Note on the benchmarking and rebasing of South Africa's national accounts

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Introduction

South Africa's national accounts are estimated in accordance with the *1993 System of National Accounts* (SNA). The SNA is a set of guidelines that provides a comprehensive conceptual and accounting framework for compiling a macroeconomic database suitable for analysing and evaluating economic performance. One of the recommendations of the SNA is that the base year of constant price estimates be changed periodically. The current base year, 1995, was introduced five years ago in 1999.

1 The author would like to thank staff members of the National Accounts Division for their valuable comments.

In South Africa the compilation of the national accounts is a joint responsibility of Statistics South Africa (Stats SA) and the South African Reserve Bank. Stats SA is officially responsible for estimating gross domestic product based on the production and income approaches while the Bank is responsible for estimating gross domestic product in terms of the expenditure approach. In addition, the Bank compiles institutional sector accounts, which include estimates of national saving, household debt and net lending or borrowing among institutional sectors and to and from the rest of the world.

In South Africa the base year of constant price estimates is consistently revised at five-year intervals. Simultaneously most national accounts aggregates are benchmarked and revised, ensuring data consistency and accuracy over time. Benchmarking and rebasing are done over and above the normal revisions that are made annually to national accounts aggregates. Accordingly, the base year of national accounts aggregates was changed from 1995 to 2000, and the revised estimates are presented in this issue of the *Quarterly Bulletin.* A comprehensive historical analysis of South Africa's national accounts will be published in a supplement to a later edition of the *Quarterly Bulletin.*

Changing the base year refers to the process of changing the reference period of the real or constant price estimates of the national accounts. This process may or may not be accompanied by benchmarking. Benchmarking refers to the utilisation of more comprehensive data with a lower frequency of availability in order to determine reliable and accurate levels of the economic aggregates. In view of this, the process of benchmarking will necessarily impose certain changes to previously estimated national accounts aggregates. Material changes in levels could have a noticeable impact in other areas, such as in the calculation of growth rates, ratios and in some cases even trends.

Revisions

The current edition of the *Quarterly Bulletin* incorporates revised national accounts estimates at current prices and constant 2000 prices. In the interest of improving the estimates of the institutional sector accounts, some transactions between institutional sectors had to be reclassified.

The new constant price series using 2000 as base year were estimated from 1998. In order to preserve the previously estimated growth rates at constant prices prior to 1998, subtotals and totals have been converted to 2000 prices. As a result, these converted subtotals and totals for periods prior to 1998 are not equal to the sums of their components. This means that the constant price figures do not "add up" in an arithmetical sense.

Incorporation of new data that became available

Stats SA has improved the scope and coverage of estimates of the economy in the period since the previous comprehensive revisions. The improvements include

- a new business register based on firms liable for value-added tax (VAT) payments;
- the replacement of industry censuses by large sample surveys of various industries; and
- the introduction of sectoral Economic Activity Surveys (EASs). These EASs are based on financial information obtained from the records of enterprises and establishments. As with censuses in the past, the statistical units are classified according to the *Standard Industrial Classification of all Economic Activities* (SIC).

Information from the large sample surveys and the sectoral EASs and other data sources were used in revising the estimates of production, income and expenditure.

Re-classification of certain transactions

The South African Reserve Bank published a summary of the integrated economic accounts of South Africa in the September 2004 edition of the *Quarterly Bulletin.* These accounts provide a disaggregation of estimates of economic activity between the institutional sectors and the rest of the world.

The institutional sectors are the household sector (including non-profit institutions serving households), the non-financial corporate sector, the financial corporate sector and the general government sector. The disaggregation of economic activity according to these institutional sectors enhances the analytical capacity of the national accounts.

Revision of gross domestic product

The level of the nominal gross domestic product in the year 2000 was revised upward by an amount of almost R34 billion or by 4 per cent. The contributions of some of the economic sectors to total gross value added changed notably between 1995 and 2000,

Contribution of gross value added by kind of economic activity to total value added

Per cent

	At basic prices	
Sectors	1995	2000
Primary sector	**10,9**	**10,9**
Agriculture, forestry and fishing	3,9	3,3
Mining and quarrying	7,0	7,6
Secondary sector	**27,9**	**24,2**
Manufacturing	21,2	19,0
Electricity, gas and water	3,5	2,7
Construction	3,2	2,5
Tertiary sector	**61,3**	**64,9**
Wholesale and retail trade, catering and accommodation	14,3	14,6
Transport, storage and communication	8,9	9,6
Financial intermediation, insurance, real-estate and business services	16,4	18,6
General government services	16,2	15,9
Other	5,5	6,1
Total value added	**100,0**	**100,0**

but gross value added by the primary sector remained virtually unchanged between 1995 and 2000 (see table on previous page). Within the primary sector the contribution of the mining sector rose somewhat but this was offset by a decline in the relative importance of the agricultural sector. The mining sector benefited especially from the expansion in the production of platinum group metals.

The ratio of gross value added by the secondary sector to total value added declined from about 28 per cent in 1995 to 24 per cent in 2000. This was evident in all three subsectors in this sector of economic activity. The share of manufacturing declined from 21 per cent in 1995 to 19 per cent in 2000.

Percentage change in gross value added by kind of economic activity, 1998 to 2003

Sectors	Compound annual rates at 1995 prices	Compound annual rates at 2000 prices
Primary sector	**-0,1**	**0,4**
Agriculture, forestry and fishing	0,3	0,3
Mining and quarrying	-0,4	0,4
Secondary sector	**1,8**	**1,8**
Manufacturing	1,7	2,2
Electricity, gas and water	1,6	-1,2
Construction	2,5	2,3
Tertiary sector	**3,2**	**3,7**
Wholesale and retail trade, catering and accommodation	2,1	4,6
Transport, storage and communication	6,9	6,5
Financial intermediation, insurance, real-estate and business services	4,8	4,8
General government services	-0,3	-0,3
Other	2,6	4,1
Total gross value added at basic prices	**2,5**	**2,9**
Taxes net of subsidies on products	1,6	1,0
Gross domestic product at market prices	**2,4**	**2,7**

The ratio of gross value added by the tertiary sector to total value added increased from about 61½ per cent in 1995 to 65 per cent in 2000. The sectors transport, storage and communication and financial intermediation, insurance, real-estate and business services showed prominent increases. The communication sector in particular benefited from the introduction of the cellular telephone industry.

The compound growth rate in real gross domestic product from 1998 to 2003 was revised from 2,4 per cent per annum expressed at 1995 prices to 2,7 per cent at 2000 prices.

Revision of the components of gross domestic expenditure

The extensive revisions of estimates of final consumption expenditure by households were based on the Household Income and Expenditure Survey (IES) of 2000 and the 2001 Population Census. Various other data sources, such as reports by the Bureau of Market Research at Unisa and findings of other special research projects were also incorporated into the estimates of final consumption expenditure by households. The consolidated expenditure survey of general government provided the data source for estimating the final consumption expenditure and gross value added of general government. The revision of gross fixed capital formation was mainly based on the 2001 sectoral EASs. Other data sources at the disposal of the Bank were also used to improve the accuracy and credibility of the estimates.

Percentage change in components of gross domestic expenditure and gross domestic product, 1998 to 2003

Components	Compound annual rates at 1995 prices	Compound annual rates at 2000 prices
Final consumption expenditure by		
Households	2,6	2,9
General government	2,1	2,5
Gross fixed capital formation	2,2	2,8
Change in inventories*	1,2	0,9
Gross domestic expenditure	2,4	2,5
Exports of goods and services	2,4	2,2
Imports of goods and services	2,3	1,6
Expenditure on gross domestic product at market prices**	2,6	3,1
Gross domestic product at market prices ***	2,4	2,7

* Change in the variable as percentage of gross domestic product at the beginning of the period.
** Gross domestic product on expenditure base, i.e. the total of consumption expenditure, gross capital formation, exports of goods and services *minus* imports of goods and services.
*** Gross domestic product on the production base, i.e. real output *minus* intermediate input.

Households' average expenditure per population group was calculated for all provinces separately. The national aggregate was obtained by multiplying the average expenditure per household per province by the number of households in each province. The net result of the revisions was that real growth in overall final consumption expenditure by households for the period 1998 to 2003 improved from an average of 2½ per cent per annum to 3 per cent (see table above).

Final consumption expenditure by general government was revised on the basis of the latest available information on current expenditure by all levels of general government. Government expenditure on non-wage goods and services still rose steadily between 1998 and 2003 while the share of compensation of employees to final consumption expenditure by general government also declined. The average annual growth in real final consumption expenditure by general government from 1998 to 2003 was revised upwards from 2 per cent per annum at 1995 prices to 2½ per cent at 2000 prices.

The 2001 sectoral EASs were extensively relied upon to revise the estimates of gross fixed capital formation by the private sector. Extensive upward revisions were made to the levels of fixed investment by general government based on the latest available data on general government expenditure. Independent surveys conducted by the Bank on capital expenditure by public corporations were used to re-estimate gross fixed capital formation by public corporations. The level of aggregate gross fixed capital formation was raised and the growth in gross fixed capital formation from 1998 to 2003 was also increased from 2 per cent at 1995 prices to 3 per cent at 2000 prices.

Revision of gross saving

Estimates of gross saving were comprehensively revised. Information for the non-financial corporate sector was mainly obtained from the 2001 EAS. Information obtained from the sectoral EASs, from the consolidated balance sheets of banks, from the

McGregor BFA database and the JSE Securities Exchange SA provided the main statistical inputs for these revisions. An analysis of the assets and liabilities of households contributed to benchmarking the saving level of households.

Gross saving as a percentage of gross domestic product declined from 16½ per cent in 1995 to 16 per cent in 2000. The revised average ratio for the years from 1998 to 2003 increased to almost 16 per cent compared with just under 15½ per cent previously estimated. This was mainly as a result of a substantially stronger saving ratio of the corporate sector, which more than offset a lower saving ratio of the household and general government sectors.

Average ratio of gross saving to gross domestic product, 1998 to 2003

Per cent

Institutional sectors and total	Old ratios	Benchmarked ratios
Corporate saving	11,8	13,0
Government saving	0,6	0,3
Household saving	3,0	2,6
Total saving	15,4	15,9

The ratio of gross household saving to gross domestic product declined from nearly 4 per cent in 1995 to 2½ per cent in 2000 and further to 2 per cent in 2002, but increased somewhat to 2½ per cent in 2003. The ratio of gross household saving to gross domestic product was revised from an average of 3 per cent to 2½ per cent for the period 1998 to 2003. The lower ratio can partly be attributed to the stronger increase in the level of gross domestic product relative to the level of household saving.

Gross saving by the corporate sector as a percentage of gross domestic product increased on average to 13 per cent during the period 1998 to 2003 compared with an average of about 12 per cent estimated previously. This improvement is mainly due to the increased growth of the economy as a whole, and a bigger share of gross operating surpluses in total factor income.

The revised ratio of gross saving by general government to gross domestic product is lower than the previously estimated ratio.