Expenditure on GDP: information note

Contents

1. Introduction

In 2012, Statistics South Africa (Stats SA) began a project to build the capacity that it would need to compute expenditure on gross domestic product (GDP) to complement its existing responsibilities for GDP measured by production. The project has finally reached fruition. When Stats SA publishes its statistical release on GDP for the first quarter of 2016, it will, for the first time, include official GDP (by production) and expenditure on GDP, thereby assuming responsibility for the expenditure role that has been performed by the South African Reserve Bank (SARB) for the last 70 years.

Stats SA will publish its GDP statistical release for the first quarter of 2016 at a press conference on 8 June 2016. Ahead of that, revised GDP estimates for the period 2010–2015 are being made available on 23 May. This note provides important information to assist users in understanding the changes in the GDP arrangements and GDP results.

Section 2 of the note provides the background and thinking regarding the shift in responsibilities for expenditure on GDP from the SARB to Stats SA. Section 3 discusses the sources and methods for compiling expenditure on GDP. Section 4 identifies and comments on the most important differences between the previous results and the revised results. Section 5 outlines the way forward.

2. Statistics South Africa's mandate and responsibilities

International best practice calls for government statistical offices to assume full responsibility for the official programme of economic statistics, tightly coordinated by the national accounts. It is also international best practice to locate responsibility for compiling the national accounts under the umbrella of each country's central statistical office because centralised control is the most efficient way to provide a set of coherent economic statistics. Placing the macroeconomic accounts together with the underlying basic statistics is the most effective way to tighten the information links they require to be truly effective.

Worldwide, there remain a few exceptions where, for purely historical reasons, some other agency, generally the research wing of the central bank, still holds responsibility for the national accounts. But even those exceptions do not amount to more than a modest number. Unprecedented demands for information forced statistical offices to invest heavily in their computing ability to process large sets of data. The consequent growth in technical capabilities gave dedicated statistical offices an unmatched advantage over research facilities housed in central banks and in other public-sector agencies.

In the case of South Africa, Stats SA is mandated by the Statistics Act (Act No. 6 of 1999) to produce and coordinate official statistics. The production of official economic statistics such as estimates of national accounts is therefore one of its key activities.

The growth in the ability to handle very large bodies of data put a premium on the centralisation of databases. But not all countries benefited from technological advance to the same extent. Until now, South Africa was alone in splitting the responsibility for the quarterly national accounts between two agencies separated by legislation and only capable of sharing essential information through special legal arrangements. Accordingly, South Africa did not enjoy fully the benefits of a worldwide change in the scale and efficiency of computing capacity.

Today, the evidence is overwhelming that it is inefficient and counterproductive to handle large-scale statistical operations in anything other than a fully integrated environment. In the case of the national accounts the expectation is for a single team to handle the income, expenditure and production accounts. Centralisation also helps to foster the development of administrative statistics such as those produced by government revenue agencies, by bringing them into the framework of a national statistical system. The less fragmented the system the easier it will be to define roles and responsibilities, streamline internal communications, come to agreements on general standards and implement essential improvements.

Stats SA has turned a page to reset its programme of economic statistics so that it matches that of developed countries. With the publication of integrated expenditure and production breakdowns of GDP for the first quarter of 2016, and with the dissemination of comparable back data extending to 2010 on its website, Stats SA will henceforth be in exclusive charge of compiling the alternative breakdowns of quarterly GDP.

Naturally, it would have been imprudent to take such a big step single-handedly. The accuracy and reliability of published data are in the hands of the practitioners and they, beyond professional knowledge, require experience and seasoning to deal with all eventualities which only time can provide. Stats SA derived a great deal of helpful advice from its colleagues at the SARB. Whereas Stats SA alone is responsible for whatever shortcomings remain and whatever improvements must be introduced in the future, it would not be where it is without two highly prized sources of help: the advice Stats SA received from its counterparts in the SARB and that of expert advisers who performed similar roles in Australia and Canada and whose relevant experiences proved invaluable to reach this point.

The benefits of centralisation are accompanied by a strict code of international practice in addition to a code of ethics. The head of Statistics South Africa – the Statistician-General – is the *ex officio* representative of South Africa at the United Nations Statistical Commission. Not only is the Commission the supreme world body in charge of legislating standards and practice for official statistics, but it is also the custodian of the Fundamental Principles of Official Statistics. The latter – ten in number – are the compass by which Stats SA rules itself and strives to serve its users, providing them with full transparency of sources and frank exchanges about the adequacy of its methods. The international statistical community continually develops and updates statistical standards and guidelines. As an active member of this community Stats SA is committed to implementing these improvements over time and explaining them to the public, without favouring any party.

3. Sources and methods

Stats SA has compiled a detailed document on its sources and methods for expenditure on GDP. Transparency with sources and methods is an important dimension in building users' understanding of and confidence in official statistics. The document is available on the Stats SA website.[1]

Taking advantage of the impending change in their respective responsibility for parts of the national accounts, both the SARB and Stats SA took stock of the standards, methods and definitions embodied in their practices. The newly published numbers reflect a set of innovations

[1] www.statssa.gov.za

introduced so as to better align GDP and related series with the recommendations embodied in the United Nations' 2008 charter (UN System of National Accounts 2008). The innovations affected the published data by the SARB and were taken into consideration for Stats SA's calculations.

However, in terms of important contributions to new and revised data, the key contributor to differences between what was published previously and the new numbers remains Stats SA's access to micro-data. The best example of the most striking set of changes lies in deflation, the operation that precedes the calculation of macroeconomic aggregates at constant prices. Significantly, broad-brush techniques were replaced with a more detailed approach to deflation. Details are available in the sources and methods document. To derive unique deflators, Stats SA's access to detailed South African Revenue Service (SARS) Customs data on the values and quantities of exports and imports of goods was of particular importance. The data files are several million records long, requiring specialised computing techniques that are at Stats SA's disposal.

Naturally the range of innovations goes well beyond deflation and trade data generated by the administrative processes of SARS. Enhancements were applied to each of the expenditure components. Thus:

- changes to household final consumption expenditure were principally driven by the incorporation of a broader range of new sources and improved methodologies;

- changes to government final consumption expenditure were significant primarily due to the first time use of the Vulindlela system (a management information system developed and managed by National Treasury) to measure quarterly estimates, which in turn provided a platform for detailed deflation of non-wage goods and services;

- access to annual and quarterly financial statistics information from existing Stats SA surveys made it possible to convert corporate financial-year results into calendar-year estimates, thus providing a thorough classification of various asset classes for capital formation; and

- key enhancements in the measurement of inventories included the introduction of new sources, such as inventories held by companies in the manufacturing industry split into inventories of finished goods and work in progress; access to some of the detailed information made it possible to deflate inventory components separately.

4. Revised results (2010–2015)

4.1 Expenditure on GDP (current prices)

Before comparing the previous and revised results, a technical note on the residual is important. The residual is the difference between GDP measured by production and by expenditure. Previous convention was for the SARB to include the residual in its measure of expenditure on GDP, such that it was equal to GDP measured by production. Stats SA's revised expenditure on GDP series contains no explicit residual, and is no longer equal to the production measure of GDP. The official (and headline) GDP growth rate will continue to be calculated from the production measure of GDP.

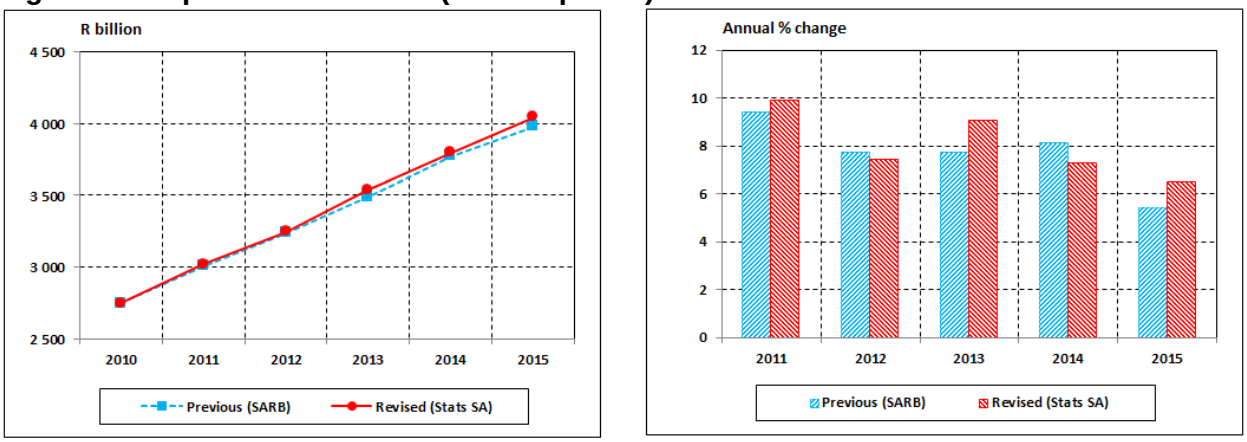
To compare the previous and revised results for expenditure on GDP, the previous (i.e. SARB) results have been recalculated to exclude the residual. Thus the comparisons in Figures 1 and 2, at least so far as the residual is concerned, are done on a like-for-like basis.

To reduce the number of revisions imposed on users, particularly considering that preliminary numbers may be revised one way and then revised again in the opposite direction, various revisions were withheld in the previously published SARB and Stats SA numbers ahead of Stats SA's new series. So in addition to the factors discussed in section 3, this is another source of difference between the previous and revised series shown in section 4.

Figure 1 shows expenditure on GDP at current prices. In 2015 revised expenditure on GDP was 1,6% higher than the previous estimate. Likewise, for all the five years 2011–2015, the growth rates were higher than the previous estimates.

This is the only comparison in this note based on current prices. Sections 4.2 to 4.9 show results at constant 2010 prices.

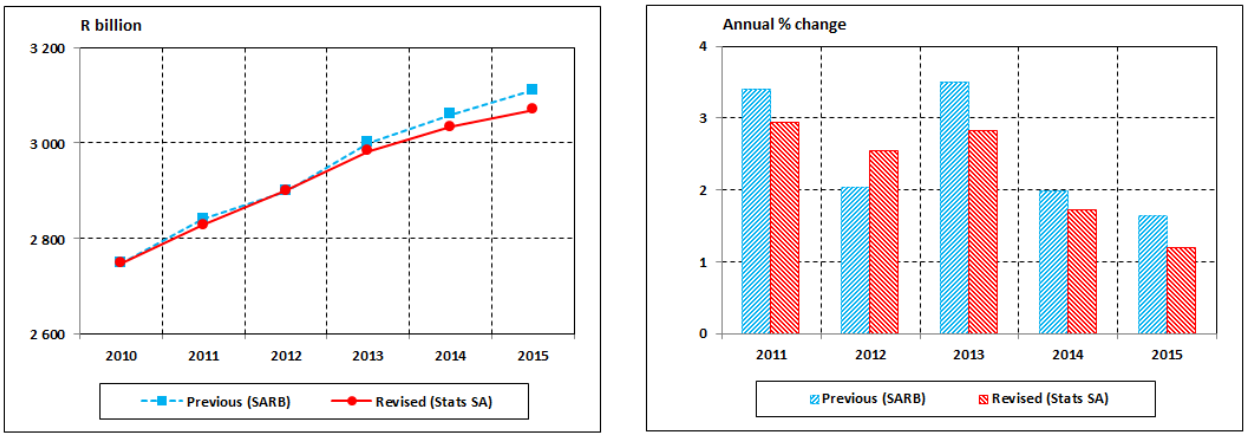
Figure 1 – Expenditure on GDP (current prices)



4.2 Expenditure on GDP (constant 2010 prices)

In 2015 revised expenditure on GDP (at constant 2010 prices) was 1,3% lower than the previous estimate. This brought expenditure on GDP closer to GDP measured by production, thereby reducing the absolute size of the residual (see Figure 9 in section 4.9). In four of the five years 2011–2015, the growth rate was lower than previous estimates. In 2015 the revised growth rate was 1,2% (down from the previous estimate of 1,6%).

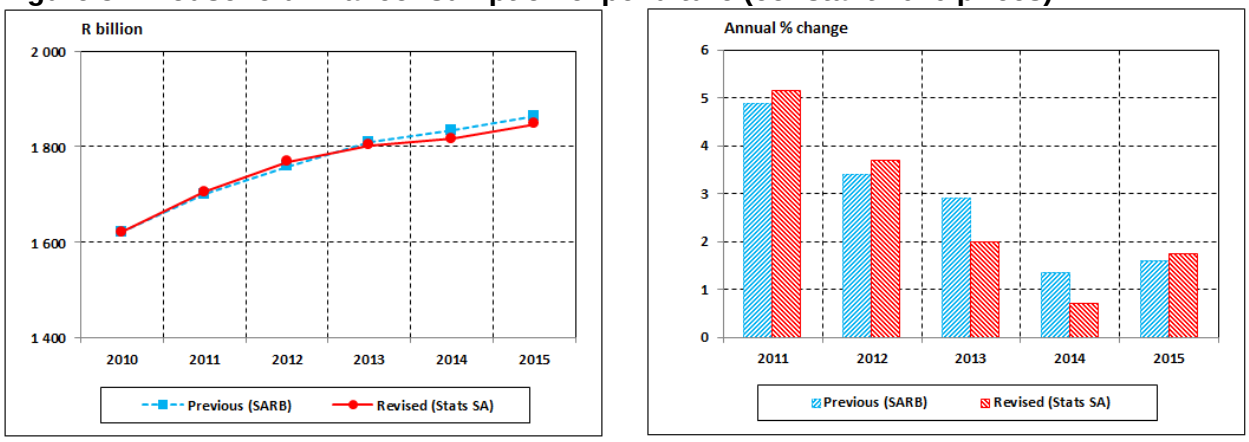
Figure 2 – Expenditure on GDP (constant 2010 prices)



4.3 Household final consumption expenditure (constant 2010 prices)

Revised household final consumption expenditure, which is easily the largest main component of expenditure on GDP, was slightly lower in 2013, 2014 and 2015 compared with the previous estimates, but its growth rate was higher in two of the five years shown in Figure 3. In 2015 the revised growth rate was 1,8% (up from the previous estimate of 1,6%).

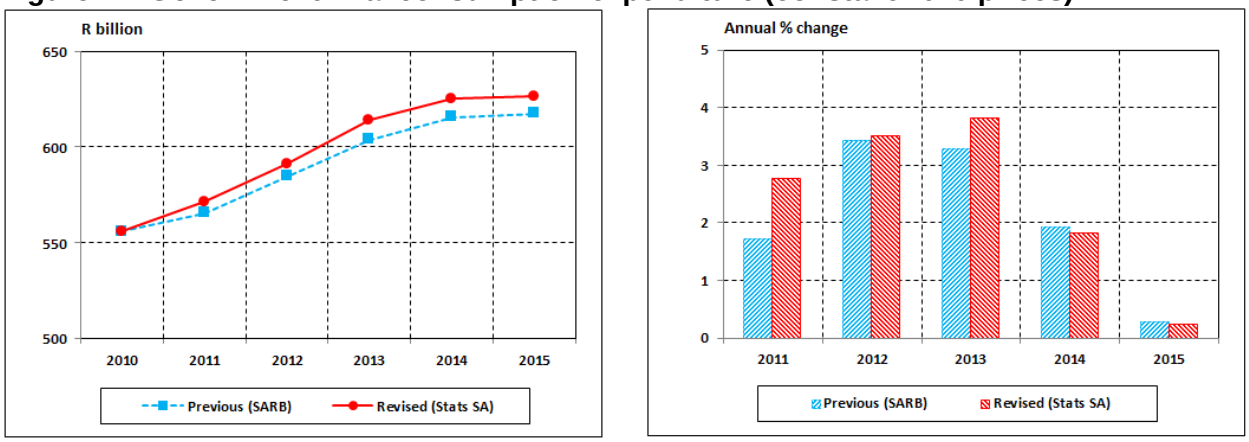
Figure 3 – Household final consumption expenditure (constant 2010 prices)



4.4 Government final consumption expenditure (constant 2010 prices)

The gap between revised and previous grew to 1,7% in 2013, and then stabilised. The pattern is clearly reflected in the higher growth rates in 2011–2013, followed by similar growth rates in 2014–2015.

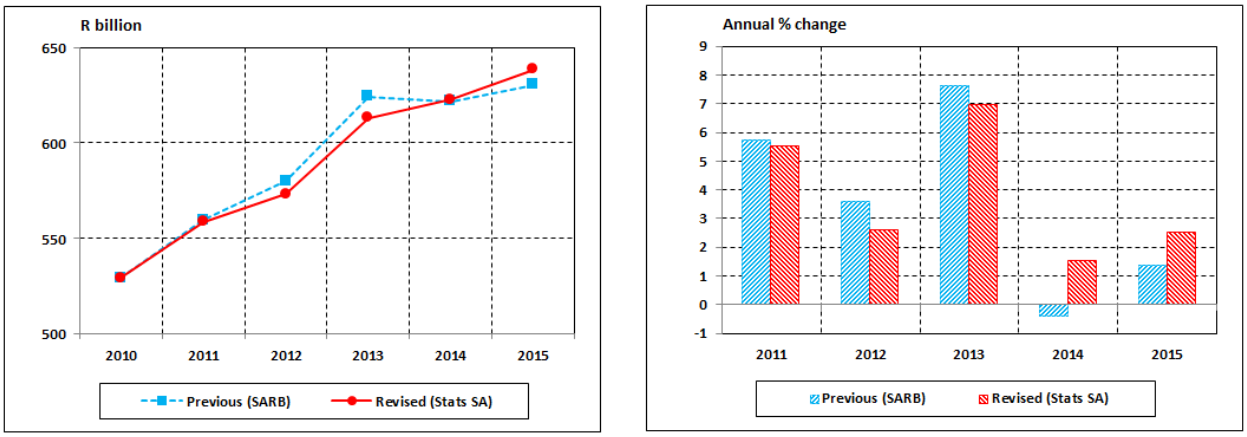
Figure 4 – Government final consumption expenditure (constant 2010 prices)



4.5 Gross fixed capital formation (constant 2010 prices)

The difference in levels fluctuated: the revised level was lower in 2012 (1,1%) and 2013 (1,8%), but higher in 2015 (1,3%). The revised growth rate was lower in 2011–2013 but higher in 2014–2015. In 2014 the revised and previous growth rates had opposite signs (revised to1,5% compared with the previous estimate of -0,4%).

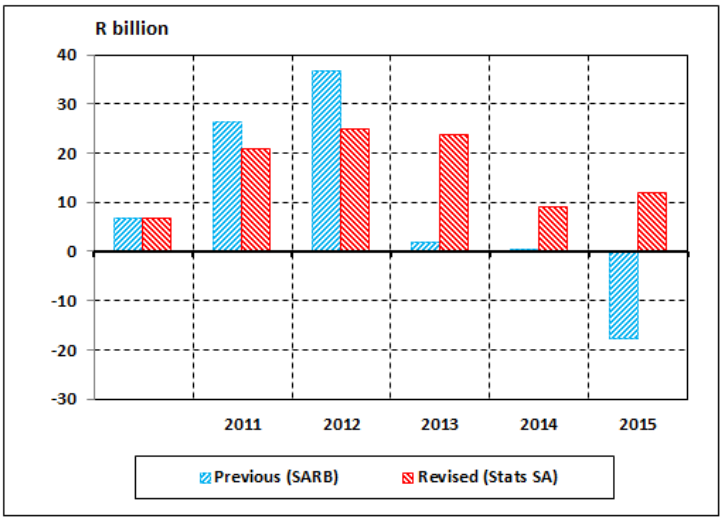
Figure 5 – Gross fixed capital formation (constant 2010 prices)



4.6 Change in inventories (constant 2010 prices)

Annual changes in inventories were positive throughout the revised series; in the previous series they were more volatile.

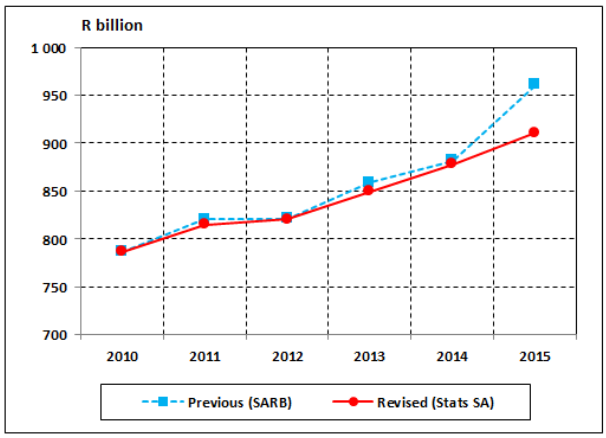
Figure 6 – Change in inventories (constant 2010 prices)

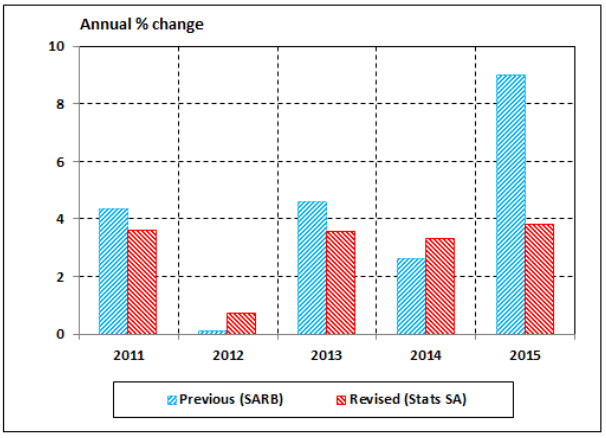


4.7 Exports of goods and services (constant 2010 prices)

The revised and previous export levels were generally close during 2010–2014, but diverged in 2015 (measured at constant prices). The 2015 growth rate was revised down from 9% to 3,8%. The source of the divergence in 2015 was the difference in the revised and previous deflators (see the discussion in section 3). Note that exports and imports at current prices are sourced from the SARB's balance of payments, but Stats SA is now responsible for their deflation.

Figure 7 – Exports of goods and services (constant 2010 prices)

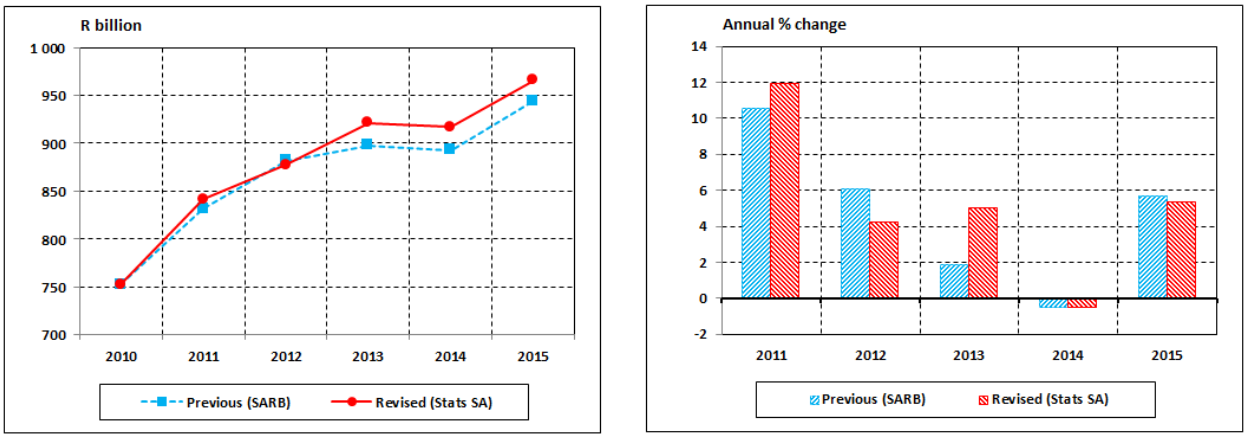




4.8 Imports of goods and services (constant 2010 prices)

The revised level of imports diverged from the previous series in 2013 (2,6% higher); in 2014 and 2015 the growth rates were similar (thereby sustaining the divergence in levels). As with exports, the source of the divergence in 2013 was the development of new deflators.

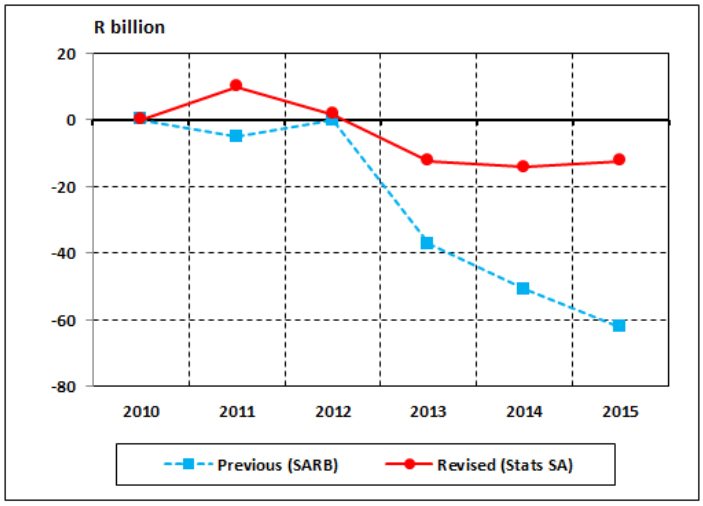
Figure 8 – Imports of goods and services (constant 2010 prices)



4.9 Residual (constant 2010 prices)

In 2013–2015, revised expenditure on GDP (constant prices) was closer to GDP measured by production compared with the previous series (where the previous series is calculated excluding the residual). The narrowing of the residual is shown in Figure 9. However, note that the previous residual in Figure 9 is the residual as published by the SARB in its Quarterly Bulletin of March 2016; if the residual were recalculated using *previous* expenditure on GDP but *revised* GDP by production, the 'previous' residual would narrow in 2013–2015, for example -R52 billion in 2015 instead of -R62 billion (Figure 9). The revised (Stats SA) residual shown in Figure 9 is based on revised GDP by production. See section 5.2 for further comment on the residual.

Figure 9 – Residual (constant 2010 prices)



5. The way forward

5.1 Sources and methods

Nothing in either sources or methods is final. Both are subject to innovation and will always be in a state of flux for a variety of reasons. If compilers freeze their sources and methods they guarantee that their work will become stale. Estimation methods and data sources must be kept up to date and reliable by subjecting today's choices to ongoing and detailed evaluation.

The publication of the first quarter 2016 results using an integrated approach to measuring GDP is not the end of the road for Stats SA. Rather it is one of the first steps on what promises to be a long path but hopefully a fruitful one. Nor is the first publication of notes on sources and methods the last contribution to documenting why quarterly GDP data are the way they are. It is a first instalment of a more comprehensive set.

We note that by and large the new numbers on expenditure on GDP do not differ that much from the previous statistics when compared at current prices. However, the differences get sharper when the data in real terms – after deflation – are confronted. In fact, deflation will be an important area of focus for the short and medium terms. Deflation as an activity is the set of the procedures or methods and the detailed sources required to estimated flows and end-of-period stocks at constant prices. Circumstances have created a very different environment from that which existed when the national accounts were first conceived. Before the 1970s we had to contend with creeping inflation. Raw materials had their price cycles but manufactured goods edged upwards at a gently accelerating rate. Services – business and personal – followed the herd. This is no longer so.

We now face the need to deflate the imports of 'one of a kind' machines; computing devices the prices of which, for a given speed and memory, tumble down at rates never previously experienced; and even the products of chemistry and pharmacology, once a model of stability, but which are no longer comparable from one short period to the next. National accountants will need to work ever more closely with commodity specialists to derive deflators that are optimal.

Stats SA endeavours to approach the challenges of macroeconomic accounts with an open mind and with the realisation that at the best of times its achievements should be regarded as a work in progress. Users have to take on a critical role. The most immediate danger is to take an uncritical view of the data – the totals as well as the underlying component details. If critics fail to ask systematically 'How do you know?' this becomes the cause of permanent self-deceit. It is wrong to fail to question the data before claiming that they address directly perceived economic problems. Numbers need an immunity certificate, much like patients leaving a hospital. By virtue of being numbers they are not risk free. They may be the only numbers that address a question but if the chances that they are certainly wrong outweigh the probability of being right, their use is dangerous.

There are at least two broad areas which demand Stats SA's concentrated efforts to determine their integrity, consistency and compliance with internationally recognised norms and standards. The first is the collection of information from corporate businesses on current profit and loss statements and on disbursements to finance the acquisition of capital assets. The second is in the area of external trade in goods at constant prices, as mentioned above; while considerable work has been done, there is still room for further improvement in the deflation of exports and imports.

Users will be asked to give their reaction to the usefulness of the sources and methods document,

its ease of access, its completeness and intelligibility. Prior to converting it into a printed publication, the management of Stats SA wishes to embody all constructive comments in order to maximise its usefulness. A similar route will be followed with a sources and methods document relating to GDP by production.

5.2 The residual

The residual is measured as the difference between GDP estimates derived from the expenditure and production approaches. It is our technical compass for purposes of compilation of the national accounts. GDP one way is equal to GDP another way plus a residual that can be positive or negative but over time should be a bit of both, and mostly small in percentage terms. In the previous series it was not small and not two-sided. It remains unsatisfactory, but it will be a measure of success if, using objective methods and revising painstakingly every component of each of the GDP totals and sub-totals, the residual can be reduced to a very small relative number, the average of which tends to zero over a period of a few years – say from one rebasing to another.

5.3 Revisions

Statistical agencies must balance the need for data to be timely against the need for minimal (or no) revisions. To wait for all source data to become available would make the publication of statistics so late that they would be of little value. To publish before all source data are available requires revisions as more information comes in, if the quality of published statistics is to be optimal. Another balance lies in sharing with users the reasons for revisions while at the same time protecting the obligation of confidentiality that Stats SA pledges to its survey respondents.

Users are entitled to know the basis on which revisions are made and the normal timing of revisions. In the case of the national accounts these guidelines are still work in progress, and part of the programme ahead is to formalise them and communicate them to the public.

23 May 2016