

Notes on rebasing the national accounts

Introduction

There are many different uses for national accounts aggregates at constant prices. These aggregates are not only used for analysing the past and the present but also help in projecting and planning the future. They are essential for informed rational economic decision-making and, within the framework of a comprehensive accounting system, they serve as an indispensable tool for economic policy making. It is therefore important to determine from time to time whether the statistics in use still give a true assessment of the performance of the economy.

When the real national accounts aggregates were calculated in terms of 1980 prices during 1985, the intention was that the next rebasing of these aggregates would be carried out in 1988. During 1987 it became clear, however, that, as a result of structural changes, weighting schemes based on the 1980 structures and compositions of income and output no longer could be regarded as an accurate reflection of the relative importance of various sectors of the economy. The contribution of the so-called primary sectors to the gross domestic product, for instance, declined from 29 per cent in 1980 to 21½ per cent in 1985. In the case of finance, insurance, real estate and business services, on the other hand, the relative share of this sector in total output increased from 11 per cent to 15 per cent. It was decided, therefore, to rebase all real national accounting aggregates using 1985 as the new base year instead of 1980.¹ This means, firstly, that the estimates of expenditure on gross domestic product (GDP(E)) at constant prices are now expressed in terms of average 1985 prices instead of average 1980 prices. Secondly, it means that the weights assigned to the components of the output measure of gross domestic product (GDP(O)), which previously reflected values added in 1980, now are based on values added in 1985.

The purpose and background of rebasing

The purpose of constructing constant-price national accounts data is to measure changes in the *volume* of goods and services produced or utilised. The statistical procedure for measuring volume changes (e.g. in domestic output) between a chosen base period and a current period consists of revaluing output in the current period at the prices of the base period before calculating the changes between these two periods. This procedure eliminates the effect of price changes from the base period to the current period but, at the same

time, also weighs the output of various goods and services in accordance with the prices which these goods and services commanded in the base period. The prices in the base period selected, therefore, are a factor in determining the relative values of the different goods and services that are included in total output in a non-base period.

Relative values change over time because prices invariably do not move in a uniform way, i.e. prices do not usually rise or decline at the same rate from one period to another. Reasons for variations in relative prices include shifts in supply and demand, differential 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. 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 from time to time. For this reason, constant-price national accounts data have been rebased, using 1985 as the new base year.

The calculation of new constant-price series, with 1985 as the base year, has been carried out for the period from 1983 onwards. Existing series expressed in terms of constant 1980 prices have been retained for the period up to 1983. They have simply been linked to the new series without re-weighting.

In order not to disturb the previously existing rates of change in volume series up to 1983, sub-totals and totals have been converted to 1985 prices independently of their components. As a result, these converted subtotals and totals for periods before 1983 are not equal to the sums of their components. Phrased differently, this means that the constant price figures do not "add up" in an accounting sense.

Effect of the change-over from 1980-based estimates to 1985-based estimates

An analysis of the effects of the transition from 1980-based to 1985-based estimates indicates that the average annual growth in real value added by kind of economic activity remained essentially intact. In the sectors agriculture and finance, average annual growth rates changed marginally. For the period 1983 to 1986 the average growth rate in real gross domestic product was lifted by 0,3 percentage points, viz. from 1,3 per cent at 1980 prices to 1,6 per cent at 1985 prices. This increase in the measured growth performance of the economy resulted mainly from upward revisions in output growth in manufacturing and mining. Declines in output in these two sectors of 0,8 per cent and 0,2 per cent, respectively, in terms of 1980 prices, were converted into rises of 0,5 per cent and 0,3 per cent, respectively, in terms of 1985 prices.

¹ Due to the lack of certain source data, the 1985-based estimates are subject to further revisions when this information is released by the Central Statistical Service.

Table A: Effects of rebasing on annual growth rates of gross domestic output by kind of economic activity, 1980 to 1986

	Annual percentage change at 1980 prices		Annual percentage change at 1985 prices	
	1980 to 1983	1983 to 1986	1980 to 1983	1983 to 1986
Agriculture, forestry and fishing	-9,2	11,7	-9,3	11,7
Mining and quarrying	-0,5	-0,2	-0,5	0,3
Manufacturing	-1,1	-0,8	-1,1	0,5
Electricity, gas and water	5,6	5,2	5,6	5,2
Construction (contractors)	-1,4	-3,2	-1,4	-3,3
Wholesale and retail trade, catering and accommodation	4,3	0,3	4,3	0,1
Transport, storage and communication	-1,0	1,9	-1,0	1,9
Finance, insurance, real estate and business services	3,6	2,7	3,7	2,6
Community, social and personal services	6,9	2,6	6,9	2,5
Less: Imputed financial service charges	5,8	0,8	5,8	0,8
General government	3,8	2,5	3,8	2,5
Other producers	3,0	1,6	3,0	1,7
Gross domestic product at factor cost	0,5	1,4	0,5	1,8
Indirect taxes	1,5	0,4	1,5	0,4
Less: Subsidies	-1,8	2,8	-1,8	2,8
Gross domestic product at market prices (GDP(O))	0,6	1,3	0,6	1,6

Table B: Effects of rebasing on annual growth rates of components of gross domestic expenditure and gross domestic product, 1980 to 1986

	Annual percentage change at 1980 prices		Annual percentage change at 1985 prices	
	1980 to 1983	1983 to 1986	1980 to 1983	1983 to 1986
Private consumption expenditure	3,5	-	3,5	-0,3
Durable goods	1,9	-13,1	1,8	-13,5
Semi-durable goods	3,6	-1,3	3,6	-1,4
Non-durable goods	3,8	2,0	3,8	2,0
Services	3,5	2,2	3,5	2,0
Government consumption expenditure	3,5	3,4	3,5	3,4
Gross domestic fixed investment	0,1	-8,8	0,1	-8,9
Public authorities	0,3	-6,3	0,3	-6,5
Public corporations	-10,0	-9,3	-10,0	-9,4
Private business enterprises	4,3	-9,7	4,3	-9,7
Change in inventories ¹	1,7	-4,6	1,1	-4,4
Gross domestic expenditure	-	-0,3	-	-0,1
Exports of goods and non-factor services	-3,8	4,8	-3,8	5,6
Imports of goods and non-factor services	-7,5	0,1	-7,5	-0,1
GDP(E) at market prices ²	1,1	-	1,3	-

¹ Change in the series as percentage of the GDP(E) at the beginning of the period.

² Expenditure measure of gross domestic product, i.e. the total of consumption expenditure, gross domestic investment, exports of goods and non-factor services minus imports of goods and non-factor services.

The effect of rebasing on the output measure of real gross domestic product in 1987 was to increase the growth rate from calendar 1986 to calendar 1987 by some 0,5 percentage points. Relatively drastic upward revisions were made in 1987 in the case of mining, where the growth rate on account of the revised weightings was raised by some 0,8 percentage points, and in the sectors providing electricity, gas and water services and transportation, where the growth rates were raised by 0,5 percentage points. The growth rates for 1987 in other services sectors such as commerce and finance were found to be somewhat lower than before.

Average annual growth rates of the components of gross domestic expenditure during the period 1980 to 1983 were almost wholly unaffected by the transition to 1985-based estimates. For the period 1983 to 1986, growth rates in private consumption expenditure and gross domestic fixed investment were reduced by 0,3 and 0,1 percentage points, respectively. The average growth rate of exports of goods and non-factor services during this period, was increased by 0,8 percentage points. The rate of decline in changes in inventories was found to be 0,2 percentage points lower than before, whereas the average rate of growth in imports of goods and non-factor services was reduced by 0,2 percentage points.

Concluding remarks

Estimates of the national accounts, and in particular of the real gross domestic product, were never intended to be only, or even primarily, a measuring instrument for gauging the rate of change in output and spending aggregates. The national accounts are, first and foremost, an overview of the economic process. They reveal how income is being generated, how this income is being distributed among the various participating groups in the economy, and how these groups allocate their income flows between consumption, saving and investment. In this capacity, the system of national accounts is an unrivalled tool for macro-economic analysis.

The moment suspicion arises that the accounting system may no longer reflect the true performance of the economy, corrective action with regard to this system becomes essential. Changes in the relative importance of the various production sectors since 1980 were undermining the usefulness of 1980-based estimates of changes in real output levels in presenting a clear picture of actual developments in the South African economy. To eliminate these deficiencies, fresh calculations, using 1985 instead of 1980 as the reference year, were made of macro-economic aggregates that normally are presented in terms of constant base-year prices. A need to revise previously established growth rates and growth tendencies follows from these recalculations.