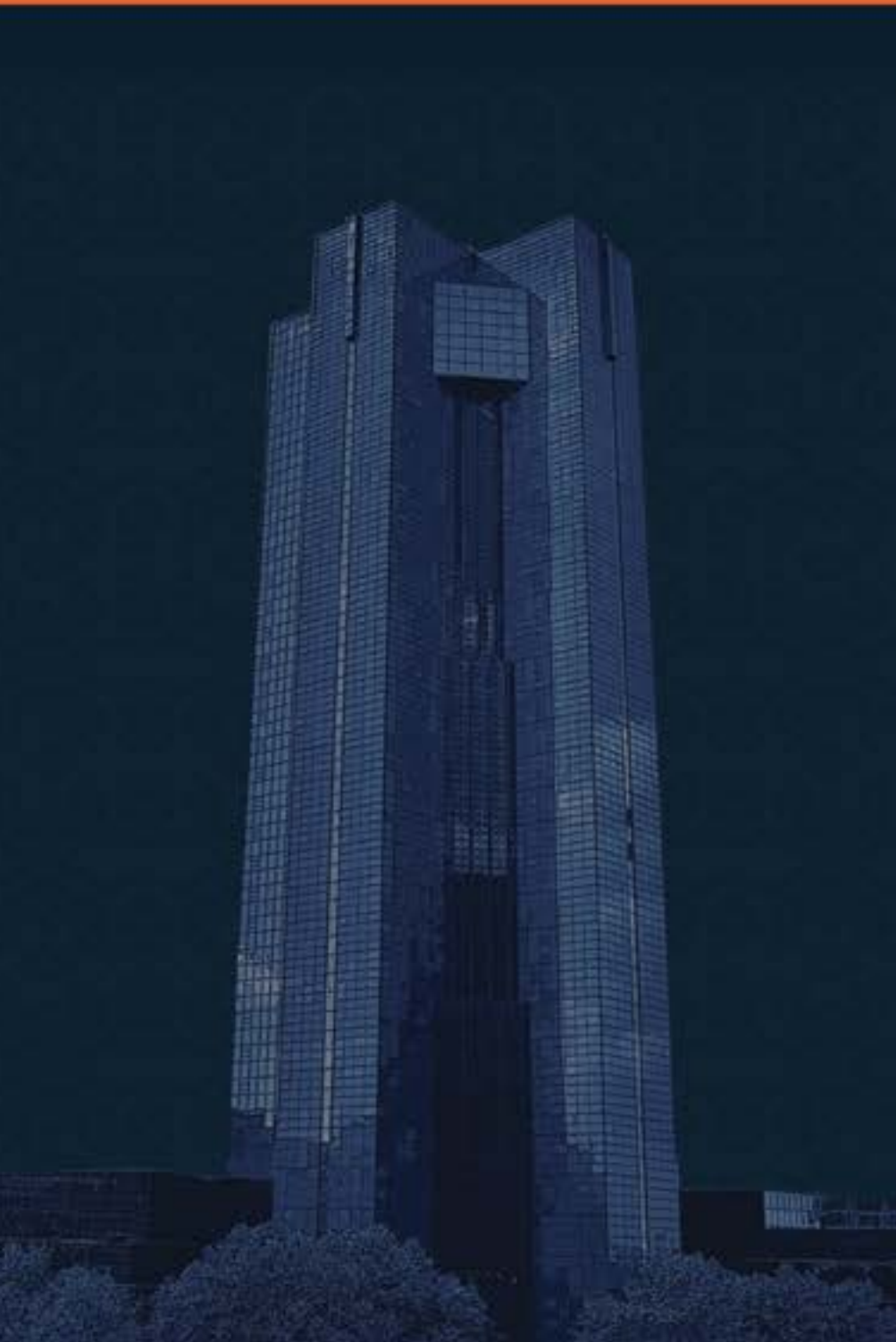


South Africa's national accounts 1946–2014

An overview of sources and methods

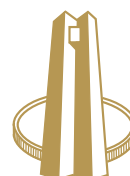
Supplement to the South African Reserve Bank
Quarterly Bulletin March 2015



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South African Reserve Bank

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South African Reserve Bank

Supplement to the Quarterly Bulletin March 2015

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South Africa's national accounts 1946–2014

An overview of sources and methods

1. Introduction

The outcome of the five-yearly benchmarking and rebasing of South Africa's national accounts statistics, a project jointly undertaken by Statistics South Africa (Stats SA) and the South African Reserve Bank (the Bank), is disseminated in greater detail in this supplement to the March 2015 *Quarterly Bulletin*. In addition to the comprehensive longer-term revision of national accounts aggregates and time series data, the current revisions also reflect conceptual, methodological and classification changes following the partial implementation of the latest edition of the *System of National Accounts* (2008 SNA).

Comprehensive revisions to South Africa's national accounts statistics are typically undertaken every five years in order to incorporate new or additional information that became available, to reclassify transactions where necessary and to rebase estimates at constant prices. Market developments and the concomitant emergence of new products and services furthermore continually necessitate changes to compilation practices. The 2008 SNA, which replaced the 1993 version of the SNA, provides an international standard macroeconomic statistical framework for this purpose; both publications were compiled under the auspices of the United Nations, the European Commission, the International Monetary Fund (IMF), the World Bank and the Organisation for Economic Co-operation and Development (OECD).

The five-yearly comprehensive revisions differ from the regular annual national accounts revisions due to the scope of the changes and the length of the period to which the revisions apply. The most recent set of revisions drew on information from relevant censuses released by Stats SA during the period 2009 to 2014, a number of sectoral surveys and technical reports, and more detailed producer and consumer price information. Most notable were the 2010/11 *Income and Expenditure Survey of Households*; the results of the *Population Census* of 2011; the 2010 *General Household Survey*; various issues of the *Annual Financial Statistics* (AFS) survey; various issues of the *Quarterly Financial Statistics* (QFS) survey; the *South African National Survey of Research and Experimental Development* compiled by the Centre for Science, Technology and Innovation Indicators (CeSTII) on behalf of the Department of Science and Technology (DST); technical reports from the Department of Agriculture, Forestry and Fishing; the *Abstract of Agricultural Statistics* for various years; and information sourced from the Department of Human Settlements.

2. Background to benchmarking and rebasing of national accounts statistics

National accounts estimates are based on a variety of data sources differing in terms of accuracy, frequency, scope and level of detail. Short-term estimates are, however, often based on trends derived from a more limited set of available indicators due to the considerable delays involved before the full set of detailed source data becomes available.

The purpose of benchmarking is to review high-frequency data and statistics that tracked short-term developments in the economy in the base year (2010 in this instance), and to reconcile these developments with more accurate and detailed but less frequent data to determine a revised level in the base year on which future estimates can be based. The process is followed by using nominal data and therefore affects all ratios using the gross domestic product as denominator.

Rebasing is the process whereby the reference year for the real or constant price estimates of national accounts aggregates is changed. The further the estimates are removed from the benchmark reference year, the greater the probability that a significant bias sets in as the pattern of the relative prices in the base period tends to become progressively less relevant to the economic situation with the passage of time. The base period should typically be a fairly 'normal' year in the economy for which the required periodic data are readily available.

National accounts data at constant prices reflect changes in the volume or quantity of goods and services produced or utilised. Volume changes in a macroeconomic aggregate between a chosen base period and the current period involve revaluing the aggregate in question in the current period at the prices that prevailed in the base period, before calculating the change between these two periods. This procedure eliminates the effects of price changes from the base period to the current period by recalculating the value of aggregate output and expenditure in terms of the prices of goods and services in the base period. The prices in the selected base period are therefore a key factor in determining the real values of the different goods and services included in the total output and expenditure in other periods.

Relative values change over time because prices generally do not change at the same pace from one period to another. Shifts in relative prices may be brought about by changes in supply and demand, which in turn may reflect factors such as different rates of change in productivity in different industries, changes in the quality of products, technological advances, tax changes, international price movements and exchange-rate adjustments, and changes in tastes and preferences. To ensure that relative values, and therefore weighted average volume changes, approximate the current structure of the economy as closely as possible, base periods and weights have to be changed on a regular basis.

The shift in the base year changes the units (rand value) in which output and expenditure volumes are measured, and the difference in the level between the previously published and revised series primarily reflects the difference in the unit of measurement. For example, rebasing from 2005 prices to 2010 prices increased the level of real gross domestic product, essentially reflecting the increase in the price level between 2005 and 2010. It does not, however, indicate an increase of the same magnitude in output or expenditure volumes.

The new constant price series, with 2010 as the base year, have been recalculated at a detailed level of disaggregation from 2006 onwards. This allows for changes in the growth rates on account of changes in the weighting structure (as a result of adjustments to nominal data and deflated by new or re-indexed deflators), while at the same time ensuring that the weights used in the measurement of changes in real national accounts aggregates between 2005 and 2010 reflect reasonably closely the relevant new price and quantity structure for this period. The previously estimated series, expressed in terms of constant 2005 prices, have been retained for the period up to 2006 and have been linked to the new series without being reweighted. However, due to the magnitude of some revisions it was necessary to allow for a gradual phasing-in period prior to 2006 to accommodate the underlying revisions to certain aggregates. This implies that in those cases the growth rates at constant prices before 2006 could change accordingly.

In order not to disturb the previously identified growth patterns in volume series up to 2006, subtotals and totals up to 2006 have been converted to 2010 prices independently of their components. Consequently, these converted subtotals and totals for periods before 2006 are not equal to the sum of their components. This means that the constant price figures do not add up in an accounting sense, with the difference being reflected in the residual.



3. Changes to South Africa's national accounts statistics following the partial implementation of the 2008 SNA and other methodological changes

In the context of a set of internationally agreed concepts, definitions, classifications and accounting rules, the SNA provides a conceptual framework for compiling a coherent, consistent and integrated set of macroeconomic accounts. National accounts statistics compiled in accordance with these guidelines are used for analysing and evaluating economic performance and to provide a factual basis for research and policy formulation. As indicated in Table 1, the revisions and rebasing lifted the measured level of gross domestic product by 2,8 per cent in the base year 2010, compared with previously published estimates. Roughly 1,2 percentage points of the total change of 2,8 per cent in the level of the gross domestic product in 2010 can be attributed to the definitional and conceptual changes brought about by the partial implementation of the 2008 SNA. Although it is not easy to disentangle the direct impact of the introduction of the new standards from other revisions, indications are that the effect of the implementation of the SNA varied between 1,1 per cent and 1,3 per cent of the revised level of gross domestic product throughout the years from 2006 to 2013.

Table 1: Factors contributing to the change in the 2010 level of nominal gross domestic product

	R billions	Percentage of 2010 GDP
Level of 2010 gross domestic product before revisions	2 673,77	100,0
<i>Plus: Implementation of 2008 SNA</i>		
Research and development.....	16,47	0,6
Gross fixed capital formation.....	13,33	0,5
Consumption of fixed capital.....	3,14	0,1
Weapon systems	8,47	0,3
Consumption of fixed capital.....	8,47	0,3
Livestock	2,47	0,1
Gross fixed capital formation.....	2,47	0,1
FISIM*	5,72	0,2
Final consumption expenditure	5,72	0,2
Total, 2008 SNA implementation.....	33,13	1,2
<i>Plus: Enhanced measurement of economic activity.....</i>	41,11	1,6
<i>Equals: Level of 2010 gross domestic product after revisions....</i>	2 748,01	102,8
<i>Memo: Impact of overall revision</i>	74,24	2,8

* FISIM: Financial intermediation services indirectly measured

The revision of the SNA was a significant step forward in the modernisation of national accounts statistics and the underlying and related accounting and statistical systems, which are designed to improve measurement of an increasingly globalised economy in an integrated and consistent framework. Although the 2008 SNA retains the basic approach and statistical framework as captured by the 1993 SNA, a number of enhancements were introduced to facilitate improved measurement and analysis in a changing global economic environment. Major changes resulting from the implementation of the 2008 SNA include the following:

– Research and development

Box 1 Capitalisation of research and development in South Africa

An important change to South Africa's national accounts statistics following the implementation of the 2008 *System of National Accounts* (2008 SNA) was to add expenditure on research and development (R&D) as a new asset type in gross fixed capital formation. R&D refers to creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of humankind, culture and society, and the use of this stock of knowledge to devise new applications.

The 2008 SNA recognises R&D as a capital asset (an intellectual property product) that is associated with investment flows and consumption of fixed capital, is long-lasting, used repeatedly in production processes and beneficial to its owners. R&D is often of a scientific nature, and the development of particular technologies is carried out mainly by the corporate sector and by government.

Data pertaining to R&D activities in South Africa are sourced from the *South African National Survey of Research and Experimental Development* conducted by the Centre for Science, Technology and Innovation Indicators (CeSTII) on behalf of the Department of Science and Technology, the *Quarterly Financial Statistics survey* (QFS), *Annual Financial Statistics* (AFS) survey and the *Financial Statistics of Consolidated General Government*, published by Statistics South Africa (Stats SA). Survey data on R&D expenditure are compiled in accordance with the guidelines of the Organisation for Economic Co-operation and Development (OECD) as set out in the *Frascati Manual*.

In the 1993 SNA, spending on R&D was treated as intermediate consumption. Intermediate goods and services are used only once, whereas capital assets are used repeatedly in production processes year after year. Even though the 1993 SNA acknowledged that spending on R&D essentially comprised investment activity, it was retained as intermediate consumption due to measurement difficulties, including distinguishing R&D activities from other activities in production processes, valuing R&D assets, and depreciating R&D capital to derive appropriate net stock values. This resulted in South Africa's gross domestic product as well as the net worth of the country being understated. In accordance with the guidelines of the 2008 SNA, spending on R&D, previously regarded as intermediate consumption, was reclassified as gross capital formation, elevating the level of the gross domestic product. Consumption of fixed capital arising from R&D was subsequently added to non-market output, which also affected the level of domestic production positively.

In South Africa the bulk of R&D is undertaken by business enterprises and is valued at cost. On the production side of the South African economy, own account R&D was removed from intermediate consumption, resulting in higher output of the various industrial sectors. In the case of R&D market producers, only R&D intermediate costs by these companies were capitalised. The gross operating surplus increased by this amount although the output remained unchanged. Government output in the calculation of gross domestic production is equal to total cost (including R&D); consequently, when R&D was capitalised, output shrank with the net amount of government's R&D expenses less new consumption of fixed capital. On the expenditure side, the final consumption expenditure of government also decreased because of the net effect of lower purchases of goods and services and higher consumption of fixed capital (on R&D stock).

In 2010, R16,5 billion was added to the nominal level of gross domestic product resulting from the new method of treating R&D, constituting 0,6 per cent of the revised level of gross domestic product in that year. The consumption of fixed capital stemming from a ten-year lifespan in this asset class amounted to R3,1 billion or 0,1 per cent of gross domestic product, while capital spending on R&D contributed 0,5 percentage points to the change in gross domestic product.

– Information, computer and telecommunications equipment and computer software

Capital outlays on computer hardware and software were previously included under the broader heading of 'computers and related equipment'. Outlays on these items have now been split between information, computer and telecommunications equipment and computer software, with no material impact on either total gross fixed capital formation or gross domestic product.

– Capitalisation of military weapon systems

According to the 1993 SNA, the acquisition of military weapon systems was treated as consumption expenditure by general government. The 2008 SNA recommends that

spending on military weapon systems, such as warships, military aircraft, tanks and missile carriers be classified as fixed assets. This change recognises that weapon systems are long-lasting assets that may be used for activities that provide defence services, including deterrence, and that have value on the government's balance sheet. As a result, gross domestic product was boosted by the consumption of fixed capital on weapon systems, and the acquisition of these systems has been reclassified from final consumption expenditure by general government to a number of asset categories in total gross fixed capital formation. Consumption of fixed capital on these assets contributed 0,3 percentage points to the total change in the level of gross domestic product in 2010.

– **Cultivated biological resources**

The aggregate amount recorded for cultivated biological resources included in total gross fixed capital formation took account of the reclassification of capital expenditure on tree, crop and plant resources yielding repeat products which were previously classified as construction works, as well as the creation of a new capital asset, namely animal resources yielding repeat products. The latter capital asset includes animals whose natural growth and regeneration are under the direct control, responsibility and management of institutional units. New data include breeding stocks of dairy cattle and sheep, and contributed just more than 0,1 percentage points to the change in the 2010 level of gross domestic product.

– **Financial intermediation services indirectly measured**

Box 2 Financial intermediation services indirectly measured

The concept *financial intermediation services indirectly measured* (FISIM) was introduced in the 1993 *System of National Accounts* (1993 SNA) and applied to interest paid on deposits received and interest received on loans extended by the banking sector, excluding the value of any property income receivable from the investment on banks' own funds. The 2008 SNA proposes that FISIM be expanded to also include other financial intermediaries, excluding insurance corporations and pension funds.

FISIM can be explained as the implicit financial service fee arising from the process whereby a financial institution, such as a bank, accepts deposits from investors wishing to receive interest on their funds, and lends these funds to entities wishing to acquire loans. The bank, acting as a financial intermediary, facilitates the flow of funds between the two entities. The entity or person depositing funds accepts a rate of interest lower than that paid by the borrower. Between these two interest rates stands a 'reference rate' of interest. The difference between interest calculated at the reference rate and interest actually paid to depositors and charged to borrowers is known as FISIM. Total FISIM is therefore the sum of the implicit fees paid by the borrower and the lender.

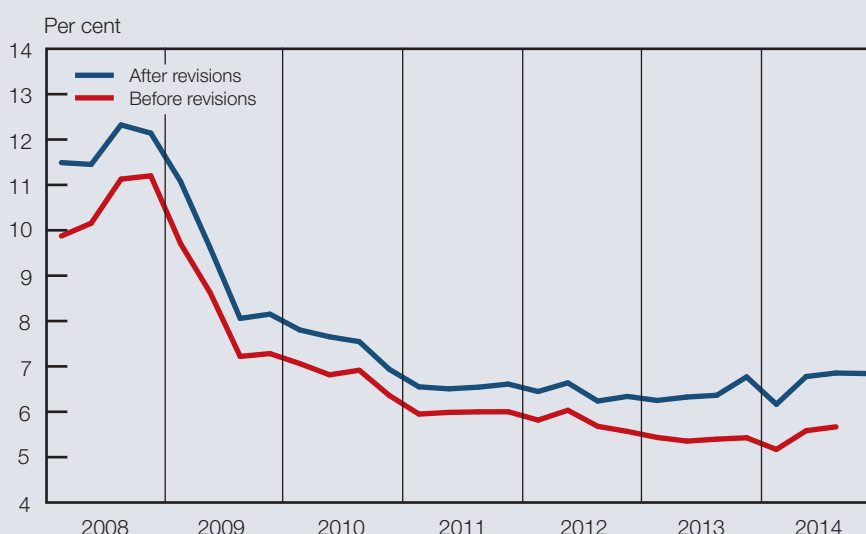
FISIM only applies to loans provided and deposits received by financial institutions. It is not necessary for the financial institution to offer both deposit-taking and loan facilities.

When recording output in national accounts statistics, the use of that output has to be explicitly accounted for elsewhere in the set of accounts. As a result, FISIM is recorded as output, with its uses shown as intermediate consumption by enterprises, final consumption expenditure by households and general government, or exports to non-residents, as the case may be.

The main improvements applied to the calculation of FISIM in the benchmarking and rebasing project were firstly the refinement of the reference rates used in calculating FISIM at current prices (which resulted in a new reference rate being populated). Secondly, FISIM for non-bank financial institutions was added to the existing figures, and thirdly the allocation of FISIM was revisited since 2003.

A single reference rate, as recommended in the 2008 SNA, was used in the calculation of SNA interest. The new reference rate was obtained by using quarterly data on interest received and interest paid as well as average quarterly loan and deposit data from banks. Data for other non-bank financial institutions were therefore not used. As indicated in Figure B2.1, the new methodology for determining a single reference rate resulted in a constantly higher rate than the reference rate used in previous calculations.

Figure B2.1: Reference rate for financial intermediation services indirectly measured



Revised figures for FISIM were included in the output of banks from 2003 onwards. The new FISIM calculated for non-bank financial intermediaries replaced the previous output which was calculated at cost. Total FISIM output was distributed to the users across the institutional sectors. The allocation of FISIM to institutional sectors and to intermediate and final consumption was estimated by using the data for banks from the 'Institutional and maturity breakdown of liabilities and assets', as surveyed by the South African Reserve Bank (the Bank), while the allocation for relevant non-bank financial institutions utilised surveys of these institutions conducted by the Economic Research and Statistics Department of the Bank. The allocation of FISIM to intermediate consumption of institutional sectors was broken down into the respective industries to ensure proper accounting of their value added. The distribution of FISIM by industry was done according to the ratio of interest received and interest paid by industry, obtained from the *Annual Financial Statistics* (AFS) surveys conducted by Statistics South Africa.

By applying the 2008 SNA guidelines in respect of the calculation of FISIM, South Africa's national accounts statistics were brought in line with international statistical standards. The more comprehensive calculation of FISIM added roughly 0,2 per cent to the level of gross domestic product in 2010.

– Other methodological changes

Other methodological changes affecting the national accounts statistics include the following:

- The capitalisation of low-cost housing has been revisited since the early 1990s. Improved estimates for these assets were accordingly incorporated in the balance sheet of the household sector. These assets are subject to a depreciation period of 30 years.
- Total consumption of fixed capital and the capital stock were affected by the alignment of the depreciation period of residential buildings to international practice, adopting 75 years rather than 50 years as the average lifespan.

Table 2 indicates the lifespans of the various asset classes identified in gross fixed capital formation. These have been revised in the case of residential buildings and provision has been made for the newly introduced asset classes as part of the implementation of the 2008 SNA.

Table 2: Changes in lifespans of different asset classes in gross fixed capital formation

Component	Before benchmarking revisions	After benchmarking revisions
	Years	
Residential buildings		
Low-cost housing	50	30
Other housing	50	75
Non-residential buildings	50	50
Construction works		
Government sector	80	80
Public corporations: Transport.....	25	25
Mining sector, not included elsewhere	30	30
Agricultural sector	80	80
Other sectors	50	50
Mineral exploration.....	Not included	30
Transport equipment.....	8	8
Machinery and equipment		
Public corporations involved in mining or electricity production	16	16
Manufacturing sector	8	8
Other sectors	10	10
Information, computer and telecommunications equipment.....	5	5
Computer software	5	5
Livestock.....	Not included	6
Research and development	Not included	10
Military weapon systems.....	Not included	30
Tree, crop and plant resources	25	25
Transfer cost	50	75

- Capital outlays on mineral exploration were reclassified and shown as a separate asset class in gross fixed capital formation. These expenses were previously categorised as part of construction works.
- Similar to other types of financial services, the output of non-life insurance services was estimated as premiums earned *plus* premium supplements *less* claims. In accordance with the 1993 SNA, the recommended treatment reflected the difference between premiums paid and claims accrued – a calculation that often led to unwarranted volatility in the output of insurance services. The 2008 SNA instead recommends that the calculation be based on a more steady measure of adjusted claims and adjusted premium supplements incurred. As a result, the compilation method of the output of non-life insurance services, reinsurance and direct insurance services was aligned with the methodology proposed in the 2008 SNA.
- The implementation of the *Balance of Payments and International Investment Position Manual*, sixth edition (BPM6), as discussed in a note in the December 2014 *Quarterly Bulletin*, has also resulted in enhanced estimates of certain national accounts aggregates.

4. Changes due to comprehensive revisions

As previously mentioned, the current revision of national accounts statistics was conducted in close cooperation between Stats SA and the Bank. Stats SA focused on the re-estimation of the gross domestic product at current and constant prices using the production approach, whereas the Bank was responsible for the revision of the gross domestic expenditure at current and constant prices, as well as for the revision of South Africa's national and institutional sector accounts. In addition, the Department of Agriculture, Forestry and Fishing was mainly responsible for re-estimating the output of intermediate, capital and other expenditure incurred by the agricultural sector.

4.1 Revisions to gross domestic product

The underlying contributions by kind of economic activity to total gross value added for the 2005 and 2010 benchmark estimates are presented in Table 3. Revisions such as the incorporation of R&D and the allocation of FISIM among the various sectors of the economy affected the relative weights of the aggregates accounting for total value added at current prices. As a result, the weights applied to extrapolate the base-year estimates of gross value added at basic prices and at constant prices in 2010 differed somewhat from the weights that were used when the base year was 2005.

Table 3: Contribution of gross value added by kind of economic activity to total value added at basic prices

Per cent

Sectors	2005 base year	2010 base year
Primary sector.....	10,2	11,9
Agriculture	2,7	2,6
Mining.....	7,6	9,2
Secondary sector	23,6	20,9
Manufacturing.....	18,5	14,4
Electricity, gas and water	2,4	2,7
Construction	2,8	3,8
Tertiary sector	66,2	67,2
Trade, catering and accommodation	13,9	14,9
Transport, storage and communication	10,0	9,2
Financial and business services.....	21,1	21,0
Government	14,9	16,2
Other services.....	6,3	6,0
Total.....	100,0	100,0

* Totals may not add up due to rounding

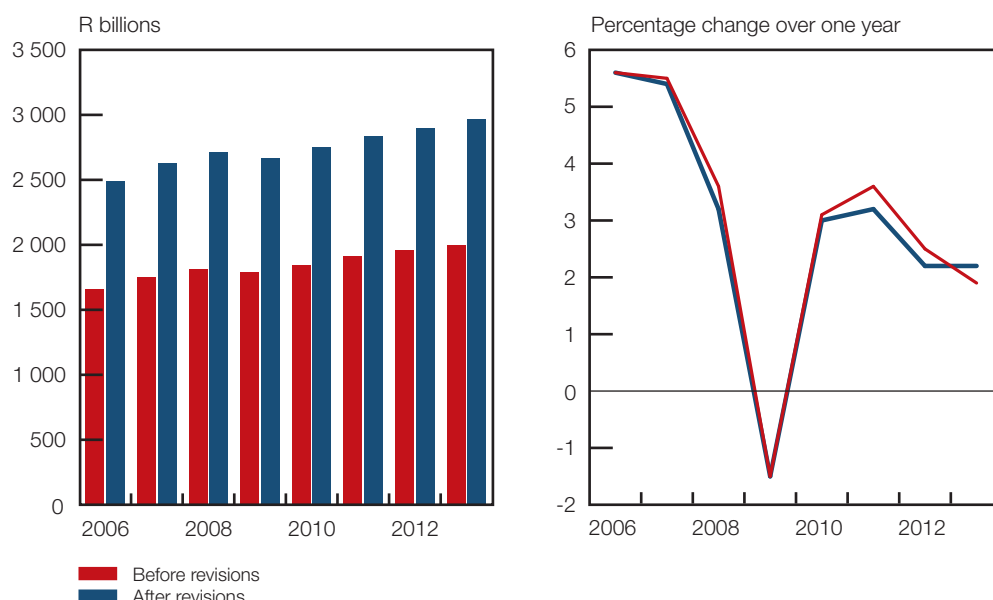
A comparison of the contribution of the various sectors of economic activity to total gross value added at basic prices in 2005 and in 2010 shows some noteworthy differences in the relative weights of particular sectors in the two base-year periods:

- The primary sector's contribution to gross value added at current prices increased from just more than 10 per cent in 2005 to about 12 per cent in 2010, mainly due to an increase in the contribution of the mining sector, which was in turn affected by a change in the product mix of the sector and a considerable increase in the nominal and real prices of mining products between 2005 and 2010.

- By contrast, the contribution of the secondary sector to total value added shrank from 23,6 per cent in 2005 to 20,9 per cent in 2010. Increases in the relative contributions of both the electricity, gas and water and the construction sectors were more than offset by a decline in the contribution of the manufacturing sector from 18,5 per cent in 2005 to 14,4 per cent in 2010.
- The contribution of the services sector to total value added increased from 66,2 per cent in 2005 to 67,2 per cent in 2010. This was the net result of increases in the contributions of both the commerce and general government sectors, which more than neutralised decreases in the contributions of the transport, storage and communications sector; the finance, insurance, real-estate and business services sector; and the other services sector. The revised increased size of the value added by the general government sector was brought about by a sharp rise in the consumption of fixed capital. This relates to charges on weapon systems which now form part of the capital stock according to the recommendations of the 2008 SNA.

Although the benchmark revisions significantly affected the level of gross domestic production, the growth rates in general changed very little. Over the period 2006 to 2013, the rate of growth was, on average, between 0,1 and 0,4 percentage points lower than previous estimates, while the growth rate for 2013 came out somewhat higher than before.

Figure 1: Real gross domestic product



- Table 4 presents the changes in the average annual real growth rates from 2006 to 2013 measured at 2010 prices compared with the average growth over the same period at 2005 prices. Growth in real gross domestic product was revised slightly downwards. The average annual rate of increase between 2006 and 2013 was estimated at 2,5 per cent at 2010 prices compared with a rate of 2,7 per cent estimated at 2005 prices. The real value added by the primary sector estimated at 2010 prices showed no growth over the full period compared with a growth rate of 0,2 per cent at 2005 prices. The real output of the agricultural sector increased, while the negative growth in mining output was maintained at a rate of 0,9 per cent measured at both 2005 and 2010 prices. Real value added by the secondary sector increased at a slightly faster pace on the new basis with its average growth rate rising from 1,6 per cent measured at 2005 prices to 1,7 per cent at 2010 prices. This essentially reflected higher growth in the real value added by the construction sector measured at 2010 prices. Growth in the real value added by the manufacturing sector is somewhat slower at 2010 prices, while that of electricity, gas and water remained unchanged. The pace of increase in the real value added by the tertiary sector was maintained at an annualised rate

of 3,3 per cent measured at both 2005 and 2010 prices. Higher growth in the commerce and general government services sectors offset somewhat slower growth in the real value added by the transport, storage and communications, and the finance and the other services sectors when measured at 2010 prices.

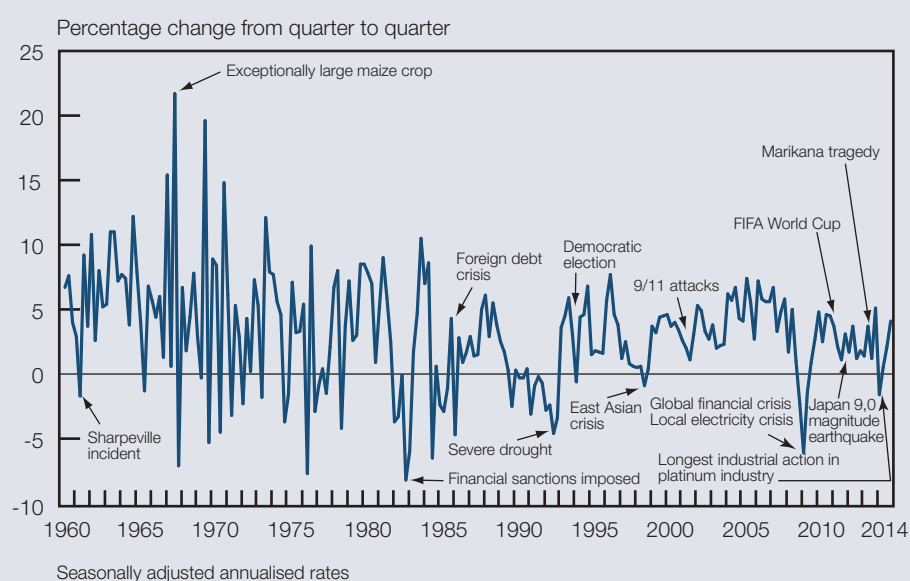
Table 4: Growth in real gross domestic product by kind of economic activity, 2006 to 2013

Per cent

Sectors	Compound annual rates at 2005 prices	Compound annual rates at 2010 prices
Primary sector.....	0,2	0,0
Agriculture	3,0	3,2
Mining	-0,9	-0,9
Secondary sector	1,6	1,7
Manufacturing.....	1,2	1,1
Electricity, gas and water	0,1	0,1
Construction	5,2	5,6
Tertiary sector.....	3,3	3,3
Trade, catering and accommodation	2,7	2,8
Transport, storage and communication	3,0	2,8
Financial and business services	4,1	3,6
Government.....	3,4	3,9
Other services	2,2	2,1
Total.....	2,7	2,5

Box 3 South African economic developments, 1960–2014

Figure B3.1: Real gross domestic product at market prices



The South African economy experienced buoyant growth during the 1960s recording, on average, annual growth rates in excess of 5 per cent over the period. Notwithstanding the Sharpeville incident in March 1961 and the concomitant large outflow of capital, economic growth accelerated between 1962 and 1965. In 1967, economic growth was boosted by, inter alia, a bumper maize crop.

The 1970s were characterised by a deterioration in financial stability and the collapse of the Bretton Woods system, fluctuations in international commodity prices such as that of gold and oil, and significantly higher inflation. Annual economic growth subsequently slowed to 3,3 per cent over this period.

In the 1980s, economic growth became more erratic. Negative economic growth was registered in 1982, 1983 and 1985, accordingly culminating in a recession, a pickup in inflation and higher unemployment. The debt crisis of 1985 furthermore strained economic activity as international banks suspended lending to South Africa. As a result, annual growth slowed further to, on average, 2,2 per cent during the decade.

Economic growth moderated further in the early 1990s. Real gross domestic product contracted in 1990 and 1991 and was negatively affected by a severe drought in 1992. Growth subsequently picked up with the successful transition to democracy in 1994 following the adoption of sound frameworks for monetary and fiscal policy. The East Asian crisis in the latter part of 1997 and early 1998 impacted trade and investment as international capital flows into South Africa tapered off. Annual growth averaged 2,5 per cent between 1995 and 1999, compared with only 0,1 per cent recorded between 1990 and 1994.

Growth in the 21st century was initially negatively affected by the terror attacks in the United States (US) in September 2001, the Asian tsunami in December 2004 and Hurricane Katrina in the US in 2005. Domestically, the period was characterised by a steady upward trend in household debt levels as especially mortgage advances rose briskly.

A severe electricity crisis has impacted on the performance of most sectors of the domestic economy since 2008. In addition, the global financial crisis spilled over to the South African economy and gave rise to successive contractions in domestic economic activity from the fourth quarter of 2008 to the second quarter of 2009. The 2010 FIFA World Cup boosted domestic activity through infrastructure spending by public corporations and general government as well as through increased tourism activity. During 2011, the South African motor vehicle manufacturing industry was adversely affected by an earthquake in Japan in March 2011. Since 2012, the South African economy has been plagued by industrial action, particularly in the mining and manufacturing sectors. A six-week-long strike at one of South Africa's largest platinum mines was followed by the Marikana tragedy. Extended industrial action in the platinum mining sector in the first half of 2014 and in the manufacturing sector during July of that year cost the economy dearly.

4.2 Revisions to the components of gross domestic expenditure

Revisions to the components of gross domestic expenditure were informed by the outcome of the previously mentioned sources; a thorough analysis of certain components of households' consumption expenditure, and of the income and expenditure of general government at all levels, including audited information that became available; and the incorporation of additional information pertaining to gross fixed capital formation and the book value of inventories as outlined below.

Table 5: Contribution of expenditure components to total gross domestic product

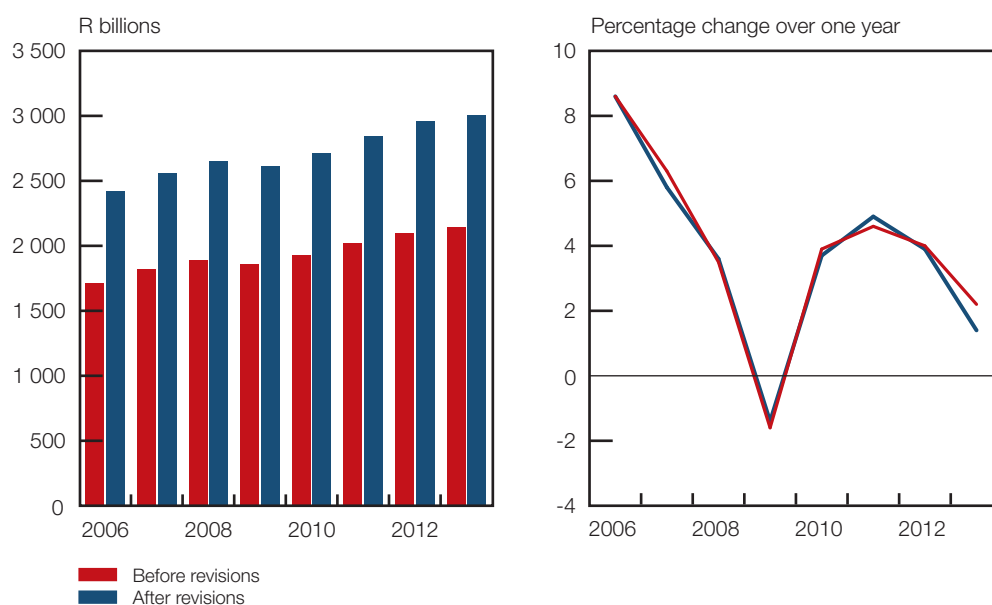
Per cent

Components	2005 base year	2010 base year
Final consumption expenditure		
Households.....	63,1	59,0
General government	19,5	20,2
Gross fixed capital formation	16,8	19,3
Change in inventories.....	1,2	0,3
Gross domestic expenditure	100,6	98,8
Exports of goods and services	27,4	28,6
<i>Minus:</i> Imports of goods and services	27,8	27,4
Residual.....	0,0	0,0
Gross domestic product.....	100,0	100,0

* Totals may not add up due to rounding

As indicated in Figure 2, real gross domestic expenditure increased at a slightly slower pace between 2006 and 2013; average growth moderated from 3,2 per cent measured at 2005 prices to 3,1 per cent at 2010 prices.

Figure 2: Real gross domestic expenditure



The revised estimates of final consumption expenditure by households were based on data obtained from, among other sources, the 2010/11 *Income and Expenditure Survey of Households*, the 2011 *Population Census* results; financial reports of companies; information from the National Gambling Board, the Bureau of Market Research, the Federation of governing bodies of South African Schools (FEDSAS), the National Association of Automobile Manufacturers of South Africa (NAAMSA); and the results of special research projects undertaken by the Bank in respect of medical aid schemes.

All subcategories of household expenditure were revised. The extent of the revisions varied from relatively insignificant to fairly substantial in the case of certain categories. Marginal changes



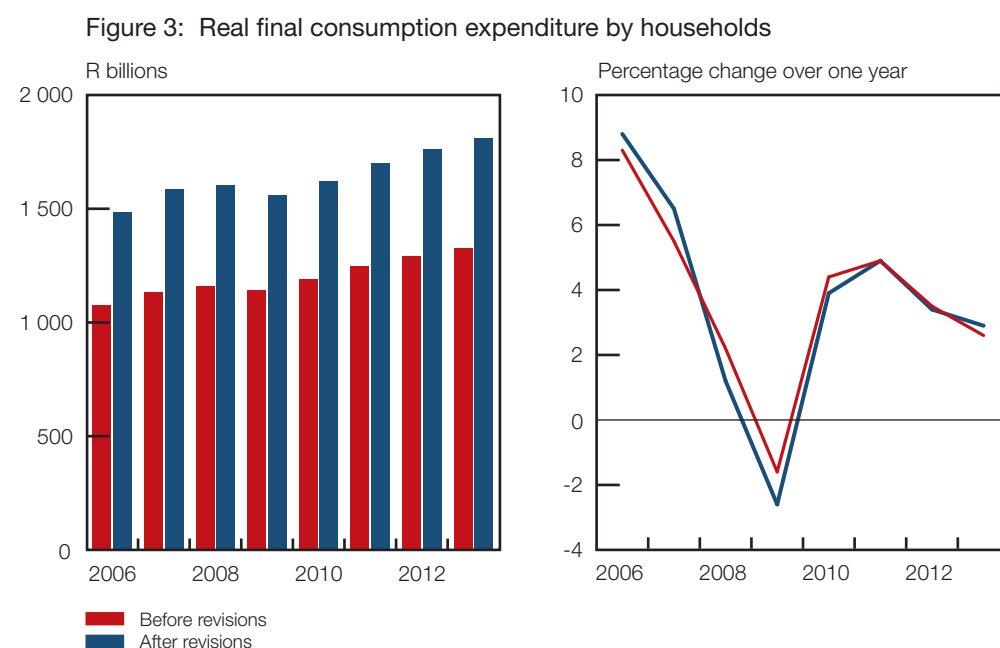
were made to estimates in the new benchmark period by factoring in additional information regarding gambling, social protection, veterinary and other services for pets, and small tools and accessories for the house and garden, in line with the classification of individual consumption by purpose (COICOP) reference classification.

As indicated in Table 6 and Figure 3, the average annual rate of growth in real outlays on final consumption expenditure by households moderated from 3,1 per cent calculated at 2005 prices to 2,9 per cent measured at 2010 prices in the period between 2006 and 2013. The slower pace of increase was more pronounced in 2008 and 2009 when growth rates of 2,2 per cent and -1,6 per cent were re-estimated as 1,2 per cent and -2,6 per cent respectively. As a share of gross domestic product, final consumption expenditure by households declined from 63,1 per cent in the 2005 base year to 59,0 per cent in 2010.

Table 6: Growth in real expenditure on gross domestic product by main expenditure component, 2006 to 2013

Per cent		
Components	Annualised growth rates at 2005 prices	Annualised growth rates at 2010 prices
Final consumption expenditure		
Households.....	3,1	2,9
General government	4,1	3,7
Gross fixed capital formation	4,7	4,5
Change in inventories (R billions)*.....	3,4	10,3
Gross domestic expenditure	3,2	3,1
Exports of goods and services	0,9	1,0
Imports of goods and services	3,1	2,9
Gross domestic product	2,7	2,5

* Average annual change in R billions at constant prices



Box 4 Long-term trends in private consumption expenditure by households

Figure B4.1: Real final consumption expenditure by households



The decelerating trend in private consumption expenditure growth in the second half of the 1990s was exacerbated by the Asian financial crisis of 1998 and the ensuing sharp increase in domestic interest rates. This was, however, followed by an expansion in real consumption expenditure at a fairly rapid pace from the second quarter of 1999. A marked reduction in lending rates in the aftermath of the Asian crisis significantly reduced the debt-financing cost of households, boosting expenditure on durable and semi-durable goods in particular in the ensuing period.

The significant appreciation in the exchange value of the rand kept aggregate demand fairly buoyant throughout 2003. Notable declines in the prices of imported goods resulted in a considerable deceleration in overall consumer price inflation, enabling lending rates to be lowered by a cumulative 550 basis points in 2003, further encouraging spending by private individuals. The real disposable income of households increased rapidly over the period from 2004 to 2006, augmented by continued tax relief, employment gains, subdued consumer price inflation and further interest rate reductions. Household consumption expenditure increased apace, particularly spending on imported goods, as the sustained appreciation in the exchange value of the rand resulted in cheaper imported goods. New vehicle sales also expanded vigorously between 2004 and 2006.

Throughout 2006 and 2007, domestic price pressures steadily mounted as energy and food price increases were exacerbated by the exchange rate depreciation that occurred from April 2006. As a result, interest rates were gradually raised from the middle of 2006 to around the middle of 2008. Growth in household consumption expenditure slowed in almost each successive quarter from the first quarter of 2007. Real retail sales reached a plateau in 2006, while new vehicle sales contracted sharply during 2008 and 2009 as demand decreased abruptly. Final consumption expenditure by households, with the exception of the second quarter of 2008, started to contract notably from the start of 2008 up to the end of 2009 as heavily indebted consumers strained under rising debt-servicing costs. The contraction in household consumption expenditure was further exacerbated by sizable job losses that occurred in virtually all the sectors of the economy.

After contracting since the third quarter of 2008, real retail sales grew briskly from the start of 2010 onwards. This was in response to monetary policy easing, improved business and consumer confidence, and notable increases in real salaries and wages as consumers took advantage of benign inflation and relatively large increases in remuneration. A marked increase in household spending on services and an increase in spending on non-durable goods were primarily responsible for the higher consumption expenditure during 2010, which was mainly due to South Africa hosting the FIFA World Cup in that year.



Since 2012, strikes have had a detrimental impact on the spending power of individuals. In the third quarter of 2012, prolonged and violent labour unrest at one of South Africa's major platinum mines spilled over to a number of other platinum, gold, iron-ore, coal and diamond mines, resulting in reduced output and lost wages. Industrial action continued in 2013 mainly in the mining and manufacturing sectors, adversely impacting on the available income of consumers. Drawn-out industrial action at platinum mines started again on 23 January 2014. As the frictions related to this five-month-long platinum strike in the first half of the year started to dissipate, they were replaced by industrial action in the steel and engineering subsector of manufacturing. This lasted one month, involved 220 000 employees, and contributed to a decrease in household consumption expenditure due to no-work-no-pay contractions in salaries and wages.

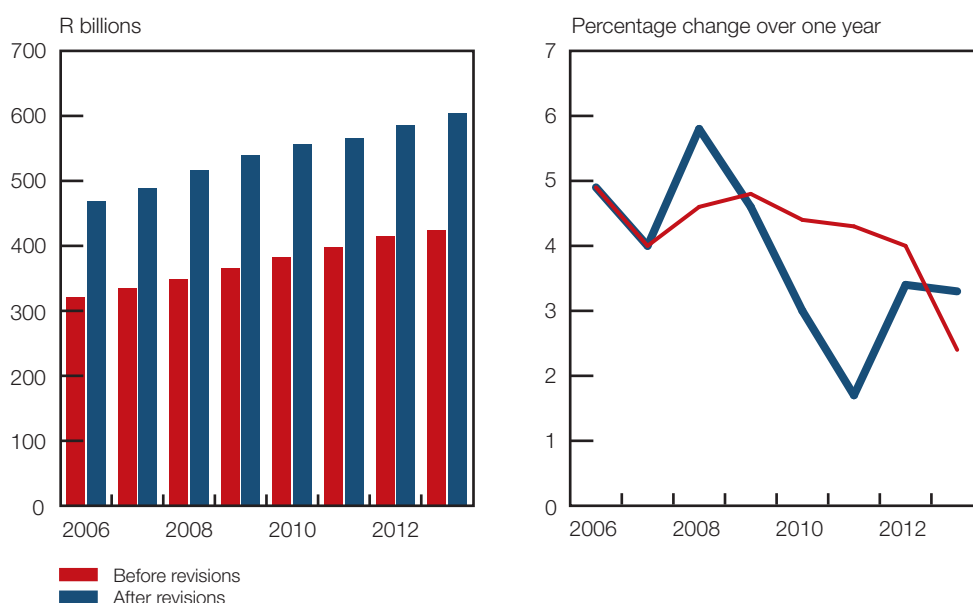
Consumption expenditure by general government was revised in accordance with the latest available information on current expenditure by general government at national, provincial and local government level. More importantly, the methodology for the estimation of the compensation of general government employees on both a nominal and constant price basis was changed. Building-block data in this area, such as cash payments, are quite volatile from quarter to quarter. Recognising the continuity in most government services and relative stability in government employment and underlying spending on salaries and wages, an improved estimation process to adjust for accrual accounting through smoothing the data was accepted. Quarterly data on nominal salary and wage payments were smoothed by using a five-term Henderson filter. The deflation process to obtain a measure of the volume of services rendered by government employees was enhanced by distinguishing between the various categories of government employees and their respective average salary levels, rather than using the overall headcount only. Data were also smoothed by using a five-term Henderson filter. Special adjustments were made to factor in events such as strikes and short-term employment in the government sector related to elections and the population census.

In addition to the methodologically enhanced estimation of salaries and wages in calculating final consumption expenditure by general government, other changes affecting this component include the following:

- General government consumption expenditure on non-wage goods and services was balanced with disaggregated data as published by Stats SA for full fiscal years.
- Data for business enterprises were removed from the statistics of local government with effect from 2007 to better reflect general government services rendered by local government.
- Spending on military weapon systems, previously included in non-wage goods and services, was excluded together with expenditure on R&D.
- Increases in the consumption of fixed capital followed the capitalisation of expenditure on military weapon systems and R&D.
- Provision for FISIM and a portion of the output of the central bank were added to the expenditure on non-wage goods and services.

Consequently, final consumption expenditure by general government increased from 19,5 per cent of gross domestic product in the 2005 base period to 20,2 per cent in 2010, even though average growth in real aggregate final consumption expenditure by general government was revised downwards for the period between 2006 and 2013, from 4,1 per cent per annum calculated at 2005 prices to 3,7 per cent measured at 2010 prices.

Figure 4: Real final consumption expenditure by general government

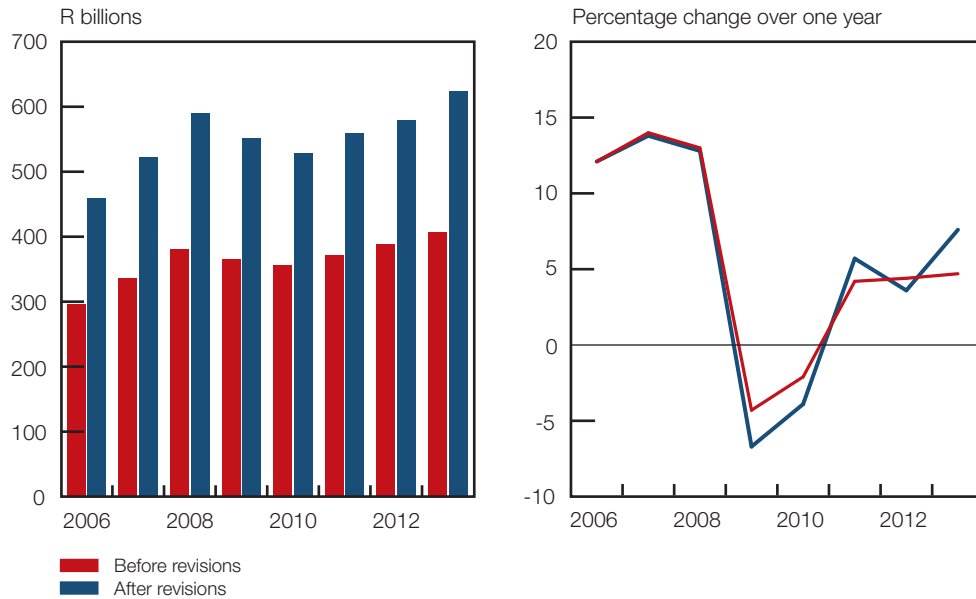


The revised estimates of gross fixed capital formation originated mainly from the partial implementation of the 2008 SNA.

- R&D was added as a new asset type to each sector of economic activity (also see the box on page 4 of this publication). Information was compiled by using source data from the *South African Survey of Research and Development* compiled by CeSTII on behalf of the Department of Science and Technology. The distribution between the sectors was based on data obtained from the QFS and AFS published by Stats SA.
- The animal resources yielding repeat products category was added to capital expenses. Data were obtained from the Department of Agriculture, Forestry and Fishing.
- The level of capital expenditure by the finance and real-estate sector increased as the capitalisation of low-cost housing was revisited from the early 1990s.
- Capital expenditure on mineral exploration was reclassified and shown separately as gross fixed capital formation. Tree, crop and plant resources currently form part of cultivated biological resources. These outlays were previously classified as construction works.
- Capital outlays on information, computer and telecommunications equipment and on computer software are now shown separately as individually reclassified capital assets.
- Spending on military weapon systems, previously treated as consumption expenditure by general government, was reclassified as fixed capital formation.

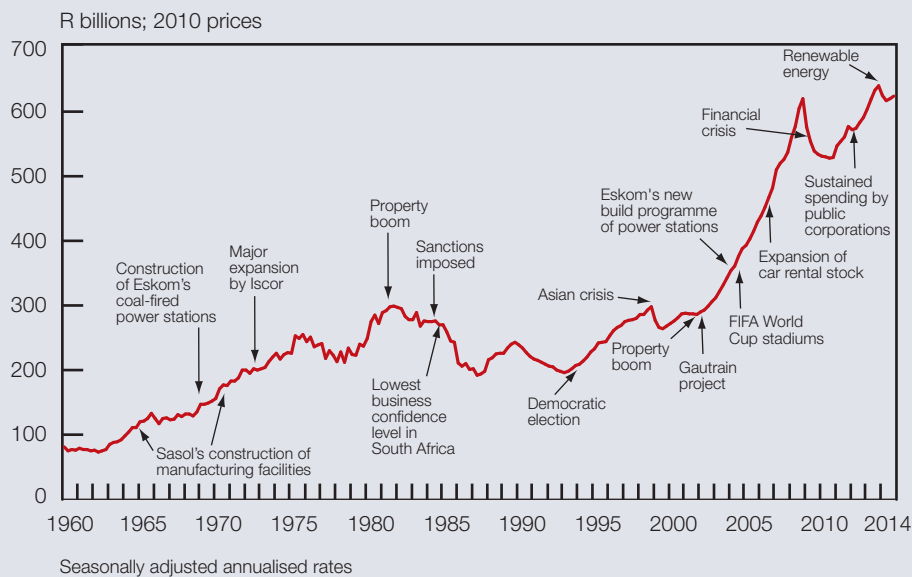
Figure 5 presents the overall impact on the levels and the growth of capital investment resulting from the comprehensive revisions. Real outlays on gross fixed capital formation were revised slightly downwards. In the period 2006 to 2013, the average annual rate of increase was estimated at 4,5 per cent at 2010 prices compared with a rate of 4,7 per cent estimated at 2005 prices. Growth rates of -4,3 per cent in 2009 and -2,1 per cent in 2010 were revised downwards to -6,7 per cent and -3,9 per cent respectively. Gross fixed capital formation as a percentage of gross domestic product increased from 16,8 per cent in 2005 to 19,3 per cent in 2010.

Figure 5: Real gross fixed capital formation



Box 5 Long-term trends in gross fixed capital formation

Figure B5.1: Real gross fixed capital formation



A number of fixed capital spending activities were undertaken by both the general government and public corporations during the 1960s and 1970s, which resulted in high rates of economic growth. Real gross fixed capital formation by the public sector relative to gross domestic product registered a double-digit contribution of 12 per cent over this period. The political environment and fast-growing economy played a pivotal role in the government's decision to embark on industrialisation and inward-looking economic policies. The emphasis was on import replacement policies and the creation of a strong domestic manufacturing sector.

The focus of fixed capital spending centred on the electricity sector, petrochemicals sector, and the iron and steel sector. The rich coal fields allowed Eskom to build a number of large coal-fired power stations, augmented by some hydro-electric and nuclear capacity. It was also an opportunity for the petrol, diesel and industrial chemical industry to flourish as there was strong demand from the fast-growing economy. Investment activity also picked up in the iron and steel sector as part of government's plan to expand the industrial development away from the Witwatersrand area.

International political pressure intensified during the 1980s and resulted in the withdrawal of foreign direct investment from South Africa. South African business confidence collapsed, along with domestic investment. These developments resulted in a contraction of 1,3 per cent per annum in real fixed investment between 1980 and 1993, compared with the growth rate of 5,6 per cent prior to this period.

The resurgence in fixed capital spending post-1994 was particularly pronounced in the years leading up to the 2010 FIFA World Cup. The construction, transport and communication sectors in particular recorded robust growth over this period. The period 2003 to 2009 was, inter alia, characterised by brisk investment in residential buildings, the Gautrain project, upgrading the fleet of South African Airways and an expansion of the car rental fleet market, while Eskom's capacity expansion programme also got into motion towards the end of the decade. This expansion in the economy resulted in a 6 per cent annual rate of increase in real fixed investment between 1994 and the first half of 2010.

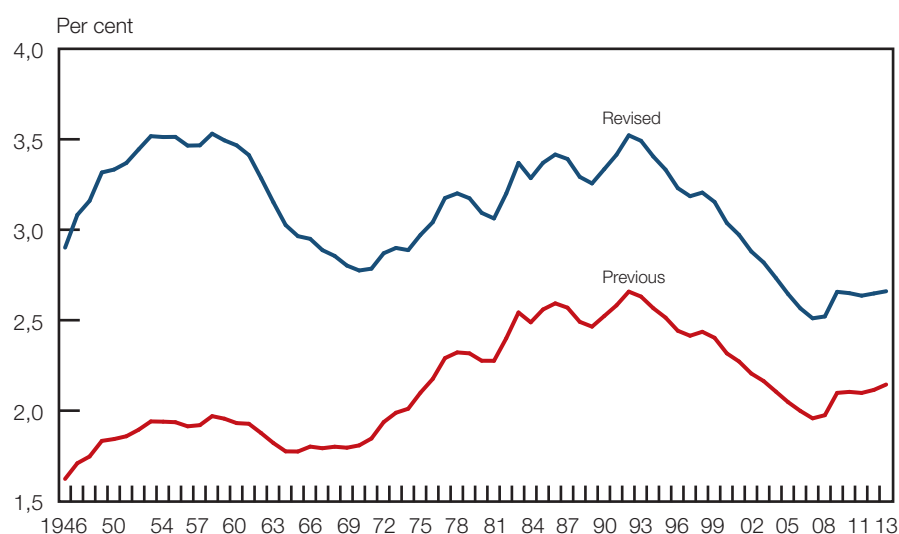
The financial crisis of 2008 negatively impacted aggregate gross fixed capital formation and subsequently two consecutive years of negative growth were recorded. However, sustained spending by the public sector with a greater focus on the public corporations significantly improved the level of spending for the years 2011 to 2013. The commencement of construction spending on renewable energy further assisted the uptake in capital spending for the 2013 financial year.

The incorporation of improved statistics on the book value of inventories as sourced from the AFS and QFS published by Stats SA, as well as information from financial statements of companies, resulted in somewhat higher estimates of inventory investment at current prices over the period 2006 to 2013. At constant prices, the average annual change in inventories amounted to R3,4 billion at 2005 prices and to R10,3 billion at 2010 prices over the period.

4.3 Revisions to the total capital stock

The comprehensive revisions and the partial implementation of the *System of National Accounts* (2008 SNA) resulted in enhanced estimates of the value of the real capital stock. Apart from the increase in the capital stock due to revaluation following the change of the reference base year and the subsequent change in prices, the difference can further be ascribed to the capitalisation of new assets now included in the national accounts statistics and the refinement of data in respect of some existing assets. The main contributors to the increased level of capital stock over the period include the following: The capital stock level for low-cost housing being revisited and a 30-year lifespan being adopted; the depreciation period for other residential buildings being increased from 50 years to 75 years; valuing and depreciating research and development capital to derive appropriate net stock values; military weapon systems (which now form part of the capital stock); and the inclusion of animal resources yielding repeat products.

Figure 6: Capital-output ratio



Changes in the level of capital stock were not proportionate among the different sectors in the economy due to sector-specific influences affecting each sector. (Also see 'Box 1: Trends in capital formation and the capital stock' published in the *Quarterly Bulletin* of March 2015).

4.4 Revisions to the household balance sheets

Table 7: Selected household assets and liabilities for the year ended 2010

Household balance sheet

	Before benchmarking revisions	After benchmarking revisions	Percentage change
	R billions		
Assets			
Non-financial assets	1 948	2 126	9,1
Residential buildings.....	1 654	1 716	3,7
Other non-financial assets.....	294	410	39,5
Financial assets	4 626	4 635	0,2
Assets with monetary institutions	579	579	n/c
Interest in pension funds and long-term insurers....	2 425	2 425	n/c
Other financial assets.....	1622	1631	0,6
Total household assets	6 575	6 762	2,8
Liabilities			
Mortgage advances	781	776	-0,6
Other debt	489	577	18,0
Total household liabilities	1 270	1 353	6,5
Net wealth	5 305	5 409	2,0
Memo item: Net wealth, including durable consumer goods.....	5 722	5 875	2,7

In deriving a set of internationally comparable household balance-sheet estimates in line with the recommendations of the 2008 SNA, changes to the national accounts data emanating from the benchmarking exercise have been incorporated into the household balance-sheet data. Table 7 indicates the levels of the various household balance-sheet categories in 2010 before and after benchmark revisions.

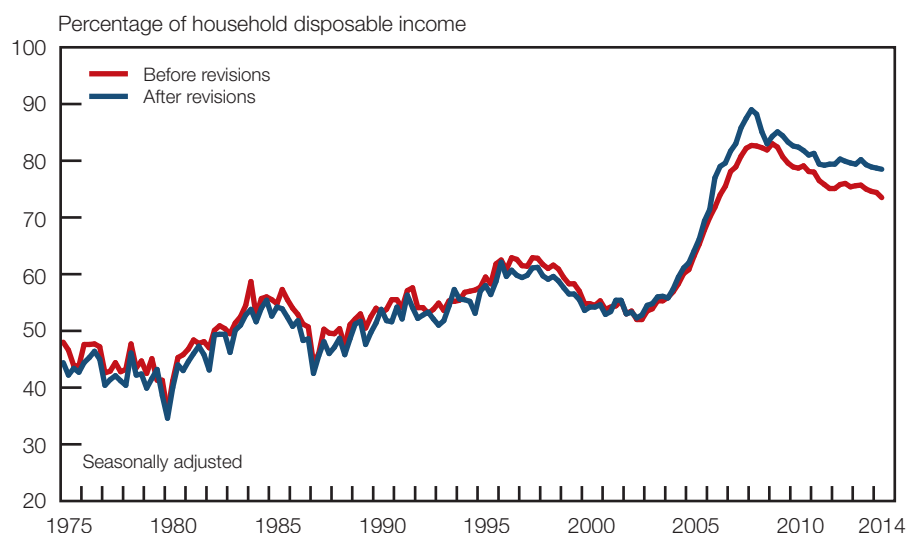
– Non-financial assets

The market value of residential buildings owned by households was affected by improved estimates of the level of capital stock and the alignment of the depreciation period for residential buildings to international best practice, adopting 75 years rather than 50 years as the average lifespan. Low-cost housing is subject to a depreciation period of 30 years. Other non-financial assets were affected by, inter alia, the incorporation of the value of livestock owned by households, previously excluded, as well as other data refinements.

– Total household liabilities

The 'other debt' category was refined to include more comprehensive data on *loans issued by other finance companies* and on *non-bank microloans*. The impact of the changes to household debt is reflected in the higher debt-to-disposable-income ratio as indicated in Figure 7.

Figure 7: Household debt



4.5 Revisions to saving

Changes were made to the level of gross saving in response to new benchmarked data on output, intermediate consumption and compensation of employees. The primary and secondary income levels (i.e. property income, social contributions and benefits, current taxes on income and wealth, and current transfers for all institutional sectors) were also revised utilising more complete data sources. The main sources used to revise and benchmark the corporate sector's data were the AFS of various industries published by Stats SA, data obtained from consolidated income statements from the various sectors and more complete information obtained from surveys conducted by the Capital Market and Flow of Funds Division of the Bank's Economic Research and Statistics Department. The McGregor BFA database, various exchanges and the general government financial statistics provided additional input.

Total gross saving as a percentage of gross domestic product amounted to 18,0 per cent in 2010, slightly higher than the ratio of 17,0 per cent estimated before the revisions. The slightly higher ratio was underpinned by an increase in the gross saving ratio of the general government, rising from -1,8 per cent in 2010 before benchmarking to 0,3 per cent after benchmarking. Households' gross saving ratio deteriorated marginally from 1,4 per cent to 1,2 per cent in 2010 before and after the revisions respectively, while the saving ratio of the corporate sector declined from 17,5 per cent to 16,5 per cent after benchmarking in 2010.

Table 8: Gross saving as a percentage of gross domestic product

	2010	
	Before benchmarking revisions	After benchmarking revisions
Household saving	1,4	1,2
Corporate saving	17,5	16,5
General government saving	-1,8	0,3
Total saving	17,0	18,0



However, the average gross saving ratio of the household sector for the entire period 2006 to 2013 was lower at 0,7 per cent after benchmarking revisions compared with 1,3 per cent before revisions. The revised household saving ratio reached a low of 0,1 per cent in 2013, following a recent high of 1,5 per cent in 2009. The steady fall in the household saving ratio from 2,6 per cent in 2002 to a low of 0,2 per cent in 2007 could in part be explained by the economic boom in the residential building sector over that period. The increasing value of real estate owned by individuals and subsequent gains in net wealth of the household sector resulted in increased spending and debt levels, which in turn reduced the levels of saving.

The average gross saving ratio of the corporate sector for the period 2006 to 2013 increased slightly from an average ratio of 13,6 per cent before benchmarking to 13,8 per cent after benchmarking revisions. It increased from a low of 10,0 per cent in 2007 to a recent high of 16,5 per cent in 2010.

The gross saving ratio of general government for the period 2006 to 2013 increased from an average ratio of 0,3 per cent to 1,9 per cent before and after benchmarking respectively, recording a high of 5,4 per cent in 2007 and a recent low of 0,3 per cent in 2010 – a year when tax revenue was quite weak.

Table 9: Average gross saving ratio as a percentage of gross domestic product, 2006 to 2013

	Average before benchmarking revisions	Average after benchmarking revisions
Household saving	1,3	0,7
Corporate saving	13,6	13,8
General government saving	0,3	1,9
Total saving	15,2	16,4

5. Institutional-sector accounts of South Africa

Institutional units in the economy are grouped together into mutually exclusive institutional sectors comprising:

1. Households and non-profit institutions serving households (NPISH);
2. Non-financial corporations;
3. Financial corporations;
4. General government; and
5. Rest of the world.

The four resident sectors, including their interactions with the rest of the world, constitute the total economy. Institutional accounts, also known as integrated economic accounts (IEAs) provide an overview of all underlying economic transactions conducted between the various sectors. Each transaction is registered in a different account, allowing important economic indicators to be derived from the accounts. Balancing items, introduced by the 1993 SNA, play a key role in balancing institutional-sector accounts and are important economic variables in explaining the structure of an economy. Table 10 presents selected balancing items for the various institutional sectors (as reflected in the IEAs) as percentages of the balancing items of the total economy.

Table 10: Balancing items of the institutional sectors as percentage of the balancing items for the total economy

Sectors						Average before benchmarking revisions	Average after benchmarking revisions
	2005	2010	2011	2012	2013	(1995–2013)	(1995–2013)
Gross value added at basic prices							
Non-financial corporations.....	54,5	53,2	53,6	53,8	53,2	54,4	54,1
Financial corporations	8,6	8,7	8,9	8,9	9,0	8,3	8,2
General government.....	15,8	17,7	18,1	17,8	18,2	16,8	17,0
Households and NPISHs*	21,1	20,3	19,5	19,4	19,5	20,5	20,8
Gross operating surplus/mixed income							
Non-financial corporations.....	55,9	54,5	55,5	55,5	54,5	56,3	54,3
Financial corporations	8,5	8,9	9,1	9,4	9,5	8,9	8,5
General government.....	5,4	5,8	5,8	5,5	5,8	4,8	6,0
Households and NPISHs.....	30,2	30,8	29,6	29,6	30,2	30,1	31,2
Gross balance of primary income							
Non-financial corporations.....	15,8	19,1	17,9	17,5	17,6	15,4	15,7
Financial corporations	3,7	4,1	4,4	4,2	4,0	4,4	4,4
General government.....	11,9	11,3	12,0	11,6	12,1	9,9	10,3
Households and NPISHs.....	68,5	65,5	65,8	66,7	66,2	70,4	69,6
Gross disposable income							
Non-financial corporations.....	10,8	14,0	12,9	12,6	12,7	10,9	11,4
Financial corporations	5,6	5,3	5,2	4,8	4,3	6,3	6,2
General government.....	21,3	21,1	21,6	21,2	21,4	20,1	20,3
Households and NPISHs.....	62,3	59,6	60,3	61,4	61,6	62,7	62,1
Gross saving							
Non-financial corporations.....	67,0	75,6	71,0	76,8	80,1	69,6	67,6
Financial corporations	12,4	15,9	17,4	17,7	16,7	18,1	16,4
General government.....	8,0	1,8	5,8	3,2	2,6	-0,9	4,2
Households and NPISHs.....	12,5	6,7	5,8	2,3	0,5	13,3	11,8

* NPISH: Non-profit institutions serving households

The successive accounts, their functions and balancing items are:

– Production account

All production-related transactions are recorded in the production account. The balancing item is gross value added – the difference between output and intermediate consumption. Gross value added is generated primarily by the corporate sector – its contribution over the 19 years from 1995 to 2013 amounted to 62,3 per cent, marginally smaller than the contribution of 62,7 per cent before revisions.

– Generation of income account

Transactions through which the gross domestic product is distributed to capital, labour and government are captured in this account and the balancing item is mixed income/gross operating surplus. The gross operating surplus of the non-financial sector remained the largest component of this balancing item, registering an average share of 54,3 per cent after benchmarking revisions. It declined slightly from an average of 56,3 per cent before the revisions. The household sector's relatively large share of 31,2 per cent represents mixed income in the form of compensation for work and other factor services rendered by self-employed persons.



- **Allocation of primary income account**

The income from property received for the use of land, financial resources or any other assets, as well as income derived from the production process is captured in this account. The balancing item is gross national income with salaries and wages representing the major share of the balance of primary income. On average, households received 69,6 per cent of all compensation over the last 19 years. This share decreased from 68,5 per cent in 2005 to a low of 65,5 per cent in 2010 as gross operating surpluses increased relatively faster than compensation of employees.

- **Secondary distribution of income account**

This account reflects the redistribution of the primary income through current taxes, social contributions and benefits, and other current transfers, with gross disposable income as the balancing item. The household sector, on average, accounted for 62,1 per cent of gross disposable income over the period 1995 to 2013, followed by general government with a 20,3 per cent contribution – more or less the same ratios as before the benchmarking revisions.

- **Use of disposable income account:**

The utilisation of disposable income as either final consumption expenditure or savings is reflected in this account. Relative to the country's total gross saving, gross saving by general government changed from dissaving of, on average, 0,9 per cent during the period 1995 to 2013 before benchmarking revisions to positive saving of 4,2 per cent after revisions. The saving ratios of the other three institutional sectors decreased after the benchmarking revisions.

6. Principal data sources and calculation methods

Gross domestic product according to the production and income methods^{1,2}

Sector	Subsector	Annual estimates	Quarterly estimates	Constant-price estimates
Agriculture, forestry and fishing	Agriculture	Benchmark year: The census of commercial agriculture 2007, conducted by Stats SA on behalf of the DAFF. GDP estimates compiled by the DAFF in collaboration with Stats SA. Other years: Annual survey of agriculture conducted by Stats SA. GDP estimates are compiled by the DAFF in collaboration with Stats SA.	Information on the value of production of field crops, horticulture and livestock, and expenditure on intermediate goods is sourced from the DAFF.	Nominal values of production and intermediate inputs are divided by relevant price indices provided by the DAFF.
Mining and quarrying		Benchmark year: Mining large sample survey 2012 conducted by Stats SA. Other years: AFSs and monthly data on production and sales for the various subsectors of the mining industry and quarterly surveys of financial and labour statistics conducted by Stats SA. Supplemented by working results of the Chamber of Mines in respect of the gold-mining industry and information from the DMR.	Same as for annual estimates for other years.	Base-year estimates are extrapolated using appropriate indices of output quantities of various subsectors of mining. Information obtained from DMR, Stats SA and the Chamber of Mines.
Manufacturing		Benchmark year: Manufacturing large sample survey 2011 conducted by Stats SA. Other years: AFSs and monthly data on production and sales, and quarterly surveys of financial and labour statistics conducted by Stats SA.	Same as for annual estimates for other years.	Base-year estimates are extrapolated using appropriate indices of output quantities based on manufacturing sales at constant prices for the various subsectors of manufacturing.
Electricity, gas and water		Benchmark year and other years: Electricity, gas and water large sample survey 2010 conducted by Stats SA. Supplemented by annual statistics and financial statements obtained from Eskom, the Water Board and annual censuses of local government institutions.	Monthly survey on generation and consumption of electricity conducted by Stats SA.	Base-year estimates are extrapolated using appropriate indices of output quantities.
Construction		Benchmark year: Construction large sample survey 2011 conducted by Stats SA. Other years: AFSs conducted by Stats SA.	Extrapolation of benchmark year according to the trend in gross fixed capital formation of residential and non-residential buildings and construction works as compiled by the Bank. Labour remuneration is extrapolated according to the quarterly labour statistics of Stats SA. Aggregate estimates are verified with Stats SA's monthly survey of building statistics.	Base-year estimates are extrapolated using the trend in real gross fixed capital formation of residential and non-residential buildings and construction works verified by monthly statistics regarding building plans passed and approved as published by Stats SA.

* See end of table for footnotes and list of abbreviations



Gross domestic product according to the production and income methods ^{1,2}

Sector	Subsector	Annual estimates	Quarterly estimates	Constant-price estimates
Wholesale, retail and motor trade, catering and accommodation		<p>Benchmark year: Wholesale and Retail trade large sample surveys 2009 and Motor trade and Accommodation large sample surveys 2009 conducted by Stats SA.</p> <p>Other years: AFSs and monthly surveys of turnover statistics of wholesale, retail and motor trade, and quarterly labour statistics conducted by Stats SA.</p>	Same as for annual estimates for other years.	Base-year estimates are extrapolated using indices for wholesale, retail and motor sales quantities.
Transport, storage and communication		<p>Benchmark year and other years: Transport and communication large sample survey 2010 conducted by Stats SA.</p> <p>Financial reports of Transnet, Telkom, SA Post Office, and annual census of local authorities conducted by Stats SA.</p> <p>Supplemented by individual studies such as that of the taxi industry.</p>	Estimates of real values are inflated with relevant producer price indices and implied indices.	Base-year estimates are extrapolated using the volume indicators collected from the major role players in each sub-industry.
Financial intermediation, insurance, real-estate and business services	Financial intermediation and insurance	<p>Benchmark year and other years: Quarterly surveys conducted by the Bank among the various institutions in the financial sector.</p>	Same as for annual estimates.	Nominal values are deflated by appropriate price deflators and some base-year estimates are extrapolated using appropriate volume indices.
	Real-estate (including imputed rent on residential buildings) and business services	<p>Benchmark year and other years: Business services large sample survey 2010 and AFSs of business services, supplemented by the 2011 Population Census and the General Household survey.</p>	Judgemental estimates for business services; trends in related aggregates for final consumption expenditures by households.	Base-year estimates are extrapolated using trends in related aggregates such as private consumption expenditure.
Community, social and personal services	Other services and producers	<p>Benchmark year and other years: Personal services large sample survey 2010 and AFSs of social services conducted by Stats SA, and annual reports of non-profit institutions concerned.</p>	Estimates are extrapolated using relevant items of final consumption expenditure by households. Employment estimates in the domestic services industry.	Nominal values are divided by relevant components of the CPI and verified by the GDP deflator.
	General government services	<p>Benchmark year and other years: Periodic surveys on the three levels of government conducted by Stats SA, supplemented by GFS analyses. Gross operating surplus equals consumption of fixed capital at replacement value.</p>	Quarterly surveys by Stats SA of employment, salaries and wages in the public sector. Gross operating surplus is the same as that of annual estimates.	Base-year estimates are extrapolated using a weighted average index of employment by general government.

Gross domestic expenditure

Sector	Subsector	Annual estimates	Quarterly estimates	Constant-price estimates
Final consumption expenditure by households	Durable, semi-durable and non-durable goods			
	Most goods (except sub-components listed separately)	<p>Benchmark year: Income and Expenditure Survey of Households conducted by Stats SA and intermittent surveys of household expenditure by Bureau of Market Research at the University of South Africa. Estimates of main aggregates are compiled by the Bank using the average expenditure per household, population group and province multiplied by the number of households, verified by supply and use estimates.</p> <p>Other years: Annual information is equal to the sum of the quarterly estimates, verified against appropriate annual data sources available.</p>	Base-year estimates are extrapolated using retail sales from monthly surveys by Stats SA and data from other sources.	Nominal expenditure is divided by relevant components of the CPI or base-year estimates, which are extrapolated using quantities purchased. (Deflators verified against the relevant CPI components.)
	Personal transport equipment: New motor cars and minibuses	Benchmark year and other years: Annual detailed information on value of vehicles sold, per model, to private customers. Source is NAAMSA.	Information of value of passenger vehicles sold by dealers from NAAMSA.	Nominal expenditure is divided by the relevant component of the CPI.
	Motor cycles	Benchmark and other years: Data from AMID regarding volumes and value of motorcycle sales.	Same as for annual estimates.	Volumes sold.
	Used cars	<p>Benchmark year: Estimated by using the Income and Expenditure Survey of Households, and survey of vehicle sales, verified by the supply and use framework.</p> <p>Other years: Estimated according to monthly surveys of vehicle trade sales by Stats SA.</p>	Same as for annual estimates.	Nominal values are divided by the relevant component of the CPI.
	Light commercial vehicles for private use	Benchmark year and other years: Annual detailed information on value of vehicles sold, per model, to private customers from NAAMSA.	Information of value of light commercial vehicles from NAAMSA.	Nominal expenditure is divided by the relevant component of the CPI.
	Personal computers and software	Benchmark year: Estimated by using the Income and Expenditure Survey of Households, and data on capital formation of computers and software, verified by the supply and use framework.	Base-year estimates are extrapolated using data on computer imports from BOP.	Nominal expenditure is divided by the relevant component of the CPI.
	Medical appliances and equipment	<p>Benchmark year: Income and Expenditure Survey of Households and the annual report of the Registrar of Medical Schemes.</p> <p>Other years: Various indicators such as retail trade sales of pharmaceutical and medical goods, cosmetics and toiletries, patents and other medicines, population growth, and the annual report of the Registrar of Medical Schemes.</p>	Same as for annual estimates.	Nominal expenditure is divided by components of the CPI for medical and pharmaceutical products.



Gross domestic expenditure

Sector	Subsector	Annual estimates	Quarterly estimates	Constant-price estimates
	Vehicle parts	Benchmark year: Estimated by using the Income and Expenditure Survey of Households and survey of vehicle sales, verified by the supply and use framework. Other years: Estimated according to monthly surveys of vehicle sales by Stats SA.	Same as for annual estimates.	Nominal values are divided by the relevant component of the CPI.
	Food, beverages and tobacco: All components	Benchmark year: Estimated by using the Income and Expenditure Survey of Households and survey of retail sales. Data from SAB, ABI and excise duties, reports on tobacco industry sales, verified by the supply and use framework. Other years: Estimated according to monthly surveys of retail trade sales by Stats SA, data from SAB, ABI and excise duties.	Information obtained from the DAFF as well as retail trade sales by Stats SA, SAB, ABI and excise duties.	Nominal expenditure is divided by the relevant components of the CPI.
	Water	Benchmark year: Estimated by using the Income and Expenditure Survey of Households and data from various water boards verified by the supply and use framework. Other years: Data from Rand Water Board.	Same as for annual estimates.	Nominal values are divided by the relevant component of the CPI.
	Petroleum products: Petrol, diesel and oil	Benchmark year: Estimated by using the Income and Expenditure Survey of Households. Compared with data obtained from SAPIA annual report.	Base-year estimates are extrapolated using retail sales from monthly surveys by Stats SA.	Nominal expenditure is divided by the relevant component of the CPI.
	Services:			
	Rent: Space for owner-occupied and tenant-occupied dwellings	Benchmark year: Population estimates and average annual rental obtained from Stats SA. Other years: Capital stock of residential buildings and average annual rental values.	Same method as annual; housing stock extrapolated by residential capital stock and average rental values.	Base-year estimates are extrapolated using real capital stock of residential buildings.
	Domestic services	Benchmark year: Information obtained from the Income and Expenditure Survey of Households as well as LFS results for domestic workers. Other years: Sum of quarterly estimates.	Extrapolation of benchmark figures with a volume index of dwellings adjusted with the CPI component of domestic workers.	Base-year estimates are extrapolated using the volume index of dwellings. (Deflator verified by the appropriate CPI component.)
	Doctors, dentists, and other medical and professional services	Benchmark year: Estimated by using the Income and Expenditure Survey of Households and the annual report of the Registrar of Medical Schemes. Other years: Various indicators such as retail trade sales of pharmaceutical and medical goods, cosmetics and toiletries, patents and other medicines, population growth and the annual report of the Registrar of Medical Schemes.	Same as for annual estimates.	Nominal expenditure is divided by components of the CPI for medical and pharmaceutical products.

Gross domestic expenditure

Sector	Subsector	Annual estimates	Quarterly estimates	Constant-price estimates
	Transport and communication	<p>Benchmark year: Expenditure on transport of passengers obtained from Transnet, SAA and Metrorail; and Stats SA land transport survey. Expenditure on telephones, postage and other postal services supplied by Vodacom and SA Post Office. Expenditure on insurance from short-term insurers, according to the quarterly survey of insurers conducted by the Bank. This was verified by the five-yearly survey of income and expenditure of households.</p> <p>Other years: Base-year estimates are extrapolated using information from Transnet, SAA and Metrorail, monthly survey of land transport from Stats SA, Vodacom and SA Post Office, and quarterly survey of short-term insurers.</p>	Same as for annual estimates.	Nominal expenditure is divided by the relevant components of the CPI.
	Entertainment, cultural and educational services	<p>Benchmark year: Entertainment and recreational services, games of chance data obtained from the National Gambling Board, and Income and Expenditure Survey of Households for these categories. Data from FEDSAS and universities on educational fees.</p> <p>Other years: Base-year estimates are extrapolated using information from the National Gambling Board and South African Teachers Union as well as surveys from Stats SA.</p>	Same as for annual estimates.	Nominal expenditure is divided by the relevant components of the CPI.
	Miscellaneous services: Restaurants, cafés, hotels and lodging	<p>Benchmark year: Income and Expenditure Survey of Households verified by monthly surveys of food and beverages and tourist accommodation conducted by Stats SA.</p> <p>Other years: Sum of quarterly estimates.</p>	Same as for annual estimates.	Nominal expenditure is divided by the relevant components of the CPI.
	Personal care services	<p>Benchmark year: Income and Expenditure Survey of Households.</p> <p>Other years: Sum of quarterly estimates.</p>	Extrapolation of benchmark figures with information obtained from surveys published by Stats SA.	Nominal expenditure is divided by the relevant CPI component.
	Financial services	<p>Benchmark year: Derived from financial intermediation services indirectly measured and estimates of other service charges made to calculate output for financial intermediation and long-term insurance services and banking fees.</p>	Same as for benchmark estimates.	Nominal expenditure is divided by the relevant CPI component.
	Other services	<p>Benchmark year: Income and Expenditure Survey of Households.</p> <p>Other years: Sum of quarterly figures.</p>	Extrapolation of benchmark figures with information obtained from surveys published by Stats SA.	Nominal expenditure is divided by the CPI for services.
	Consumption expenditure by non-residents in domestic market	Balance-of-payments data regarding tourism expenditure.	Same as for annual estimates.	Nominal expenditure is divided by the total CPI.



Gross domestic expenditure

Sector	Subsector	Annual estimates	Quarterly estimates	Constant-price estimates
	Direct purchases by resident households abroad	Balance-of-payments data regarding expenditure by resident households abroad.	Same as for annual estimates.	Nominal expenditure is divided by a weighted average price index of South Africa's major trading partners.
Final consumption expenditure by general government	Expenditure on non-wage goods and services	Benchmark year: Stats SA government publications. Other years: GFS analyses and information on the general government received from Stats SA.	Using information obtained from GFS analyses.	Nominal values are divided by a weighted average of relevant components of the PPI.
	Compensation of employees	Benchmark year and other years: Same as for non-wage goods and services.	Using information obtained from GFS analyses and quarterly information received from Stats SA.	A weighted average constant compensation of employees is calculated based on different levels of government employment.
	Consumption of fixed capital	Benchmark years and other years: Allowances for depreciation of general government's non-financial fixed assets estimated by the Bank.	Same as for annual estimates.	Allowance for depreciation of the real non-financial fixed capital stock.
	Sales of government services	Benchmark years and other years: GFS analyses and Stats SA publications.	Using information obtained from GFS analyses.	Nominal values are divided by a derived price deflator of intermediate inputs.
Gross fixed capital formation	Private sector: Most fixed capital formation (except sub-components listed separately).	Benchmark year: AFSs and large sample surveys conducted by Stats SA for the various sectors of the economy, verified by supply and use estimates. The DAFF, Department of Energy, Chamber of Mines, Department of Human Settlements, Department of Science and Technology. Assets expanded to include research and development, computer software, mineral exploration, cultivated biological resources and low-cost housing. Other years: Extrapolated or interpolated according to the results of quarterly sample surveys by the Bank and Stats SA of financial statistics of business enterprises, supplemented by annual reports of different companies.	Extrapolated using information from quarterly sample surveys of Stats SA, surveys conducted by the Bank, information collected by the DAFF and Department of Energy, Chamber of Mines, Department of Human Settlements and judgemental projections based on relevant time series.	Nominal values of fixed capital formation by type of asset are divided by appropriate price indices. Residential and non-residential buildings are divided by separate indices comprising relevant components of CPAP indices as published by Stats SA in the statistical release P0151. For construction works, an average of appropriate indices obtained from the PPI, SAFCEC and CPAP are used. Transport equipment, and machinery and other equipment are divided by weighted indices of relevant components of the PPI and UVIs. Capital formation in agriculture is divided by weighted price indices obtained from relevant time series supplied by the DAFF. For computer software, the moving average of relevant UVIs is used. Mineral exploration is divided by the deflator of mining value added.



Gross domestic expenditure

Sector	Subsector	Annual estimates	Quarterly estimates	Constant-price estimates
	Private residential buildings	Benchmark year and other years: Stats SA's census information on building plans passed and buildings completed. Income and Expenditure Survey of Households conducted by Stats SA was also used. Improved estimates for low-cost housing have been included.	Extrapolated using the results of the monthly sample survey of buildings completed conducted by Stats SA. Quarterly data provided by the Department of Human Settlements.	Residential and non-residential buildings are divided by separate indices comprising relevant components of CPAP indices as published by Stats SA in the statistical release P0151.
	Research and development	Department of Science and Technology.	Quarterly Financial Statistics.	Nominal values are divided by the deflator of gross domestic product.
	Cultivated biological resources	Abstract of Agricultural Statistics.	DAFF quarterly reports.	Nominal values of orchards are divided by the price index obtainable from the DAFF and the price index of live animals as published by Stats SA in the statistical release P0151 is used for livestock.
	Transfer costs	Benchmark year and other years: The sum of quarterly estimates of the transfer fees paid to general government, plus the agent and legal fees calculated as a percentage of the value of transactions in real estate.	Same as for annual estimates.	Nominal values are divided by the price index for residential buildings.
	Public corporations:	Benchmark year and other years: Annual reports of individual institutions, survey of public corporations conducted by the Bank. Assets expanded to include research and development, and computer software.	The Bank's quarterly survey form and QFS as published by Stats SA.	Same as for private sector.
	General government:	Benchmark year and other years: Information obtained from GFS analyses and Department of Defence and Department of Science and Technology, verified by the statistical survey on actual and expected capital expenditure of the public sector and expenditure of the general government, conducted by Stats SA. Assets expanded to include research and development, computer software and weapons systems.	Same as for annual estimates.	Same as for private sector.
Change in inventories	Industrial and commercial inventories and other non-farm industries	Benchmark year: Book value of inventories (adjusted by inventory valuation) obtained from the annual financial surveys and sector publications of Stats SA and surveys conducted by the Bank among public corporations. Other years: Stats SA and the Bank's quarterly surveys. Livestock and gold require no valuation adjustment; changes are calculated from physical quantities and average current prices.	Same as for annual estimates; based on information obtained from quarterly financial surveys conducted by Stats SA and surveys conducted by the Bank.	Book value of inventories is divided by the PPI, or specific price indices such as for diamond stocks-in-trade.
	Agricultural stocks-in-trade	Quarterly statistics from SAGIS.	Same as for annual estimates.	Base-year values are extrapolated using the quarterly change in physical quantities.



Gross domestic expenditure

Sector	Subsector	Annual estimates	Quarterly estimates	Constant-price estimates
	Agriculture, forestry and fishing	Benchmark year: Book value of inventories (adjusted by inventory valuation) obtained from the annual financial survey of Stats SA, survey from the DAFF; and surveys conducted by the Bank among public corporations and business enterprises of general government. Other years: Same as for the benchmark year.	Based on information obtained from the DAFF, surveys conducted by the Bank for public corporations.	Book value of inventories is divided by the PPI and the value of change in inventories is obtained from the DAFF.
	Mining and quarrying	Benchmark year: Book value of inventories (adjusted by inventory valuation) obtained from the annual financial survey of Stats SA, surveys from the DMR and surveys conducted by the Bank among public corporations and business enterprises of general government. Other years: Same as for the benchmark year.	Same as for annual estimates; based on information obtained from quarterly financial surveys.	Book value of inventories is divided by the mining price index.
	Manufacturing	Benchmark year: Book value of inventories (adjusted by inventory valuation) obtained from the annual financial surveys and the manufacturing publication of Stats SA and surveys conducted by the Bank among public corporations. Other years: Stats SA and the Bank's quarterly surveys.	Same as for annual estimates; based on information obtained from quarterly financial survey and quarterly surveys conducted by the Bank among public corporations.	Book value of inventories is divided by the PPI and the sectoral price index.
	Electricity, gas and water	Benchmark year: Book value of inventories (adjusted by inventory valuation) obtained from the annual financial surveys of Stats SA and surveys conducted by the Bank among public corporations. Other years: Stats SA and the Bank's quarterly surveys.	Same as for annual estimates; based on information obtained from quarterly financial surveys conducted by Stats SA and quarterly surveys conducted by the Bank.	Book value of inventories is divided by the sectoral price index.
	Construction	Benchmark year: Book value of inventories (adjusted by inventory valuation) obtained from the annual financial surveys and construction publications of Stats SA; and surveys conducted by the Bank among public corporations. Other years: Same as the benchmark year.	Same as for annual estimates; based on information obtained from quarterly financial surveys.	Book value of inventories is divided by the construction price index.
	Commerce	Benchmark year: Book value of inventories (adjusted by inventory valuation) obtained from the annual financial surveys and publications of Stats SA; data obtained from SAGIS and surveys conducted by the Bank among public corporations. Other years: Stats SA and the Bank's quarterly surveys. Agricultural stocks-in-trade require no valuation adjustment; changes are calculated from physical quantities and average current prices.	Same as for annual estimates; based on information obtained from quarterly financial surveys.	Book value of inventories is divided by the commerce price indices.
	Transport, storage and communication	Benchmark year: Book value of inventories (adjusted by inventory valuation) obtained from the annual financial surveys of Stats SA and surveys conducted by the Bank among public corporations. Other years: Same as the benchmark year.	Same as for annual estimates; based on information obtained from quarterly financial surveys.	Book value of inventories is divided by the sectoral price index.

Gross domestic expenditure

Sector	Subsector	Annual estimates	Quarterly estimates	Constant-price estimates
	Finance	<p>Benchmark year: Book value of inventories (adjusted by inventory valuation) obtained from the annual financial surveys of Stats SA and surveys conducted by the Bank among public corporations.</p> <p>Other years: Stats SA and the Bank's quarterly surveys.</p>	Same as for annual estimates; based on information obtained from quarterly financial surveys.	Book value of inventories is divided by the finance price index.
	Services	<p>Benchmark year: Book value of inventories (adjusted by inventory valuation) obtained from the annual financial surveys, public corporations surveys conducted by the Bank and statistical survey on financial statistics of consolidated general government conducted by Stats SA.</p> <p>Other years: Stats SA and the Bank's quarterly surveys.</p>	Same as for annual estimates.	Book value of inventories is divided by the services price index.

- 1 For gross domestic product according to the production method, the production approach is applied annually; the gross domestic product is estimated as the difference between output and intermediate consumption. The quarterly survey of employment and earnings conducted by Stats SA is used to extrapolate the quarterly estimates of compensation of employees. The annual constant estimates for the gross domestic product by kind of economic activity are derived from the nominal estimates developed in the supply and use framework, and double deflated with appropriate price indices.
- 2 Estimates are extended annually and quarterly to incorporate the activities of the informal sector.

Household balance sheets*

Classification	Category	Quarterly and annual estimates
Non-financial assets	Residential buildings	Derived from national account capital stock measures. The market value was obtained by multiplying the stock value by an average house price index.
	Other non-financial assets	<p>Derived from national account capital stock measures, with the exception of inventories.</p> <p>The market value was obtained by multiplying the stock values by an appropriate price index.</p> <p>Market value of inventories was derived from book values.</p>
Financial assets	Assets with monetary institutions	Data sourced by the Money and Banking Division in the Bank among the various institutions in the monetary sector.
	Interest in pension funds and long-term insurers	Data sourced by the CMFOF Division in the Bank among long-term insurers and official and private self-administered pension and provident funds.
	Other financial assets	<p>Quarterly estimates obtained by using CMFOF data and other estimates from various sources. Methodology as in the September 2010 <i>Quarterly Bulletin</i> article "Note on household wealth in South Africa".</p> <p>Foreign assets sourced from the Balance of Payments Division in the Bank.</p>
Financial liabilities	Mortgage advances	Information sourced from monthly regulatory returns submitted to the Bank as well as quarterly surveys on non-bank financial institutions by the CMFOF Division in the Bank.
	Other debt	<p>Information sourced from monthly regulatory returns submitted to the Bank as well as quarterly surveys on non-bank financial institutions by the CMFOF Division in the Bank.</p> <p>Debt at local authorities sourced from the National Treasury.</p> <p>Agricultural debt of households annually sourced from the DAFF and the census of commercial agriculture 2007, conducted by Stats SA.</p>

* The household balance sheet includes financial assets and liabilities of non-incorporated business enterprises and non-profit institution serving households.



Abbreviations used in Section 6

ABI	Amalgamated Beverage Industries
AFS	Annual Financial Statistics Survey
AMID	Association of Motorcycle Importers and Distributors
Bank	South African Reserve Bank
BMR	Bureau of Market Research
BOP	Balance of Payments
CPAP	Contract Price Adjustment Provisions Work Group Indices
CPI	Consumer Price Index
CMFOF	Capital Market and Flow of Funds
DAFF	Department of Agriculture, Forestry and Fishing
DMR	Department of Mineral Resources
FEDSAS	The Federation of Governing Bodies of South African Schools
GDP	Gross Domestic Product
GFS	Government Finance Statistics
JBCC	Joint Building Contracts Committee
LFS	Labour Force Survey
NAAMSA	National Association of Automobile Manufacturers of South Africa
PPI	Producer Price Index
SAA	South African Airways
SABC	South African Broadcasting Corporation
SAB	South African Breweries
SAFCEC	South African Federation for Civil Engineering Contractors
SAGIS	South African Grain Institute
SAPIA	South African Petroleum Industry Association
Stats SA	Statistics South Africa
UVI	Unit value index

7. Conclusion

The main thrust of the SNA has stood the test of time, with gradual enhancements to cater for a changing world. It is trusted that the incorporation of key changes proposed in the 2008 SNA and the results of the general benchmarking, revision and rebasing of the national accounts in South Africa, as released on 25 November 2014 by Stats SA and in this supplement to the March 2015 *Quarterly Bulletin*, will serve the users of macroeconomic data on South Africa well.

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