

Statistics South Africa: Behind the Scenes of Economic Statistics



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Statistics South Africa (“Stats SA”) is a government department that is governed by the Statistics Act, No. 6 of 1999. Section 3(1) of the Act states that the purpose of official statistics is to assist organs of state, business, other organisations and the public in planning; decision-making or other actions; and the monitoring or assessment of policies, decision-making or other actions. Section 3(2) of the Act requires that official statistics must protect the confidentiality of respondents’ information and must be: relevant, accurate, reliable and timely; objective and comprehensive; compiled, reported and documented in a scientific and transparent manner; disseminated impartially; accessible; in accordance with appropriate national and international standards and classifications; and sensitive to distribution by gender, disability, region and similar socio-economic features.

The Statistics Act is available on Stats SA’s website: www.statssa.gov.za. Also available on Stats SA’s website are its annual reports, which document Stats SA’s operations and the many changes that have taken place in Stats SA and its publications in recent years. Worldwide, official statistical agencies have an image of producing pretty much the same material year-in, year-out, but for statistics to remain reputable and dependable their compilation requires continual maintenance and improvement. The discussion that follows provides a short overview of developments of Stats SA’s “economic statistics”, which are listed in [Table 1](#). These are based on enterprise surveys and a variety of other external sources. Excluded from the discussion is Stats SA’s very extensive set of household surveys (except for household expenditure in the context of the consumer price index), as well as other statistical releases and reports which deal with the population and society rather than the economy per se; labour statistics too are not covered in the discussion.

Table 1 reflects the current (2015) state of play regarding Stats SA’s economic statistics. A similar table for five years ago would not look very different. But behind the scenes there is a continual agenda of change to keep things up to date. Such changes, even the major ones, often go unnoticed or are quickly forgotten. This article will remind some readers, and inform others, of innovations that have taken place and will touch on forthcoming changes in the national accounts, improvements in communication, and a few constraints and concerns.

Table 1 – “Economic statistics”: monthly, quarterly, annual and periodic statistical releases and reports published by Stats SA**Monthly:**

Mining (reference number P2041); Manufacturing (P3041.2); Electricity (P4141); Building plans passed and building completions (P5041.1); Wholesale trade (P6141.2); Retail trade (P6242.1); Motor trade (P6343.2); Food and beverages (P6420); Tourist accommodation (P6410); Land transport (P7162); Liquidations and insolvencies (P0043); Civil cases for debt (P0041); Consumer price index (P0141); Producer price index (P0142.1); Contract price adjustment provisions (P0151); Export and import unit value indices (P0142.7).

Quarterly:

Capacity utilisation in manufacturing (P3043); Quarterly financial statistics (P0044); Quarterly financial statistics of municipalities (P9110); Gross domestic product (P0441).

Annual:

Agricultural survey (P1101); Building plans passed and building completions (P5041.3); Building completions (Report 501101); Annual financial statistics (P0021); Capital expenditure by the public sector (P9101); Financial statistics of: extra-budgetary accounts and funds (P9102), higher education institutions (P9103.1), provincial government (P9121), national government (P9119.3) and consolidated general government (P9119.4); Financial census of municipalities (P9114); Non-financial census of municipalities (P9115); Environmental economic accounts compendium (Report 04-05-20); Tourism satellite account for South Africa (Report 04-05-07); Information and communication technology satellite account for South Africa (Report 040701); Input-output tables for South Africa (Report 04-04-02).

Periodic:

Large sample surveys (LSSs) are conducted for the following industries every three to four years: mining; manufacturing; electricity, gas and water; construction; trade; transport, storage and communication; real estate, activities auxiliary to financial intermediation and business services; and personal services. (In most cases the LSSs provide more detailed information than the monthly, quarterly and annual surveys. They provide important information for researchers and policy makers, for the national accounts, and for determining weights of price indices. Selected environmental accounts are published periodically, which, inter alia, provide information relevant to sustainable development).

Prices (inflation statistics)

A good place to start is the monthly consumer price index (“CPI”), which has undergone a number of changes since 2009. A “new” CPI was introduced in February 2009. There were many differences between the “old” CPI and the “new” one, the four biggest being (I) the classification system that was used, (II) the updating of the consumer basket and weights¹ (including the method used for determining the weights), (III) the change in base year from 2000 = 100 to 2008 = 100, and the (IV) treatment of housing. Previous rebasing and reweighting exercises typically involved linking the old and new series together, but the changes that were made in 2009 were so extensive that a parallel run of the CPI was required for 2008. In other words, the CPI had to be recalculated from January 2008 using the new criteria so that accurate annual percentage changes (i.e. the annual inflation rate) could be calculated from January 2009 onwards.

The basket and weights for the CPI are derived from surveys of household expenditure and supplementary sources. In 2009 (2008) the new CPI weights were based mainly on Stats SA’s income and expenditure survey (“IES”) for 2005/06. An important innovation in the 2005/06 IES was the use of a diary in which households

were requested to keep a daily record of their daily expenditures, whereas previous expenditure surveys had relied on households' ability to estimate their expenditures from their records and memory. In addition, the survey was conducted over 12 months whereas previous surveys were conducted in a single month. The new classification system (*Classification of Individual Consumption by Purpose in place of the International Trade Classification*) and the new expenditure survey methodology resulted in changes in the CPI weights that were much larger than usual. In particular there was a large decline in the weight of food, although this was partly the result of an increase over time in incomes in real terms (higher-income households tend to spend a lower proportion of their income on food than lower-income households).

In the housing component of the CPI, mortgage bond costs ("old CPI") were replaced with owners' equivalent rent ("new CPI"), which measures the opportunity cost to home owners of forgoing a rental income by living in the house they own rather than renting it out. One of the complications of the mortgage bond approach was that a tightening of monetary policy, usually intended to reduce inflation, was accompanied by a rise in the mortgage interest rate, which placed upward pressure on the CPI. This was addressed through the CPIX, which excluded the mortgage bond component from the inflation calculation. With the change in methodology the CPIX was no longer needed and it was discontinued.

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Further updates to the CPI took place in 2013 when the CPI was rebased to December 2012 = 100. The basket and weights were updated, based mainly on Stats SA's IES of 2010/11. Other changes were the introduction

of food prices collected in rural areas; fruit and vegetable prices from the informal sector; quality adjustments for motor vehicles, cell phones and selected household appliances; quantity adjustments; and a "trimmed mean" measure of core inflation.

Stats SA rebases the CPI and updates its weights every four to five years. Improvements in CPI methodology are typically introduced at the time of rebasing and reweighting, although interim adjustments may also be made. For example, the pricing of clothing is difficult because of changing fashions and sales (discounts): from January 2008 sale prices were excluded from the clothing index, and in December 2014 Stats SA announced that quality adjustments would be introduced for clothing and footwear with effect from January 2015.

A detailed explanation of the CPI is available in Stats SA's publication *The South African CPI Sources and Methods Manual*. In 2011 a peer review of the CPI was conducted by an international CPI expert who, while making recommendations for further improvements in the CPI, concluded that

"Statistics South Africa's Consumer Price Index is generally of a good quality and adheres to many of the relevant international standards and to recognised good practices in index construction and in statistical production more generally; The statistical foundation of the South African CPI has not been stronger than it is now. Statistics South Africa is committed to maintaining a high level of professionalism and transparency, and this is appreciated by users. It also shows a high level of commitment to collecting good quality data, to methodological soundness and to publishing reliable indices."

A report on the CPI peer review is available on Stats SA's website.

Like the CPI, the producer price index ("PPI") is also published monthly and has also undergone substantial changes since 2008. Prior to 2008, although the components of the PPI were generally reliable, the compilation of the headline PPI was problematic in three main respects. Firstly, the high-level weights were based on sales rather than value added, which could result in substantial differences between the PPI and the GDP (gross domestic product) deflator when calculated for GDP components covered by the PPI. Secondly, the headline PPI combined products that were completely different in nature and at different stages of production, so that it was difficult to interpret what the headline PPI was really measuring; for instance, it included food prices at both the agricultural and manufacturing stages, and it included import prices. Thirdly, the export and import price indices suffered from low response rates. The shortcomings of the PPI were dealt with in three stages.

Firstly, early in 2008 the high-level weights were updated using value added rather than sales, thereby bringing the PPI weights more in line with national accounts weights, and the practice of including import prices in the headline PPI was discontinued.

Second, a multi-year project to completely overhaul the PPI was initiated, culminating in a set of five PPIs that were first published in early 2013 with new weights and a new base year. The new headline PPI measures prices of final manufactured goods (goods that are in their final form, ready for retailers to sell to consumers). The other four PPIs measure the prices of intermediate manufactured goods (goods that require further processing before they reach final stage); electricity and water; mining; and agriculture, forestry and fishing. An important dimension of the project was a campaign to work closely with industry associations and specific respondents to ensure that the relevant goods would be priced accurately and that monthly response rates would be high.

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Third, another multi-year project was undertaken to deal specifically with export and import prices. Collecting export² and import prices is difficult and expensive to do properly, so Stats SA investigated whether export and import 'unit values' (value divided by quantity) could be compiled from international trade statistics provided by the South African Revenue Service. This culminated in the monthly publication of export and import unit value indices with effect from early 2014 (which replaced the previously published export and import price indices). Detailed explanations of the PPIs and UVIs are available in Stats SA's publications *Producer Price Index: Methods, Sources and Theory*; and *Export and Import Unit Value Indices: Methods and Sources*.

Economic activity and the national accounts

Thus far, the discussion has concentrated on prices (inflation), which comprise just one part of economic statistics. Most of the time series in Table 1 are measures of economic activity, many of which require accurate prices for conversion to measures of economic activity in volume terms (i.e. in real terms or in constant prices). Ongoing maintenance and/or improvement takes place across all of Stats SA's economic statistics. These take the form of new samples, new base years, new weights, new deflators, improved seasonal adjustment, and keeping up to date

with international accounting standards. For instance, the deflators used for retail trade are updated every three to four years using weights from the large sample survey of the retail industry, and the calculations for manufacturing production and wholesale trade in constant prices were affected by the changes in the PPI described above. Series that are seasonally adjusted have been subjected to more sophisticated seasonal adjustment techniques that produce more reliable results, in particular regarding the “Easter effect” (the Easter holidays usually fall in April but sometimes fall in March, which complicates the process of seasonal adjustment in some cases).

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Most economic statistics, whether they measure prices or economic activity, are used in Stats SA’s compilation of “GDP”. GDP is the most widely used measure of economic growth, and its accuracy is highly dependent on its source data, whether the latter come from official or other sources. Both the level of GDP and period-to-period changes in GDP are important economic indicators for a wide spectrum of users, and Stats SA invests heavily in keeping its estimates of GDP as accurate as possible. Every five years the GDP (and the entire national accounts) is

benchmarked using the latest available annual and periodic surveys. A new base year is introduced and historic data are revised accordingly. Benchmarking of the national accounts is the reconciliation of high-frequency monthly/quarterly data that track short-term dynamics in the economy with more accurate and detailed annual and periodic data of lower frequency.

The five-yearly national accounts benchmarking and rebasing exercise typically provides a good opportunity for introducing improved coverage and/or methodologies. The results of the latest benchmarking and rebasing were published in November 2014 (the base year was changed from 2005 to 2010, i.e. the accounts in constant prices now use 2010 prices instead of 2005 prices). An important innovation in 2014 was the introduction of key elements of the 2008 System of National Accounts (“SNA”), which replaced the 1993 SNA. The SNA is the national accountant’s ultimate guide for compiling the national accounts; it is a product of the United Nations, the IMF, the World Bank, the OECD and Eurostat.

Highlights of the last four national accounts benchmarking exercises are shown in [Table 2](#).

Table 2 – Main innovations in national accounts benchmarking

1995 base year (implemented in 1999)	SNA 1993 (replacing SNA 1968); increased coverage in areas such as the informal sector and telecommunications
2000 base year (implemented in 2004)	New business register based on tax records; Supply-use tables for annual estimates; Double deflation (i.e. separate deflation of components to calculate value added)
2005 base year (implemented in 2009)	Inclusion of non-observed economy (illegal and underground activities); Increase in compilation level of supply-use tables
2010 base year (implemented in 2014)	SNA 2008 (important elements); Use of (inter alia) 2011 population census

The next GDP rebasing is scheduled for 2019 (change from 2010 base year to 2015 base year). However, if current plans continue to run smoothly, important changes in the compilation and presentation of GDP will take place in early 2016. In South Africa the current institutional arrangement for the estimation of GDP is that the “production” approach (or calculation) is the responsibility of Statistics South Africa (the official estimate of GDP), while the “expenditure” approach is the responsibility of the South African Reserve Bank (“SARB”). In theory the production and expenditure approaches must result in the same GDP estimate; in practice the results can be quite different, and consequently the expenditure estimate of GDP contains a residual to ensure that its published GDP estimate is the same as the production estimate.

It is rare, if not unique to South Africa, for the production and expenditure estimates of GDP to be compiled by separate institutions. The SNA provides a consistent framework in which source data can be confronted, reconciled and balanced to reach GDP measured by different approaches. The volume of source data is large. It is not optimal for two institutions with different core functions, legal mandates, staff complements and organisational cultures to compile separate estimates of a concept as complex as GDP using the full range of opportunities provided by the SNA framework.

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Consequently, in 2012 Stats SA initiated a long-term project to build the capacity that would be required for Stats SA to take responsibility for the expenditure calculation of GDP. A group of young economists and statisticians was recruited for intensive training in official statistics and national accounts, the expenditure-based estimates of GDP in particular. The training was conducted by several international experts in national accounts, and in preparing for the transition, Stats SA has worked closely with the SARB at every stage of the project. The work has progressed well, and if it continues to do so, expenditure-based estimates of GDP will be published by Stats SA for the first time in early 2016. Users will receive the production and expenditure GDP estimates simultaneously in one statistical release, which should assist them in analysing the results more effectively (currently the production estimates are published two to three weeks before the expenditure estimates).

The GDP expenditure project has also provided an opportunity, with the assistance of international experts, to assess the adequacy of source data for the national accounts. As stated above, the volume of source data that must be analysed in the compilation is large. But for national accountants, large is never enough! The national accountant will always want more information, in as much detail as possible, and delivered sooner rather than later. The survey that has received the most attention in this regard is the Quarterly Financial Statistics (“QFS”). To be of full benefit to GDP, the QFS results need to be available earlier than has historically been the case, and as a primary source for fixed investment and changes in inventories, the QFS (or a variant thereof) requires significant re-engineering.

The export and import unit value indices mentioned in the previous section are a recent innovation that rely on administrative data (trade data from SARS). Administrative data may provide cost-effective solutions in other areas as well, such

as estimates of economic activity at regional level, and Stats SA will continue to explore these possibilities.

Communication with the public

For any official statistics agency, whose independence and neutrality are of the utmost importance to its credibility, communicating official statistics requires a careful balance. On the one hand it is important to make statistics accessible to the public and to explain their meaning clearly, especially considering that a large portion of the public (worldwide) is fearful of the very concept of statistics. On the other hand, in the process of disseminating data and demonstrating how they can be used, it is important for statistical agencies to avoid being drawn into contentious policy debates beyond the mandate of their enabling legislation.

For example, research has been conducted for a number of additional enterprise surveys, namely air transport, communications and real estate. But for these and other new surveys to proceed, additional funding would be required.

Communication is not ‘behind the scenes’ (on the contrary!), but is nevertheless mentioned here as Stats SA has taken a number of steps to communicate its statistics more effectively. Stats SA’s website was recently revamped, with one of the many new features being data stories based on statistical releases. Increased attention has been given to press conferences with presentations that aim to explain

the data clearly. In 2012 the layouts of several statistical releases were revamped to improve their presentation. Other recent developments include the introduction of ‘apps’ on Apple products and the use of Twitter. In 2014 an economic statistics user group was instituted to complement a number of more specific user groups that already exist. These user groups are an important channel for Stats SA to inform users of forthcoming developments and for users to give feedback to Stats SA and raise concerns which they may have regarding economic statistics.

Constraints and concerns

While the developments outlined above convey a generally positive message about recent achievements and further progress to come, in the world of economic statistics there will always be room for further improvements in existing surveys and the potential for additional surveys to fill gaps in the coverage of the economy. For example, research has been conducted for a number of additional enterprise surveys, namely air transport, communications and real estate. But for these and other new surveys to proceed, additional funding would be required. A full census of agriculture, last conducted in 2007, would also require additional funding (the agricultural survey listed in Table 1 is confined to commercial farms registered for tax).

An ongoing concern for Stats SA is the administrative burden that is placed on respondents in completing our questionnaires, and the associated risk of lower response rates if the burden becomes too onerous and/or respondents perceive their co-operation to be a waste of time and effort. Communicating a message of the importance of reliable official statistics, to both respondents and the public in general, is therefore an ever-present imperative for Stats SA.

There is widespread demand for many of Stats SA’s economic statistics to be made available at a regional level rather than national only. It is difficult to comment on the prospects for any progress here in the near future, as even with increased funding

(to run larger samples, for example) there would be serious obstacles, one of which is the problem of respondent burden which has already been mentioned. This is an area in which innovative use of administrative data may provide answers. Users have also requested access to unit data from existing surveys, but there are legal obstacles to meeting these requests arising from strict confidentiality provisions in the legislation and the willingness of respondents to complete our questionnaires.

A final issue to mention here is the implementation of a new classification system for Stats SA's enterprise surveys. Currently these are based on SIC 5 (Standard Industrial Classification of all Economic Activities, fifth edition). SIC 5 is based on the third revision of the International Standard Industrial Classification of all Economic Activities ("ISIC 3"), with suitable adaptations for South African conditions. ISIC 4 was published in 2008, and it introduced many changes in the classification of economic activities. For South Africa's economic statistics to be optimal and internationally comparable it will be important for Stats SA to implement a South African version of ISIC 4. This, however, would require substantial funding, which may be difficult to secure in the current environment of public-sector budgetary constraints.

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Conclusion

Keeping a nation's official statistics up to date and relevant goes far beyond the repetitive processes that the public tends to associate with the day-to-day running of a national statistical office. Certainly there are many routine procedures without which Stats SA would not be able to function, but alongside those are programmes of change that are an ever-present requirement if official statistics are to live up to the expectations of the Statistics Act (refer back to the opening paragraph). The preceding discussion provides some insight into developments that have taken place in Stats SA's 'economic statistics' in recent years, as well as plans for the future. The programmes of change in Stats SA's household surveys have not been covered here, but these have been no less extensive, if not more so. As economies and societies change and develop, it is inevitable that their statistical measurement should change and develop as well.

FOOTNOTES

- 1 In the CPI, the 'basket' refers to the choice of goods and services which are selected for pricing, and the 'weight' of a group of items is its relative importance in the total basket of goods and services.
- 2 Export prices specifically; the PPI reflects prices received for goods sold whether or not they are destined for local or export markets.