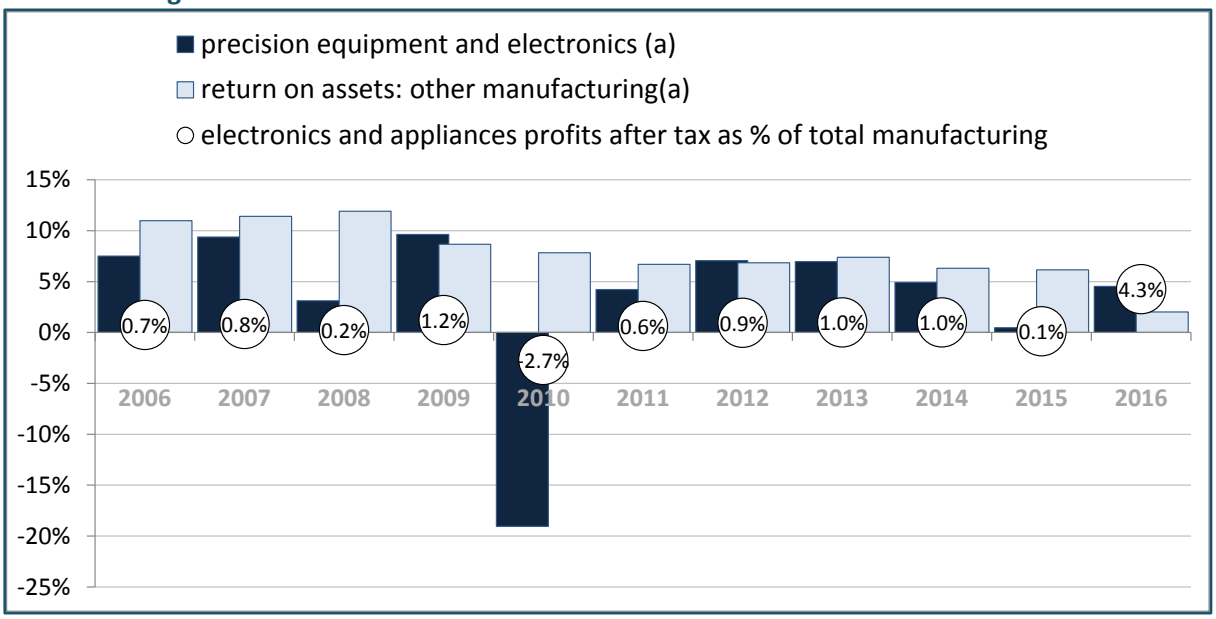
The location of manufacturing can also be understood in how it was embedded in apartheid geography. To this day, only a tenth of manufacturing employment is in the former so-called "homeland" regions, where around a quarter of the population lives. In the case of electronics and appliances, around 3% of total employment was in the former "homeland" regions from 2008 to 2015 – a third the level of manufacturing as a whole.

4 Profitability and assets

Statistics South Africa's Annual Financial Statistics provide information for the precision instruments and electronics industry, excluding office and household machinery.

In most years, profits in precision instruments and electronics were around the same as in the rest of manufacturing. The industry saw an unusually large fall in profits in 2008/9, however, during the global financial crisis. It also reportedly declined sharply in 2014 and 2015, but then recovered in 2016 while profits in the rest of manufacturing fell.

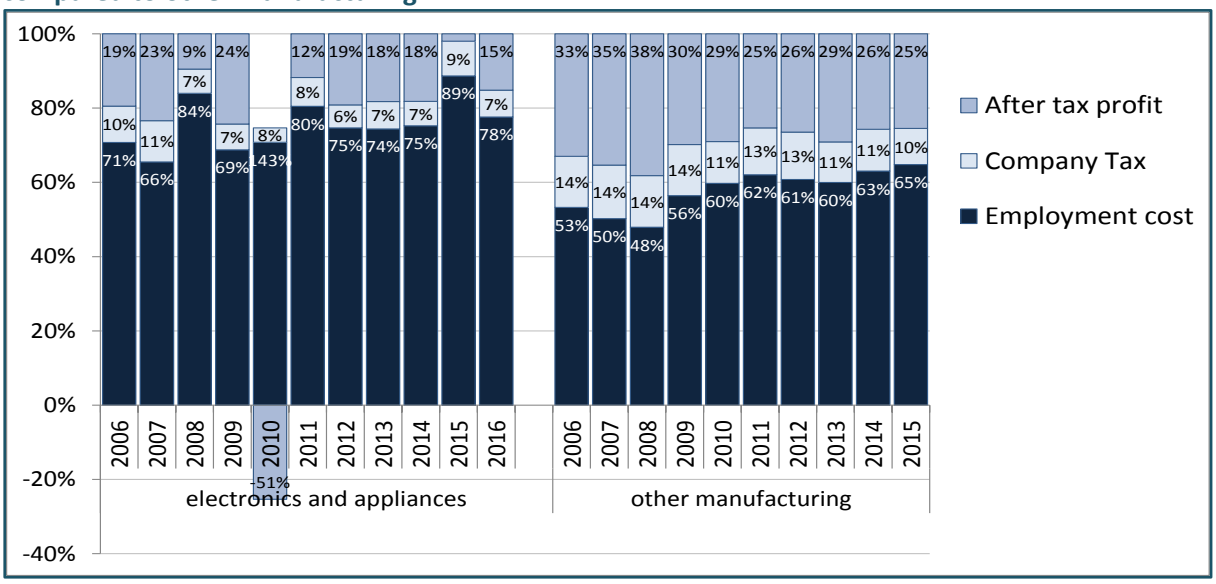
Graph 9. Return on assets (a) in precision instruments and electronics and in other manufacturing, and after-tax profits in precision instruments and electronics as percentage of after-tax profits in manufacturing as a whole



Note: (a) Profit before taxes and dividends less company tax as percentage of total assets. Source: Calculated from Statistics South Africa. Annual Financial Statistics. Disaggregated Industry Statistics for relevant year. Excel spreadsheet. Downloaded from www.statssa.gov.za in September 2017.

The share of profit in value add was relatively low in precision instruments and electronics, around 18% in most years, compared to over 25% in the rest of manufacturing. Remuneration, in contrast, accounted for around three quarters of value add in precision instruments and electronics, in contrast to about two thirds in the rest of manufacturing. Taxes were 7%, while they were over 10% in other manufacturing.

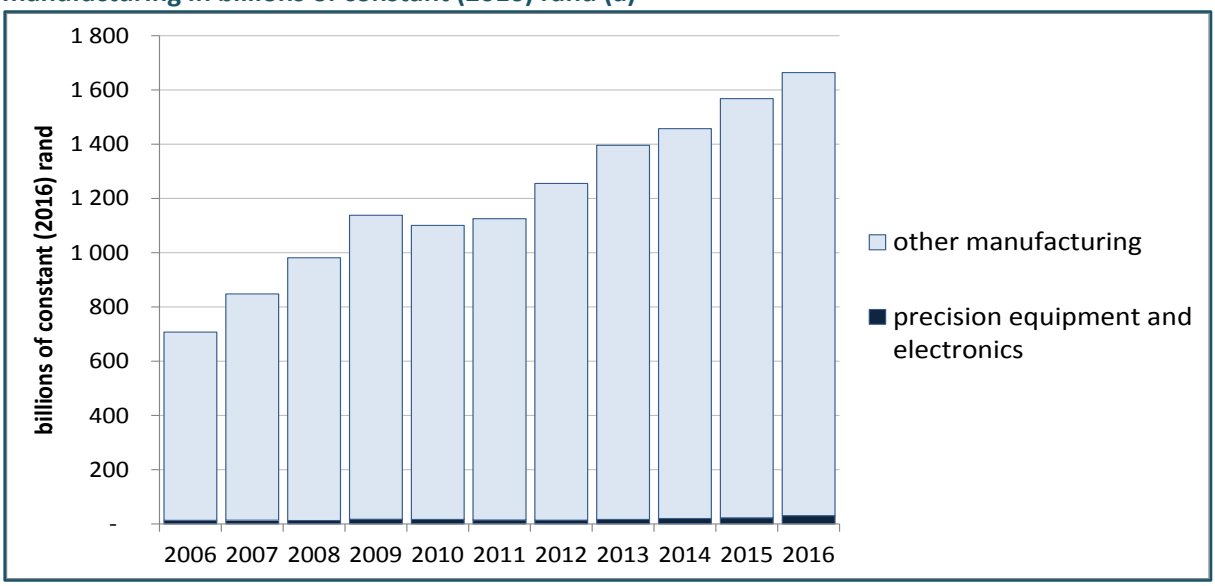
Graph 10. Share of remuneration, profits and taxation in income from electronics and appliances compared to other manufacturing



Source: Calculated from Statistics South Africa. Disaggregated Industry Statistics for relevant year. Excel spreadsheet. Downloaded from www.statssa.gov.za in September 2017.

The value of assets in precision instruments and electronics climbed by almost 150% from 2008 to 2015, while the assets in the rest of manufacturing rose 70%. The share of electronics and appliances in total manufacturing assets fluctuated between 1,1% and 1,9% over this period.

Graph 11. Value of total assets in precision equipment and electronics compared to other manufacturing in billions of constant (2016) rand (a)



Notes: (a) Deflated with CPI. Source: Calculated from Statistics South Africa. Disaggregated Industry Statistics for relevant year. Excel spreadsheet. Downloaded from www.statssa.gov.za in September 2017.

5 Market structure and major companies

According to Statistics South Africa's Manufacturing Financial Statistics, in 2014 the share in total income of the largest five companies in precision instruments and electronics was 35%. That was more or less the median for manufacturing industries.[1]

[1] Calculated from Statistics South Africa. 2016. Manufacturing Industry: Financial, *2014.* Pretoria. Table 9, p 33, ff.

In 2015, the Labour Market Dynamics Survey found around 4 500 formal enterprises (that is, employers and self-employed) in formal electronics and appliances, beverages and tobacco, compared to a total of around 60 000 in manufacturing as a whole, and 671 000 for the entire economy. The figure was too small to analyse the trends meaningfully.

The largest companies in electronics and appliances are described in Table 1.

Table 1. Large companies in electronics and appliances production

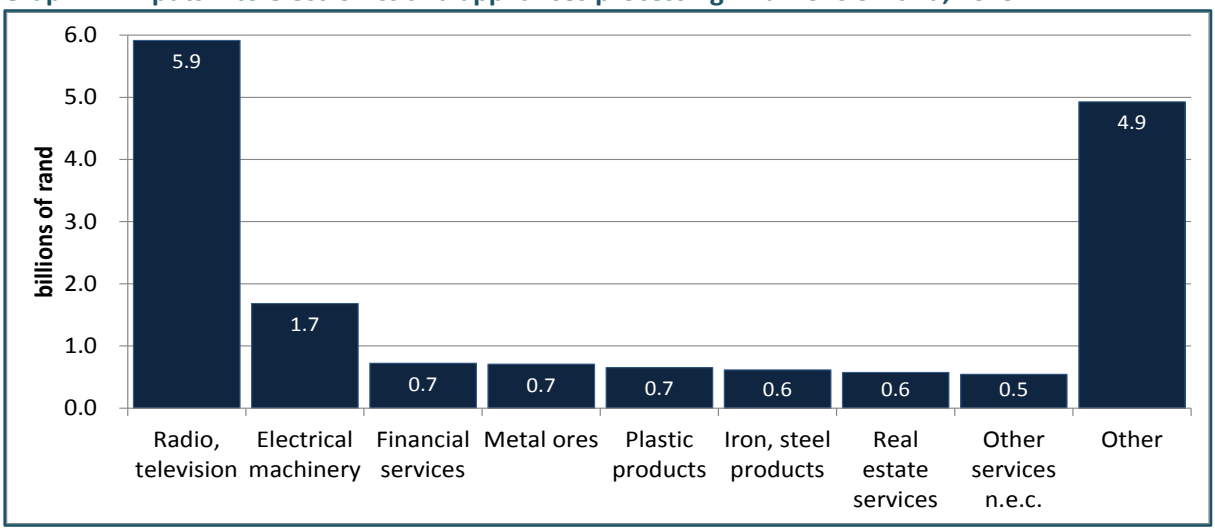
Company	Employees	Nature of business
SAAB Grintek Defence	700	Manufactures electronic equipment for the aviation and marine defence industries. Owned by SAAB.
Kwikot	650	In addition to distributing Kwikot appliances, manufactures geysers in SA.
Current Automation	67 (head office)	In addition to importing data processing and other machinery, manufactures solar components and installs off-grid and grid systems.
Essilor SA	263	Manufactures and fits spectacle lenses for SA market.
Drager SA	135	Manufactures and imports medical and safety products and equipment such as monitors and incubators for SA and other Africa.
Minoan Medical	110	Subsidiaries manufacture medical stand devices, specialising in vascular technology, as well as distributing imported products.
Southern Implants	78	Researches, designs, manufactures and distributes dental implants to dentists and distributors worldwide.
Fresenius Kabi Manufacturing SA	580	Imports and manufactures pharmaceutical products, including some medical devices.
Altech UEC SA	457	Designs and manufactures set-top boxes and other electronic products.
Tellumat	450	Imports, designs, manufactures and installs ICT, air traffic management and defence products, including software, and services; manufactures decoders.
CZ Electronics Manufacturing	300	Manufactures electronic assemblies for the defence, utility metering, vehicle tracking, data acquisition and telecom industries with products including PC boards, TV components and set-top boxes.
Vektronix	252	On contract with original equipment manufacturers (OEMs), assembles decoders for and flat-panel LCD/LED/plasma televisions.
Home of Living Brands	250	Manufactures and markets household appliances including televisions, audio and visual products as well as aerial and satellite equipment, mostly under licence.
JinkoSolar	270	Manufactures and exports solar panels worldwide.

Source: Who Owns Whom. Report Generator. Electronic database. Downloaded from www.wow.co.za in November 2017.

6 Major inputs

The main inputs into ICT and electronics come from within the industry. In constant rand, the value of inputs remained almost unchanged from 2012 to 2015 (Graph 12).

Graph 12. Inputs into electronics and appliances processing in billions of rand, 2015



Source: Calculated from Statistics South Africa. Statistics South Africa, GDP data in excel format, Fourth Quarter 2017. Use Tables. Downloaded from www.statssa.gov.za in October 2017.

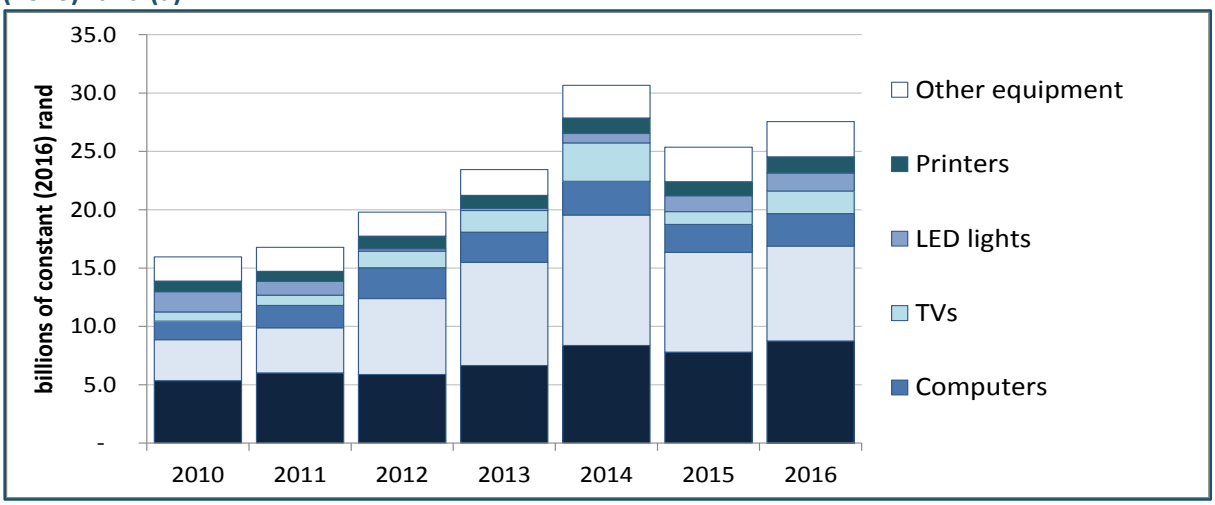
7 Trade

South Africa has a significant deficit in trade in electronics and precision instruments, importing R170 billion and exporting under R30 billion in 2016. Moreover, the exports were also mainly re-exports or products assembled from almost entirely imported products, especially in the case of electronics. It is not possible to provide figures for trade in major household appliances ("white goods") since they cannot be separated from production machinery, for instance in the case of dishwashers and laundry equipment.

Exports of electronics and precision instruments doubled from 2011 to 2014 in constant rand, in large part due to the depreciation of the rand, then fell back to around R27 billion. The fall was primarily due to a decline in cellphone and related equipment.

In contrast, exports of precision instruments, which typically have a larger share of South African value add, grew fairly steadily at an average of 9%a year from 2010 to 2016 in constant rand. In 2016, the industry provided 2,5% of South Africa's total exports.

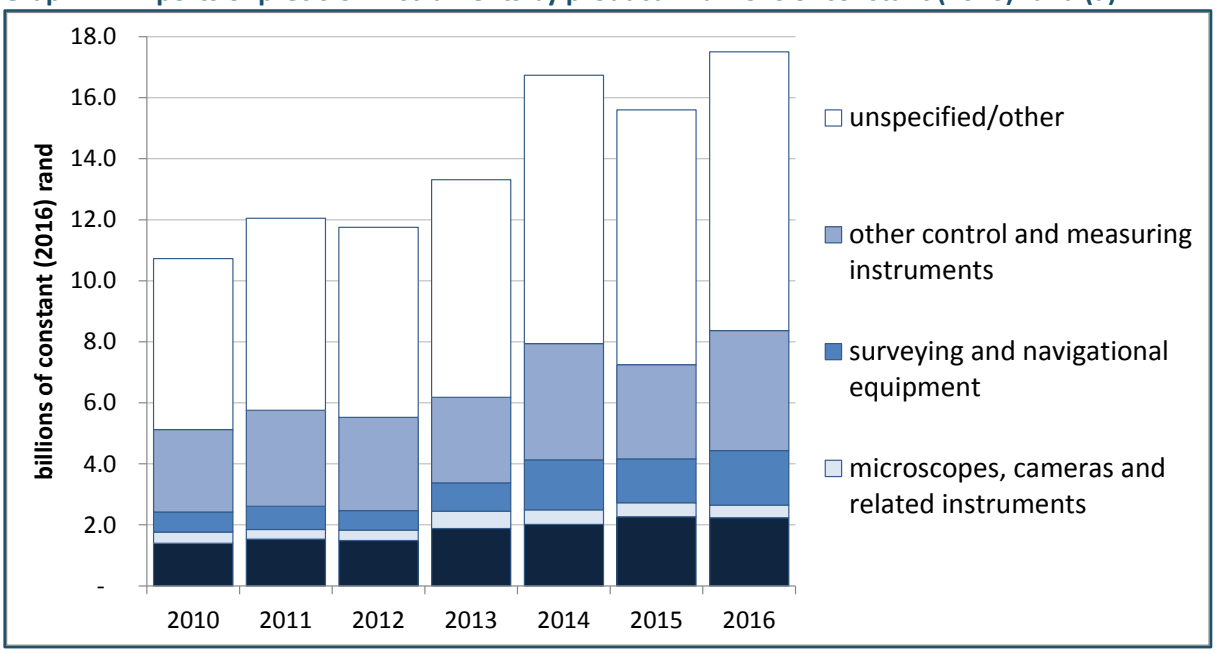
Graph 13. Exports of electronics and precision instruments by product in billions of constant (2016) rand (a)



Note: (a) Deflated with CPI. Source: Calculated from ITC. TradeMap. Electronic database. Series on exports of precision and electronics equipment, in rand. Downloaded from www.trademap.org in November 2017.

Precision instruments is a diverse and complex category, and over half of exports were not categorised in the trade data. Of the R8 billion in categorised products in 2016, various forms of measuring and control instruments (such as meters) totalled almost R4 billion, and medical equipment, over R2 billion. Medical equipment exports had climbed 8,5% a year in constant rand, and measuring and control instruments had risen 6,5% a year.

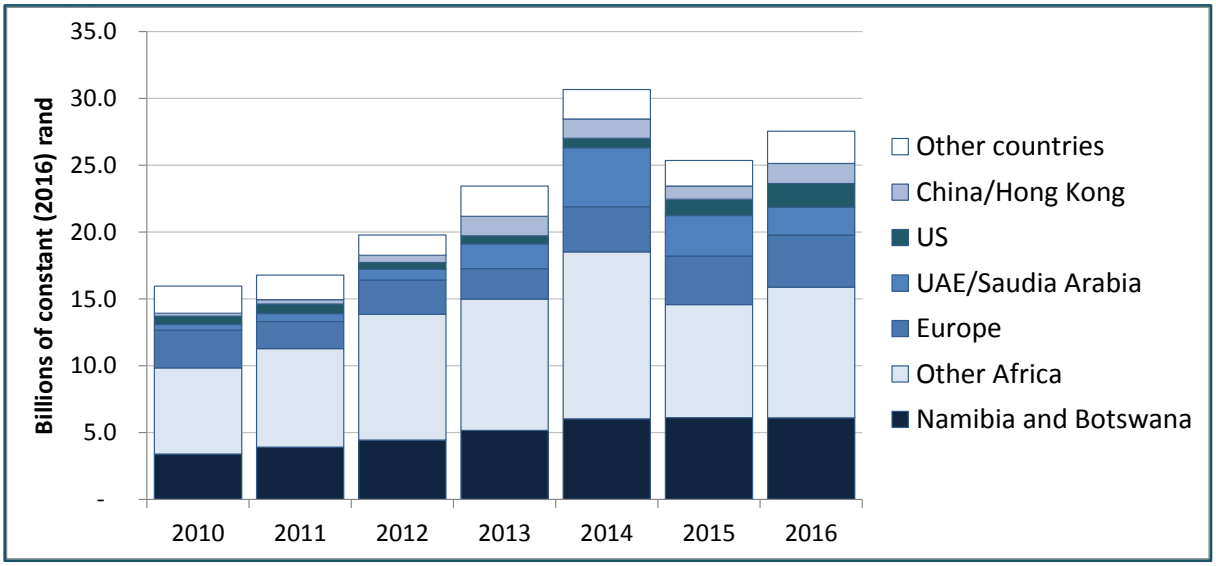
Graph 14. Exports of precision instruments by product in billions of constant (2016) rand (a)



Note: (a) Deflated with CPI. Source: Calculated from ITC. TradeMap. Electronic database. Series on exports of precision instruments, in rand. Downloaded from www.trademap.org in November 2017.

Over half of South African exports of electronics and precision instruments went to Botswana, Namibia and the rest of Africa.

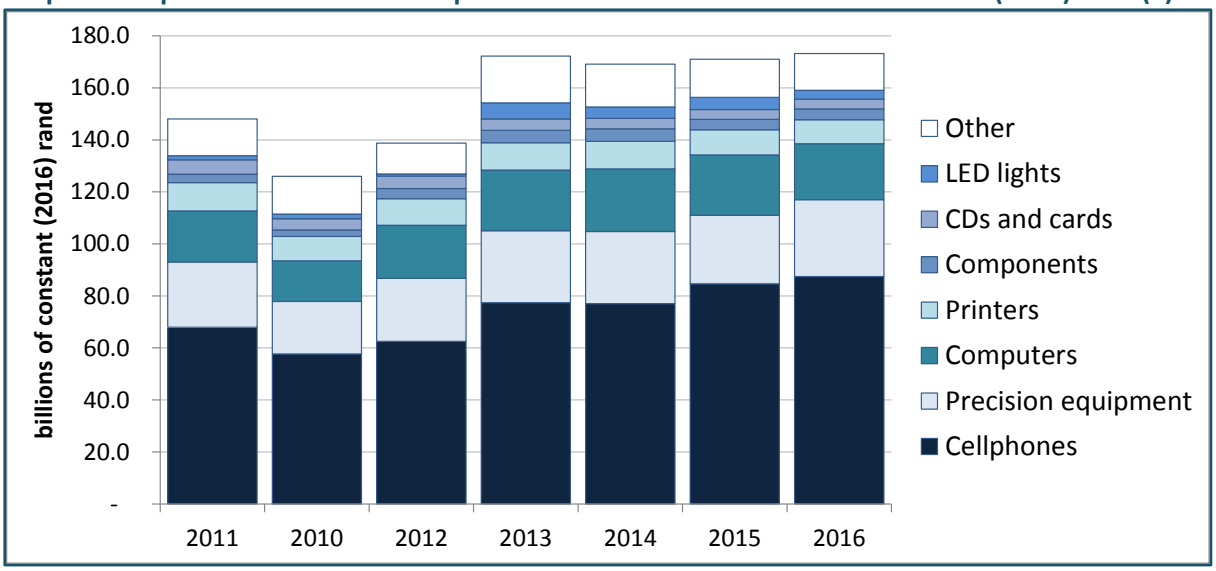
Graph 15. Exports of electronics and precision instruments by country in billions of constant (2016) rand (a)



Note: (a) Deflated with CPI. Source: Calculated from ITC. TradeMap. Electronic database. Series on exports of precision instruments, in rand. Downloaded from www.trademap.org in November 2017.

Imports of electronics and precision instruments account for around a seventh of South Africa's total import bill, although in constant rand the value levelled out from 2013 to 2016. Half of the total comprised cellphones, while most of the rest was computers, printers and precision instruments.

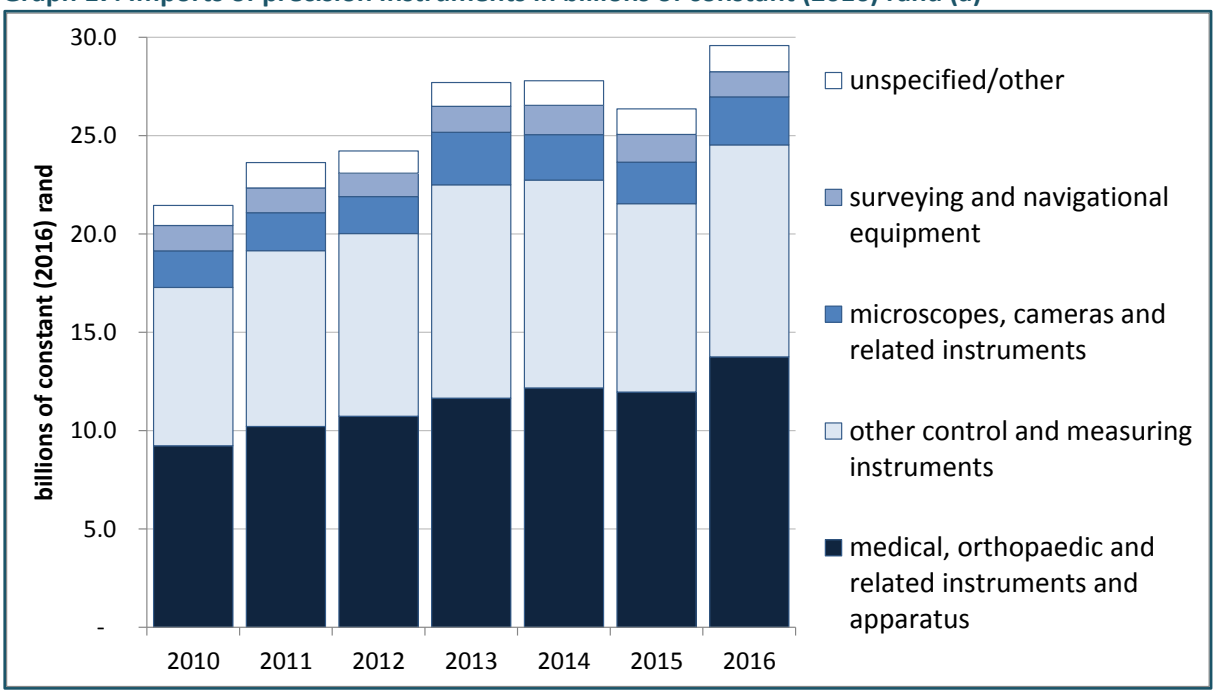
Graph 16. Imports of electronics and precision instruments in billions of constant (2016) rand (a)



Note: (a) Deflated with CPI. Source: Calculated from ITC. TradeMap. Electronic database. Series on imports of electronics and precision instruments, in rand. Downloaded from www.trademap.org in November 2017.

The bulk of imported precision instruments were medical equipment and apparatus, and various measuring and control instruments. Medical equipment and apparatus imports climbed 7% a year in constant rand, while control equipment increased 5%.

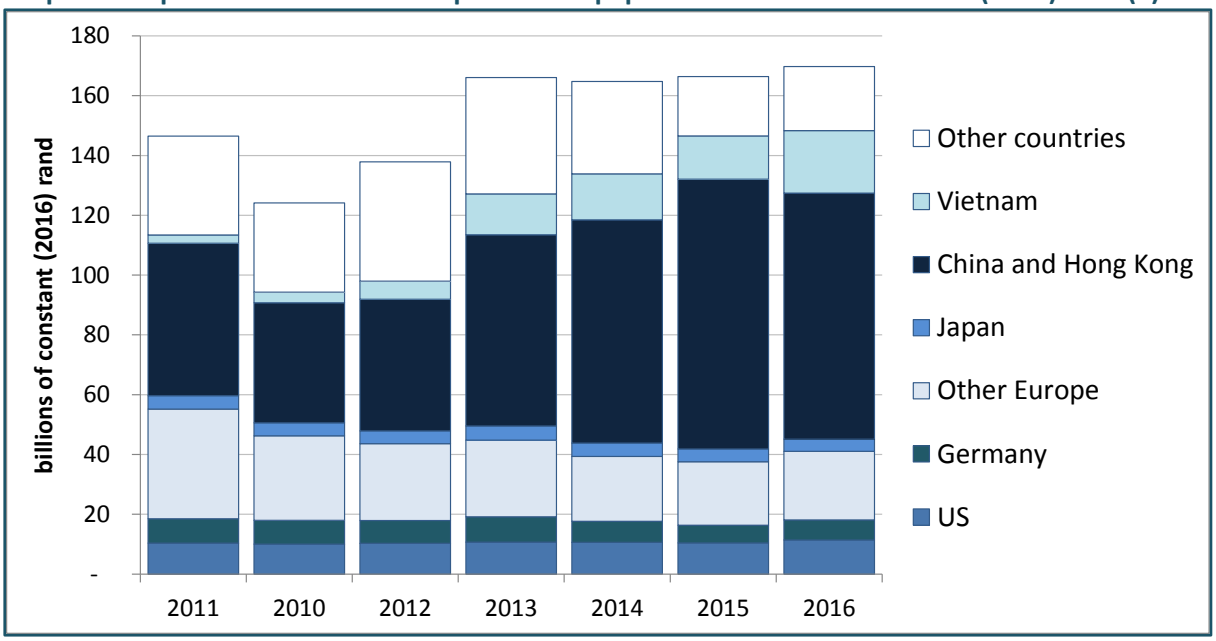
Graph 17. Imports of precision instruments in billions of constant (2016) rand (a)



Note: (a) Deflated with CPI. Source: Calculated from ITC. TradeMap. Electronic database. Series on imports of electronics and precision instruments, in rand. Downloaded from www.trademap.org in November 2017.

China has become by far the most important source of precision instruments and electronics, accounting for half of the total in 2016, up from a third in 2010. Vietnam's share has also increased significantly. In contrast, the share coming from Europe, excluding Germany, has tended to decline.

Graph 18. Imports of electronics and precision equipment in billions of constant (2016) rand (a)



Note: (a) Deflated with CPI. Source: Calculated from ITC. TradeMap. Electronic database. Series on imports of electronics and precision instruments, in rand. Downloaded from www.trademap.org in November 2017.