Growth trends and business cycles in the South African economy, 1972 to 1981

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During the past decade South Africa experienced significant variations in economic activity, reflecting the natural cyclical-growth pattern of the economic system as well as the effect of structural and other exogenous forces. The main aim of the first part of this article is to analyse the growth trend of the economy and its potential capacity to produce goods and services. In the second part of the article business cycle developments will be reviewed against the background of this growth trend, and reference turning points will be determined for the period 1972 to 1981. In previous studies[1] reference turning points were determined for the period 1946 to 1972.

Part I

The growth trend and evaluation of the potential output

Introduction

In the 1970 article on business cycles in South Africa, the long-term trend of economic time series was described as reflecting the growth and development of an economy over time, and "long" waves as waves with periods exceeding those of the business cycle. As the period since 1946 was considered too short to allow for the proper identification of possible long waves and because it was not regarded as necessary for purposes of dating the business cycle to distinguish between the trend and the long wave, long waves were treated as part of the long-term trend. Since many of the South African time series reflect mere accelerations and retardations in the growth of economic activity rather than absolute declines, the determination of specific turning points in the above-mentioned articles was based only on the cyclical component of the series, i.e. after exclusion of the trend, seasonal and irregular components. This procedure is in agreement with the techniques used by other countries in developing growth cycle chronologies[2] and is also followed in the present study.

Whereas all other preceding recessions after the Second World War had been relatively mild with sustained positive trends in economic activity, South Africa during 1976-1977 experienced the most severe economic contraction of the post-war period, with some important economic indicators registering significant absolute declines (see Graph 1). Seen against the historic behaviour of these series, the question arises whether these declines reflected only a strong downswing in the business cycle, or whether they represented also a downward shift of the long-term trend as a result of structural changes in the economy. Depending on the way in which the trend line is determined, the upper turning points (after the 1972 trough) of some of these series could be dated as early as 1974 or as late as the end of 1975 or the beginning of 1976. Because of the effect of structural changes, the determination of the trend, particularly for the 1974-1978 period, is therefore less straightforward than for earlier periods and forms an important part of this study.

Apart from determining the trend line with the object of dating business cycle turning points, for which purpose the long-term *rate of change* is the prime object, a shift in the *level* of a trend line fitted to actual output data is also indicative of a "permanent" change in potential output. Promoting economic growth without regard to the economy's potential output, may overstrain the capacity of available production resources and cause upward pressure on prices.

The growth trend after 1973 in the main industrial countries

The course of economic time series suggests that growth trends can often not be represented by straight lines. In this regard it has been pointed out that "... the past economic experience of the Western World discloses prolonged periods of relatively buoyant times, extending far beyond the boundaries of the major business cycle, and similarly prolonged periods of more or less chronic hard times, within which, however, the swings of the business cycle occur."[3]. The downward phase of a long-term movement, however, does not necessarily involve absolute decreases.

Although a generally accepted theory of changes in the long-term trend is not found in the economic literature, several explanations of such changes are pre-

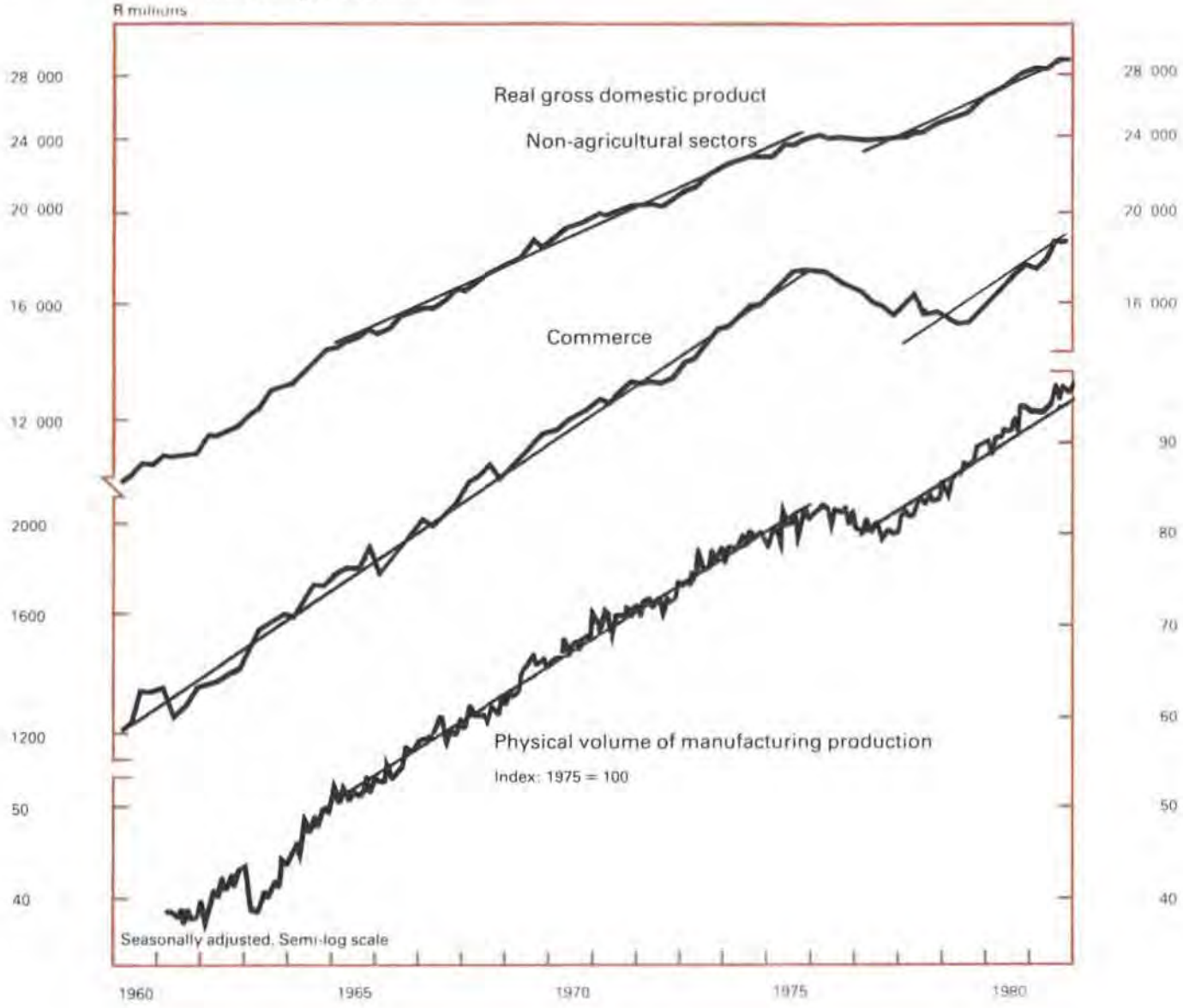
* The views expressed and conclusions drawn in this article are those of the authors and do not necessarily represent those of the South African Reserve Bank.

1. Smit, D.J. and B.E. van der Walt: "Business cycles in South Africa during the post-war period, 1946 to 1968", *South African Reserve Bank Quarterly Bulletin*, September 1970; and "Business cycles in South Africa during the period 1968 to 1972", *South African Reserve Bank Quarterly Bulletin*, June 1973.

2. Klein, Philip A.: *Business cycles in the post-war world*, American Enterprise Institute for Public Policy Research, Washington D.C., 1976, p. 13; Mintz, I.: "Dating United States growth cycles", *NBER Explorations in Economic Research*, Summer 1974; and Van Duijn, J.J.: "Dating post-war business cycles in the Netherlands, 1948-1976", *De Economist*, No. 4/1978.

3. Hansen, A.H.: *Business Cycles and National Income*, W.W. Norton & Co., New York, 1964, p. 56.

Graph 1 — Real gross domestic product and the volume of manufacturing production



sented.[4] By far the best known explanation has perhaps been given by the innovations theory, in which the role of new products and production methods are emphasised. In this regard the post-war upward movement of the long-term trend can be associated with "... a whole range of basic innovations, such as television, the transistor, synthetic fibres ..., etc." This upward movement was further reinforced by a "... strong pent-up demand for consumer and investment goods, by the considerable amount of war destruction and by the creation of the Common Market".[5]

Some economists regard the severe 1974/75 recession in industrial countries as the beginning of a downward phase of the long-term trend.[6] The first signs of a downward phase, however, already occurred between 1968 and 1971. During this period serious tensions developed within the economic system which resulted, *inter alia*, in significant structural changes in the world monetary system, which is regarded by some economists as fundamental in the interpretation of the

4. Van Duijn, J.J.: "The long wave in economic life", *De Economist*, No. 4/1977, pp. 548-549.

5. Witteveen, H.J.: "Economische politiek in de wereld na de tweede energiecrisis", *Bank- en Effectenbedrijf*, Oct. 1979, p. 564.

6. Volcker, Paul A.: "The rediscovery of the business cycle", *The Charles C. Moskowitz Memorial Lectures*, 1978, pp. 56-57; Van Duijn, *op. cit.*, 1977, p. 559; Dupriez, Leon H.: "De actuele betekenis van de lange golfbeweging", *Tijdschrift voor Economie en Management*, No. 1/1978 (a), pp. 200-201; and Dupriez, Leon H.: "1974: A downturn in the long wave?" *Banca Nazionale del Lavoro Quarterly Review*, Sept. 1978 (b), p. 29.

long-term trend. These changes involved the creation of a free gold market in 1968, the breakdown of the Bretton Woods gold-based monetary system and its replacement by an inconvertible dollar standard with flexible exchange rates.[7]

By 1974 unusual strains had developed in the pricing and production processes. Wages, for example, increased without comparable rises in productivity. In addition to general price movements, changes in relative prices, also in comparison with the United States of America, unsettled many sectors of the economies concerned. The oil crisis, including markedly increased oil prices, was furthermore an important factor in the change of the long-term trend. Certain writers are of the opinion, however, that in the industrial countries the effect of the oil crisis came at a time when their economies were close to, or already past, an upper turning point in the business cycle.[8] In this regard, Volcker is of the opinion that the upward trend in economic activity may be ended by the influence of an external event, such as the OPEC oil embargo of the United States in 1973 and the enormous increases in oil prices, on an economy which is already internally vulnerable.[9]

A change in the trend in economic activity is probably confirmed by the slight prospects of a *strong* recovery in the main industrial countries after the severe 1974/75 recession. These countries still suffer from saturated markets, excess capacity, low profit rates, high interest rates, an atmosphere of greater caution, sluggish investment and high levels of inflation.[10] These conditions are strengthened by the coincidence of the business cycle phases of these countries.

Indications of a significant shift of the trend in economic activity are also supported by the weighted index of industrial production of the seven major trading partners of South Africa. This change is shown in Graph 2. Moreover, the American Council of Economic Advisers indicated in their 1977 Report that a permanent drop in the productivity of capital and labour in the United States had probably occurred after 1973 owing to the higher cost of energy resources.[11] Results of Rasche and Tatom, based on an estimated production function in which the relative price of energy was explicitly accounted for, supported the opinion of the Council and they concluded in fact that "... the new energy regime imposed in 1974 permanently reduced potential output by about four per cent" and "... there is little prospect of an extended period of growth at rates higher than the rate of growth of potential output".[12]

7. Dupriez, *op. cit.*, 1978(a), p. 206; and Dupriez, *op. cit.*, 1978 (b) p. 26.
8. Dupriez, *op. cit.*, 1978(a), p. 203; Dupriez, *op. cit.*, 1978(b), p. 27; and Witteveen, *op. cit.*, p. 347.
9. Volcker, *op. cit.*, p. 54.
10. Van Duijn, *op. cit.*, 1977, p. 571; Dupriez, *op. cit.*, 1978 (a), p. 200; and Volcker, *op. cit.*, p. 55.
11. Rasche, Robert H. and John A. Tatom: "Energy resources and potential GNP", *Federal Reserve Bank of St. Louis Review*, June, 1977, p. 10.
12. *Ibid.*, p. 21.

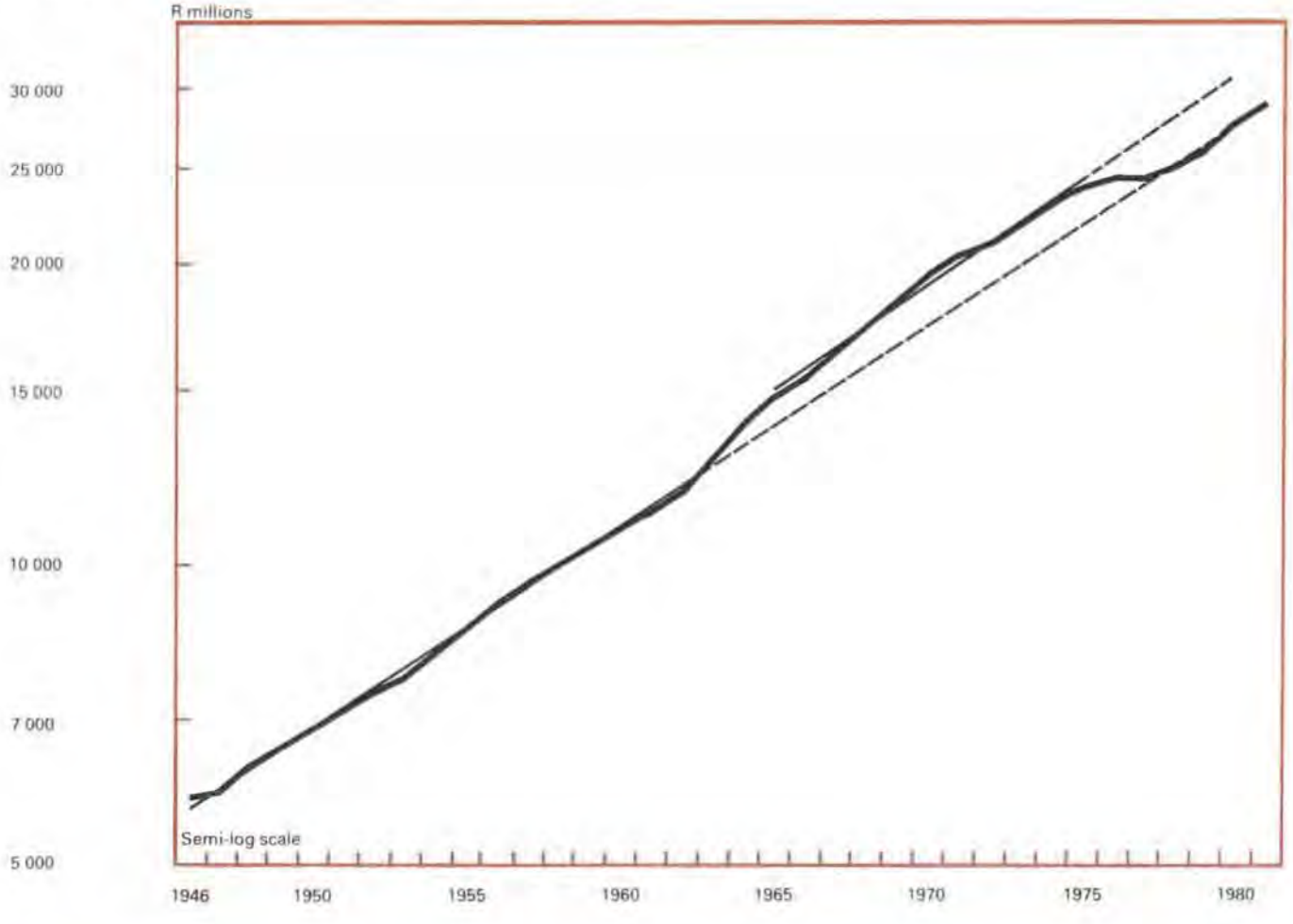
Graph 2 — Industrial production of seven trading-partner countries of South Africa

The growth trend in the South African economy

It is generally known that South Africa experienced a long period of significant economic growth after the Second World War. The real gross domestic product (excluding agriculture, forestry and fishing), for instance, increased at an average annual rate of 4,7 per cent from 1946 to 1981. Economic activity during this period can, however, be classified into phases with different rates of increase (see Graph 3). Thus, during the period 1946 to 1962 the South African economy grew at an average rate of 4,6 per cent per year. Subsequently, with an accelerated average rate in real economic growth of 7,7 per cent per year during 1963-1965, which partially represented cyclical change, activity shifted to a substantially higher level. This was followed by an average annual rate of growth of 4,8 per cent during 1966-1975. During 1976 and 1977, the rate of increase in the non-agricultural real gross domestic product slowed down considerably to only 0,6 per cent per year. After this period, economic activity increased, cyclically, approximately around the level of the extrapolated 1946-1962 trend line, i.e. the trend that would have been in evidence if the rate of growth of the 1946-1962 period had also prevailed during the years 1963 to 1981.

As confirmation of a significant change in the trend after 1975, it can be pointed out that, after a substantial upsurge in economic activity after 1977, the business cycle probably reached an upper turning point in August 1981, and although peaks lie almost always above trend lines, the values of important business cycle indicators were still appreciably below their extrapolated 1965-1975 trends in the third quarter of 1981. The non-agricultural real gross domestic product, for example, amounted to R29 255 million at a seasonally adjusted annual rate in the third quarter of 1981 in comparison with an extrapolated trend value of R32 436 million. Moreover, if the change in economic activity of the order experienced after 1975 is interpreted as a cyclical downswing only, it would probably imply that none of the identified cyclical downswings since 1961 were significant and that the period 1961 to 1975 should therefore be considered as only one upward phase of the

Graph 3 — Real gross domestic product excluding agriculture



business cycle. An upward phase with a duration of 14 years is longer than is acceptable in business cycle analyses. It is therefore clear that the trend in total economic activity did shift significantly downwards after 1975.

On account of statistical evidence and economic developments, it will be shown in the following section of this part of the article that the trend in economic activity changed in such a way that (see Graph 4, A):

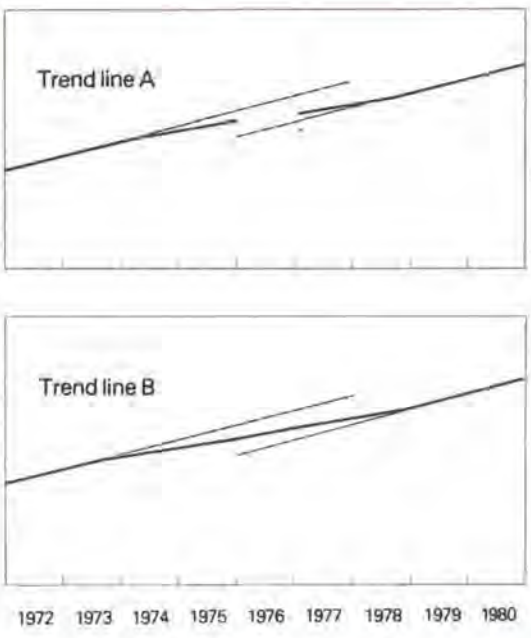
(a) The rate of increase was only slightly lower during 1974 and 1975 than during preceding years;

(b) As a result of both structural and cyclical factors the *rate of increase* declined drastically during 1976 and 1977; and

(c) The trend line is on a significantly lower *level* after 1977 than the extrapolated 1965-1975 constant-rate-of-increase line, and represents a rate of increase of the order of 4½ per cent per year.

An alternative hypothesis, which is in agreement with the usual mechanical fitting of the trend, is that the trend line shifted pronouncedly downwards during 1974-1975 and that it has been at a higher level in 1977 than that shown in Graph 4, A (see Graph 4, B).

Graph 4 - Hypothetical trend lines



The trend to the end of 1975

Some of the factors already referred to as explaining a possible change in the trend in economic activity in industrial countries, not only directly influenced the South African economy, but through their effect on economic conditions in trading-partner countries, also indirectly affected South Africa's economy. The apparent downward shift in the growth trend in the industrial countries, however, occurred much earlier than in South Africa because their business cycles normally lead those of South Africa and, unlike South Africa, because they were already in a cyclical downward phase or close to the upper turning point of their business cycles, when the external shock of the oil crisis exerted its influence. The weighted index of industrial production of the seven major trading partners of South Africa indicates that the trend in economic activity in these countries already shifted downwards from the middle of 1974 (see Graph 2). In contrast, the South African economy continued to grow at a relatively high rate up to the end of 1975, with at most a moderate decline in the rate of increase during 1974-1975, before it also experienced a significant downward change in its growth trend over a period of approximately two years (see Graph 1).

Apart from the usual business cycle lag, there were several compensating factors which substantially delayed the downward shift of the trend in South Africa during 1974 and 1975. The real gross domestic expenditure increased sharply up to the third quarter of 1974 before it began to decline cyclically, but it nevertheless remained at a high level during 1975, mainly owing to the high rate of increase in real government consumption expenditure (largely accounted for by the increase in defence spending), the stockpiling of strategic materials, the initial large outlay on television sets, and the continued high level of expenditure on large capital projects of public authorities and public corporations. The sharp increase in certain components of expenditure, therefore, assisted in keeping the rate of economic growth at a higher level than would otherwise have been the case.

On the other hand, the rise in some expenditure components, together with a deterioration of South Africa's terms of trade, contributed to substantial deficits on the current account of the balance of payments in both 1974 and 1975. A number of factors, however, prevented the balance of payments from becoming an immediate constraint on economic growth. Firstly, the value of merchandise exports was maintained at a high level and even increased during both 1974 and 1975. Secondly, the value of net gold output increased rapidly in 1974, after which it remained at a more or less constant level in 1975. The oil crisis made an important contribution to the continued sharp rise in the gold price, which, *inter alia* as a result of international inflation and monetary uncertainties, had already started in 1971. Thirdly, in order to strengthen the capital account of the balance of payments, the authorities followed a policy of encouraging foreign long-term borrowing and of attaining an inflow of foreign short-term capital. The success of this policy was reflected in a total net inflow of foreign capital amounting to R901 million and R1 926 million in 1974 and 1975, respectively, which more or less equalled the large deficits on current account. As a

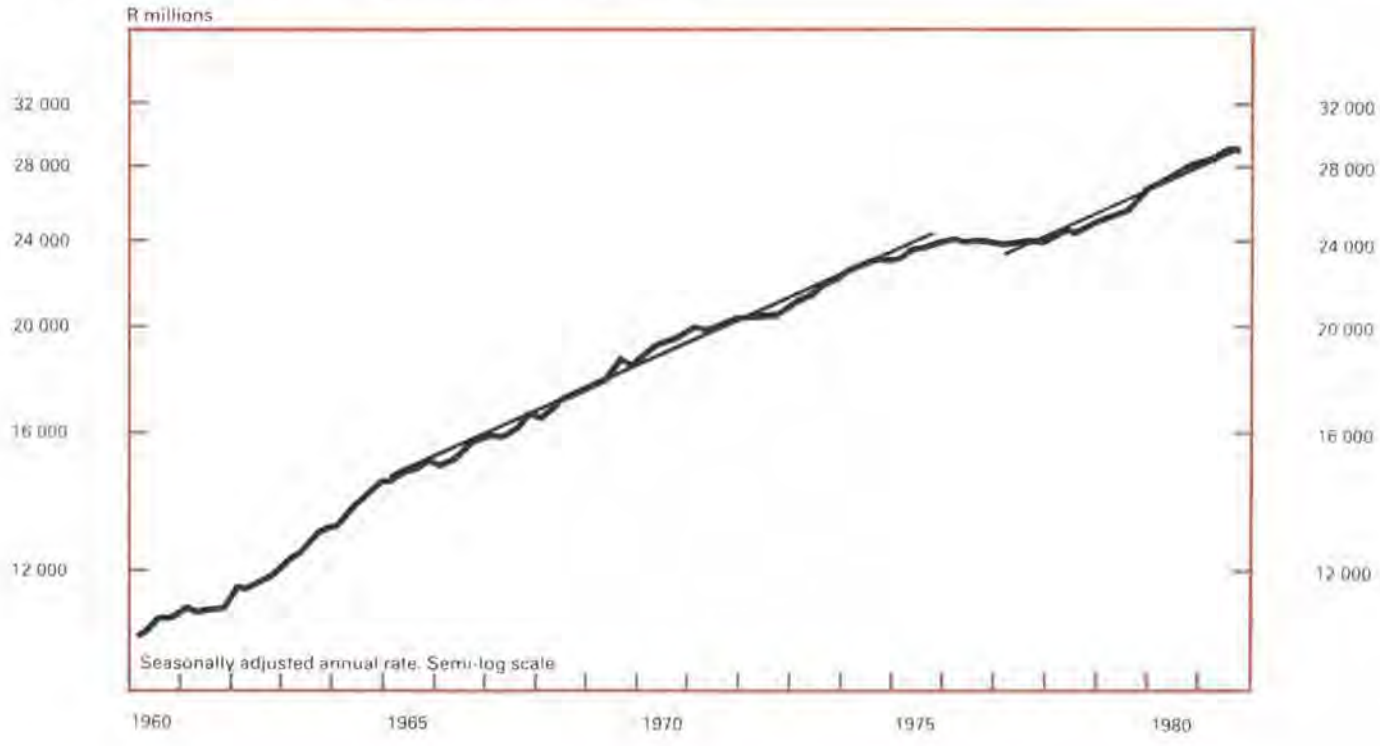
result, the total gold and other foreign reserves declined only slightly by R68 million in 1974 and in fact increased by R198 million in 1975.

The fact that the higher value of oil and other merchandise imports in 1974 and 1975 could be accommodated, was to a large extent related to South Africa's fortunate position of being relatively little dependent on oil. Moreover, there was no limitation on the volume of oil imports, which otherwise could have directly restricted domestic economic activity. The high cost of oil and its effect on the balance of payments, nevertheless, led to various measures to conserve fuel, but the direct influence of these was limited mainly to the transport sector. In South Africa, therefore, the oil crisis did not impose a direct physical constraint on economic activity, but it had a marked impact on the balance of payments and on inflation.

The conclusion that there was not a significant downward movement of the trend in total economic activity during 1974-1975 is confirmed by the behaviour of a number of important economic indicators. If a single, continuous trend line which changes gradually over the years 1974-1978 (see Graph 4, B) is mechanically fitted to certain important time series which showed significant changes in the trend during 1976-1977, a markedly downward shift of the trend in each of these series already occurred in 1975. Against these trends, the series would have recorded specific peaks towards the end of 1975. Such a result, namely that the change in the trend does not approximately coincide with the peak in a pronounced cyclical upturn, is unlikely and is also not acceptable in the light of the behaviour of certain other important business cycle indicators in which the cyclical component is much more dominant than the trend. Examples of such series are the utilisation of production capacity in manufacturing, the demand for manufactured products, the unemployment ratio for Whites, Coloureds and Asians, and the availability of skilled labour. These series support an upper turning point in the business cycle during 1974 and, in addition, indicate that, cyclically, economic activity declined moderately during 1975. This result confirms the hypothesis that there was not a significant downward shift in the trend during 1974-1975.

On the other hand, taking cognisance of certain adverse economic developments already referred to and also of the fact that South Africa undoubtedly enjoyed, cyclically, relatively favourable economic conditions particularly during 1974 but also in 1975, indications are that the trend in total economic activity indeed shifted downwards, although moderately, during these years. This follows from the behaviour of ecomomic indicators, such as real gross domestic product. Graph 5, for instance, shows that from the third quarter 1973 to the third quarter 1974, the observed values of the non-agricultural real gross domestic product, including the cyclical component, are very close to a trend line fitted on the assumption of a constant rate of increase, indicating that the actual trend is more likely to be at a lower level than that which is shown by the fitted trend line.

Graph 5— Real gross domestic product excluding agriculture



The trend during 1976-1977

Notwithstanding the adverse economic developments mentioned earlier, such as the sharp increase in oil prices and weak economic conditions in trading-partner countries, as well as an unfavourable political climate in Southern Africa at the time of the granting of independence to Mozambique and Angola, a fairly general feeling of optimism was prevalent until 1975. A continued favourable long-term outlook was in fact reflected in the annual growth potential of 5 per cent projected for the period from 1975 to 1981 by the Office of the Economic Adviser to the Prime Minister. Towards the end of 1975, however, the prevailing economic climate became conducive to a stronger cyclical decline in economic activity. The protracted and severe world recession, indications that South Africa had also entered a recessionary phase, and the Angolan war in the second half of 1975, changed consumer and business attitudes to a general feeling of pessimism, which resulted in a reluctance in consumer and investment expenditure. Subsequently, disturbances in Black townships in 1976 and political developments in South West Africa and Zimbabwe served to enhance this atmosphere of uncertainty.

As a result of the unfavourable external as well as internal developments, the increase in economic activity slowed down markedly during 1976 and 1977. This was reflected in an average annual increase in the non-agricultural real gross domestic product of only 0,6 per cent during this two-year period, which was substantially lower than the average annual rate of increase of 4,8 per cent during the 1966-1975 period. Certain sectors in the economy were detrimentally affected. In particular, the real gross domestic product of construction declined by 9,0 per cent, that of trade by 6,1 per cent and that of manufacturing by 0,9 per cent.

The trend after 1977

In view of the availability of time series for only four years after the 1976-1977 shift in trend and also because the period from 1978 was dominated by an upward phase of the business cycle, it follows that the trend lines of the series which indicate a downward shift in trend during 1976-1977, cannot be estimated with a high degree of certainty. For individual, important economic indicators the following procedure was followed:

(a) Choose the starting point for the trend line of the series so that the cyclical movements of the series lying above and below the trend line are in balance.

(b) Determine the level of the trend line in such a manner that the sum of the deviations of the observations from the line is equal to zero.

(c) Assume that the slope of the line is the same as that of the period before 1975, i.e. that the series increases at the same rate as during a preceding "normal" period.

(d) Decide on the "final" long-term rate of growth by adjusting the rate arrived at in (c) on the basis of structural developments in the economy. As was done for the 1974-1975 period, this trend line representing a constant rate of growth, can be adjusted for, say, 1977-1978 in order to arrive at a cyclical component which is acceptable in terms of the behaviour of related cycle-dominated series.

As an example, Graph 5 shows on a semi-logarithmic scale and at a seasonally adjusted annual rate the observed quarterly non-agricultural real gross domestic product against time, as well as a trend line for the period 1965-1975 according to the estimated formula

$$y = 1340{,}9\,(1{,}01215)^{t}$$

where y = real GDP

t = time

From this result it follows that real gross domestic product increased at an average annual rate of 4,9 per cent during the period under discussion. Assuming a long-term growth rate of 4,9 per cent also for the period starting in 1977, the accompanying graph shows the trend line reflecting this rate of increase.

In the preceding paragraphs, the fitting of trend lines to individual time series for purposes of determining specific turning points, was described. Regarding the expected growth rate of total economic activity over the medium term from 1978, indications are that activity moved slowly upwards from 1978 and that it gained strong momentum from about the middle of 1979. During the period from 1978 to 1981, which consisted of an upward phase of the business cycle only, non-agricultural real gross domestic product rose at an average annual rate of only 4,7 per cent. It would appear, therefore, that 4,7 per cent can be regarded as an upper limit of the growth rate for the first full cycle up to, say, 1983. Graph 5 confirms that the slope of a trend line representing an historic growth rate of 4,9 per cent in non-agricultural real gross domestic product, should significantly be reduced in order to provide an acceptable fit to the data. Taking into account projected growth rates for 1982-1983, it would appear that the average rate during the first full cycle will probably not exceed 4 per cent. Over the longer term, however, it is possible that economic activity may increase at a slightly higher rate of, say, 4½ per cent. This rate can be compared with historic rates of 4,6 per cent during the post-war period 1946 to 1962, and 4,8 per cent during the period 1966 to 1975. The growth rates of 1946-1962 and 1966-1975 were achieved during periods of accumulated demand after the Second World War, relative political stability, and major developments, *inter alia* in mining and industry.

It is generally accepted that South Africa has a relatively high growth potential. However, regarding the present and expected trend in economic activity, cer-

tain factors are not conducive to a high growth rate, such as limited capital, the shortage of skilled labour, the high cost of energy, a protracted high rate of inflation which *inter alia* harms international competitiveness, political uncertainties such as those related to South West Africa, and the continued poor long-term growth prospects of major trading partners.

There are, however, also a number of significant factors conducive to a relatively high long-term rate of growth. For example, De Kock in 1980 concluded that: "Although (South Africa) continues to be adversely affected by the high oil prices and the pernicious combination of world inflation and recession, the South African economy has on balance been strengthened by the enormous increase in the value of its gold output and other exports, and by the improvement in its terms of trade" and "Because of the economy's increased fundamental strength, the long-term secular trend of economic activity will probably be strongly upwards". The higher gold price and the increased export earnings strengthened government finances and in this manner enabled a redistribution of these benefits, especially after the 1980/81 Budget.[13]

The international energy crisis not only contributed to the rise in the gold price to a relatively high level, but also significantly strengthened the export volumes and prices of oil substitutes such as coal and uranium, whereas indirectly it provided protection to certain sectors of local industry which are not dependent on oil as a source of energy. The improved protection led to import substitution (e.g. oil) and placed South Africa in a stronger international competitive position. Furthermore, increased exports and import substitutions were made possible by the impressive development of the infrastructure in the nineteen-seventies.[14] The favourable outlook as regards South Africa's exports and its prospects for import substitution, should in general continue to reduce the importance of the balance of payments as a constraining influence on growth and should directly stimulate economic growth over the medium and longer term.

On account of the above-mentioned negative and positive factors influencing the growth in general economic activity, a medium term annual rate of the order of 4½ per cent appears to be realistic.

13. De Kock, Gerhard: "The new South African business cycle and its implications for monetary policy", *South African Journal of Economics*, Dec. 1980, pp. 350-351.

14. "South African import and export trends in the eighties", *Senbank Economic Opinion*, November 1980. Examples are: the harbours at Richards Bay and Saldanha Bay, the rapid expansion of Escom, the start of a second and third Sasol, the Sishen-Saldanha and Richards Bay railway lines, the containerisation programme of the South African Transport Services, and the various water schemes of the Department of Water Affairs.

Part II

Business cycle developments

Introduction

In previous studies[1] reference turning points of the business cycle in South Africa were determined for the period 1946 to 1972. In this study the cyclical developments during the period 1972 to 1981 are reviewed and the final reference turning points of the cycle are determined. The downward phase of the cycle from the peak at the end of 1970 is analysed again because the required information for 1972 was only partly available at the time of the previous study, whereas revised and comprehensive data are now available.

South Africa experienced various changes in the social, political and economic fields during the past decade. These developments had a significant impact on the economic system and, in particular, on the cyclical changes in the economy. Consequently, cognisance had to be taken of their influence on the data used for the cyclical analysis in this study. Thus, for example, the much higher rate of inflation and certain structural changes required a reappraisal of the economic indicators and techniques which had been used for cyclical analysis in the previous studies.

The most important changes in comparison with previous studies are:

(a) Structural changes in the economic system in recent years necessitated a comprehensive revision of and an increase in the number of indicators used in previous studies.

(b) During the period covered by this study comprehensive nominal aggregates, such as the gross domestic product or expenditure, showed a sustained positive growth. Only the rate of growth slowed down somewhat at times. On the other hand, the volume of production and sales and employment actually contracted during the recessions. This clearly emphasises the need to analyse economic data in *real* terms in a study of business cycle changes. All series relating to production and demand are, therefore, expressed in volume terms or deflated form to reflect real changes. However, it should be clear that, both in terms of business cycle theory and empirical findings, financial and price variables are affected by, or have an influence on,

1. Smit, D.J. and B.E. van der Walt: "Business cycles in South Africa during the post-war period, 1946 to 1968," *South African Reserve Bank Quarterly Bulletin*, September 1970; "Business cycles in South Africa during the period 1968 to 1972," *South African Reserve Bank Quarterly Bulletin*, June 1973.

cyclical developments in an economy and should, therefore, also be included in a model of cyclical changes.[2] Accordingly, several price or nominal aggregates were included in the diffusion index calculations in this study.

(c) The present study concerns itself not only with the cyclically upward and downward phases of the cycle, but also with an intermediate stage of change in various economic processes. This stage may be described as a *recovery, slower-growth or consolidation* phase in which the economic activity progresses at a growth rate which is approximately equal to the rate of longer-term growth of the economy. The major features of this phase are:

(1) the cyclical component of a series shows very little or no change for two or more successive quarters;

(2) this phase can occur at any stage of the cycle, but in this study it was observed to follow upon the strong cyclically upward phases in 1974 and 1980 and the long downward phase in 1977;

(3) the general increase or decrease in activity is not fully diffused in the economy;

(4) during this phase economic change is affected by either the rate at which the production factors is utilised in the economy or by the impact of exogenous factors on certain sections, or the whole, of the economy. This distinction is not only important from an analytical point of view, but also in terms of economic policy.[3] For example, at an advanced stage of the upswing certain constraints or imbalances may develop which are inflationary and prevent further growth of activity. In these circumstances, it would still be necessary to maintain a restrictive monetary and fiscal policy stance, even though, in terms of the two-phase definition of the cycle, the economy had entered the recession phase which would normally require a revision of policy. For the private sector this distinction of an intermediary phase can be useful because the entrepreneur would know that no dramatic change since the end of the preceding phase had taken place and that he could, therefore, plan or manage his affairs accordingly.

(d) In addition to the historical diffusion index, a current diffusion index was calculated in order to get additional information on the changes in economic activity. In the calculation of the historical diffusion index, the *direction of change* from specific turning points of the cyclical component of time series was determined, whereas in the case of the current diffusion index, the *rate of change* was also taken into consideration.

(e) In agreement with international practice,[4] a composite index of coincident business cycle indicators was employed not only to evaluate and identify reference turning point dates of the cycle, but also to show directly the growth of, and the amplitude of changes in, important economic aggregates.

(f) The cluster of turning points method, based on a large number of series, was not applied in this study because the cyclical developments during the past decade emphasised the need not only to analyse specific turning points in series, but mainly the changing growth phases. A general shortcoming of this method is that the distribution of turning points is too widely spread in the vicinity of a particular reference turning point so that the demarcation of a homogenous distribution to determine the median values cannot be determined. Other countries and international organisations have not used this method in recent years, but have developed and applied the economic indicator system, in particular composite indicators, in business cycle analyses.

Distinction between classical business cycles and growth cycles in economic activity

In order to eliminate some confusion about the definition of business cycles and the determination of turning points in these cycles, it is essential to distinguish clearly between classical business cycles and growth cycles, and to indicate which definition is used in South Africa. According to the definition of Burns and Mitchell "(Classical) Business cycles are a type of fluctuation found in the aggregate economic activity of nations that organize their work mainly in business enterprises: a cycle consists of expansions occurring at about the same time in many economic activities, followed by similarly general recessions, contractions (in absolute terms), and revivals which merge into the expansion phase of the next cycle; this sequence of changes is recurrent but not periodic; in duration, business cycles vary from more than one year to ten or twelve years".[5]

Mainly as a result of relative economic stability, high growth and increased rates of inflation in most industrialised countries during the late 1960's and early 1970's, most countries and international research organisations, such as the OECD and the Center for International Business Cycle Research in the United States of America, started analysing cyclical change in terms of the growth cycles.[6] Instead of absolute declines following upon increases in economic activity, com-

2. Boschan, C and V. Zarnowitz: "Cyclical Indicators", *55th Annual Report*, National Bureau of Economic Research, New York, 1975, p.29.
3. This idea was also supported by Geoffrey Moore, see Bronfenbrenner, M.: *Is the Business Cycle Obsolete?*, John Wiley, New York, 1969, p.42.
4. Organisation for Economic Cooperation and Development: *OECD Observer; Economic Outlook* and *Main Economic Indicators*; Moore, G.H. and P.A. Klein: "International Economic Indicators", *55th Annual Report*, National Bureau of Economic Research, New York, 1975.
5. Burns, A.F. and W.C. Mitchell: *Measuring Business Cycles*, National Bureau of Economic Research, New York, 1946.
6. Mintz, I.: *Dating post-war business cycles*, National Bureau of Economic Research, New York, 1969 and "Dating United States growth cycles", *Explorations in Economic Research*, Summer 1974; Moore, G.H. and P.A. Klein: "International Indicators", *op. cit.* It should, however, be noted that business cycles were already measured as short-term deviations from a long-term trend during 1910 to 1930 in the work of H.L. Moore, W.M. Persons, F.R. Macaulay and E. Frickey.

prehensive nominal and real indicators, such as gross national product, income or expenditure, from time to time only exhibited retardations in the growth rate.[7]

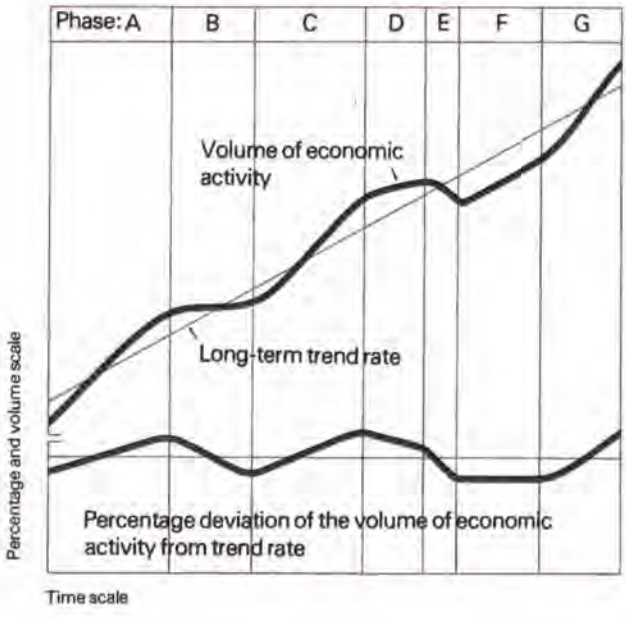
The growth cycle can therefore be defined (in terms of an amended classical definition) as a type of fluctuation found in the aggregate economic activity of market-orientated economies: a growth cycle consists of expansions as reflected in growth rates exceeding the long-term growth potential more or less simultaneously in many economic activities, followed by a slower-growth, consolidation or recession phase in terms of growth rates which are equal to or less than the long-term growth potential. The subsequent recovery of economic activity merges into the expansion phase of the next cycle; this sequence of changes is recurrent but not periodic; in duration, growth cycles vary from more than one year to approximately six years (in South Africa). The reference peak (trough) of the growth cycle will occur at a point of time when the growth rate of economic activity declines (increases) and remains below (above) the long-term growth rate for more than two quarters.

The identification of the different phases of the business cycle is illustrated in the following hypothetical example. In the top section of the diagram the volume of economic activity over time is shown together with its long-term trend values. The trend in this example is a straight or constant growth rate line, but in practice it is likely to vary over time. In the lower section of the diagram the deviation of the growth of the volume of activity from its trend values is shown. The gradient of this curve indicates the relative growth rates over time. The vertical lines divide the different phases and in the accompanying table the changing growth of economic activity is classified according to the business cycle chronology.

7. In terms of cyclical analyses, a decline of one per cent in real gross national product, following upon a rise of 4 per cent, against a long-term growth potential of 3 per cent is not much different from a situation in which an increase of 8 per cent against a long-term growth potential of 6 per cent is followed by a growth of 2 per cent. In the first example a classical absolute decline occurs during the downward phase, whereas in the latter example only lower growth is recorded.

Phase	Change in the volume of economic activity	Business cycle chronology
A	Growth exceeding long-term trend rate	Upward phase (High growth)
B	No growth	Recession
C	Growth exceeding long-term trend rate	Upward phase (High growth)
D	Growth slightly less than long-term trend rate	Slower-growth or consolidation phase
E	Absolute decline in growth	Recession
F	Growth slightly higher or equal to long-term trend rate	Upward or recovery phase
G	Growth exceeding long-term trend rate	Upward phase (High growth)

Schematic presentation of a business cycle chronology



For more than three decades growth cycles have been the basis of the analysis of the cyclical component of aggregate activity in the South African economy.[8] These cyclical movements with specified reference turning points have been referred to as *business cycles*. As this term has over years become generally accepted, and in order to avoid confusion, it is therefore suggested that the term "business cycle" should be used as referring to business cycles in the classical sense as well as to growth cycles.

Method used in the determination of the business cycle reference turning points

The reference turning points of the business cycle, or in technical terms the growth cycle, were determined by diffusion and composite business cycle indices. Both the historical and current diffusion indices were based on 325 seasonally adjusted time series, covering all final and intermediate economic processes in the different sectors of the economy as defined by the Standard Industrial Classification of All Economic Activities. Be-

8. The methods employed are described in Du Plessis, J.C.: *Economic Fluctuations in South Africa, 1910-1949*, Bureau for Economic Research, University of Stellenbosch, Stellenbosch, 1950, and Smit, D.J. and B.E. van der Walt: *op cit.*, 1970.

cause these series cover all the economic processes such as production in sectors and in different industries, the various components of demand and in particular those that are cyclically sensitive, income and employment, monetary aggregates, international trade, activities of the government and in the capital market, as well as other developments, the diffusion indices provide a comprehensive review of the cyclical developments of an economy. The diffusion indices are, therefore, used complementary to the composite indices which are based on a limited number of selected business cycle indicators. The appendix to this article contains a list of the series used in this study.

Composite index of coincident business cycle indicators

One of the techniques which has been developed in business cycle research and is currently being used in all developed countries as a method of analysing current economic conditions and prospects, is the business cycle indicators approach.[9] The recurrent sequences of cumultive expansions and contractions in various economic processes which are diffused and sufficiently synchronised are reflected in the cyclical growth of comprehensive measures of economic activity such as real output, real demand and employment, as well as other economic variables which tend to lead, coincide with, or lag behind the movement in aggregate economic activity. Economic time series that show similar timing at business cycle turns, but also comply with certain criteria,[10] such as economic significance, statistical adequacy, consistency of timing at business cycle peaks and troughs, conformity with cyclical expansions and contractions, smoothness and availability, are combined in a composite index.

Individual comprehensive variables are affected differently in each business cycle, because each cycle is largely unique, although experience has shown that these variables also have a number of similar characteristics. The main advantage in combining selected indicators into a composite index is that they are likely to give more reliable and fewer false signals of cyclical change than the individual components. More consistent timing of such changes will, therefore, be attained.

There are six basic steps in the calculation of the composite index:[11]

(a) For each series, adjusted for seasonal and irregular influences, symmetrical percentage changes or differences for consecutive monthly time-spans are computed.[12]

(b) These changes are standardised in order to prevent the more volatile series from dominating the indices.

(c) The standardised changes are weighted according to predetermined weights for each series.

(d) The average changes of the weighted series are also standardised.

(e) The weighted changes are cumulated and transformed to an index with a specified base year.

(f) The trend in the index is made equal to the average long-term secular movement in aggregate economic activity. The specific turning points in the index are determined after the trend in the index has been eliminated.

A composite index of coincident business cycle indicators for South Africa was developed in co-operation with the Center for International Business Cycle Research in the United States of America. This indicator includes those variables of economic activity which show recurrent cyclical movements and whose peaks and troughs roughly coincide with the reference turning points of the business cycle. The important economic indicators used are real gross domestic product, manufacturing output, non-agricultural employment, number of registered unemployed Whites, Coloureds and Asians, wholesale, retail and motor trade at constant prices and the volume of merchandise imports. In the computation of the index, the standardised changes of each component is allocated an equal weight and the trend in the composite index is adjusted to the long-term growth rate of real gross domestic product.[13] The specific turning points of the growth cycle in the composite index point to the period (time span) during which the reference turning points of the business cycle occurred.

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9. This method was developed and various studies have been published since 1938 by the National Bureau of Economic Research in the United States of America.

10. Moore, G.H. and J. Shiskin: *Indicators of Business Expansions and Contractions*, National Bureau of Economic Research, New York, 1967.

11. Zarnowitz, V. and C. Boschan: "Cyclical Indicators: An Evaluation and New Leading Indexes", *Business Conditions Digest*, May 1975; and "New Composite Indexes of Coincident and Lagging Indicators", *Business Conditions Digest*, November 1975, Bureau of Economic Analysis, US Department of Commerce, Washington, D.C.

12. To ensure symmetrical treatment of positive and negative changes, the percentage changes are computed using the formula, 200 (B−A)/(B+A), where A is the value for the first month and B is the value for the second month. The conventional formula for calculating the percentage change over a given time interval is 100 (B-A)/A, where A is the value for the first period (e.g. month) and B the value for the last period in the interval. In the modified formula, the sum of A and B is used as the denominator in order to keep positive and negative percentage changes symmetrical. Consider, for example, a series in which the consecutive values are 4, 8, 4, 8, 4, 8 and 4. Although there is no upward trend in such a series, the conventional percentage change formula will yield an average change of +25 per cent (since three increases of 100 per cent, and three decreases of 50 per cent would be averaged). The modified formula, however, will yield an average change of zero since an equal number of increases and decreases of 66-2/3 per cent would be averaged. (Adapted from *Signals of Recession and Recovery*, by Julius Shiskin, National Bureau of Economic Research, New York, 1961.)

13. With the exception of personal disposable income, these series are the same as those used for the growth cycle analyses for the industrialised countries. See Moore, G.H. and P.A. Klein: "Monitoring Business Cycles at Home and Abroad", in Fellner, F., ed., *Contemporary Economic Problems*, American Enterprise Institute for Public Policy Research, Washington, D.C., 1978.

Historical and current diffusion indices

A diffusion index may be defined as a measure of dispersion of the increases in a number of time series as at a particular date. In general, two types of diffusion indices are used, namely the historic and the current. In the case of the historic index, the turning points and the period during which the cyclical component remains unchanged are determined for each series. The value of the index for a particular period is obtained by expressing the number of time series which increase, as a percentage of the total number of series considered. In the case of each series which remains unchanged, ½ is added to the number of series which increase.

The current diffusion index is calculated without determining specific turning points. It is based on the actual change of individual time series from which the trend and seasonal components have been eliminated.

The comprehensive historical and current diffusion indices were calculated by weighing the sectoral diffusion indices according to their respective contributions to the total real value added to gross domestic product. In order to accommodate the structural changes or changes in the relative contributions of these sectors over time, the weights applied were the average of the relative contributions of these sectors to total real output for successive seven year periods, based on 1970 prices for the period 1960 to 1973 and on 1975 prices for the period 1974 to 1980. A number of series which reflect general economic activity, could not be classified in sectors and were accordingly included in a sundry section. The weight of this section was determined as the number of series in relation to the total number of series used in the study.

In addition to the direction of change approach of the historical diffusion index, an accumulated current diffusion index, which is derived from actual changes in individual series, was calculated. To prevent the more volatile component series from dominating the total index, the percentage changes for each series are standardised to make the average of their values equal to one. This is accomplished by dividing each monthly change by the average for the period concerned. The index is a summary of the standardised changes over three-month time spans in individual series, weighted according to the relative contributions of the different sectors to total real output. As an approximation of the growth cycle, the deviation of the index from its trend was calculated.

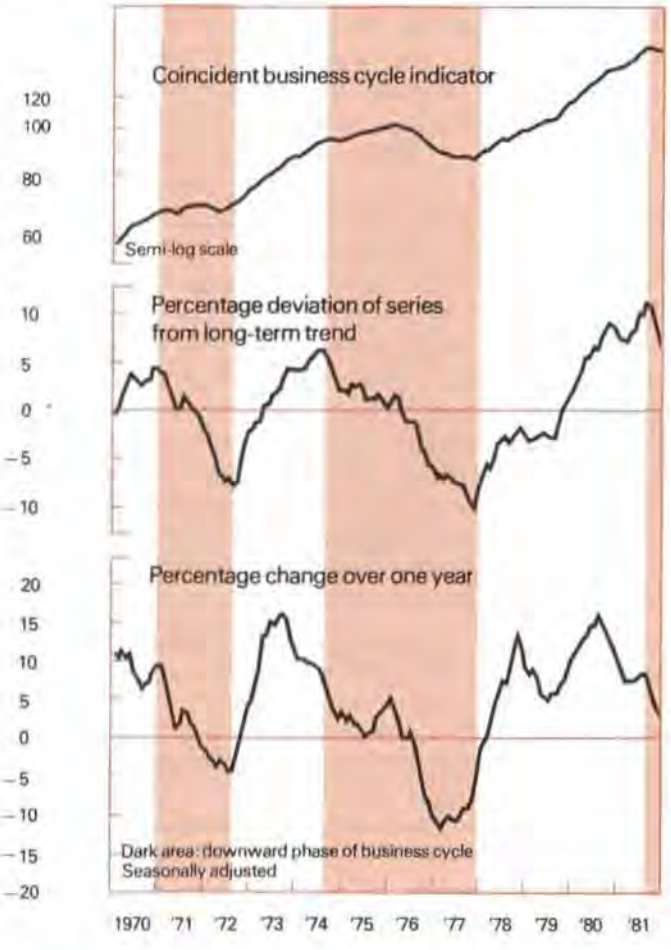
Statistical results

The results of the methods employed in this study clearly show that the growth of economic activity moved in cycles during the period 1972 to 1981. This tendency is visualised in the accompanying graphs which show a) the actual index values, the cyclical component as reflected by the deviation of the index from its long-term trend, and the changing growth rates as the percentage change over one year for the composite index of coincident business cycle indicators and the accumulated current diffusion index; b) the actual value of the historical diffusion index. In order to facilitate the interpretation of the reference turning points and phases of the business cycle, the shaded areas in the graphs correspond to the downward phases.

The composite index of coincident business cycle indicators

The cyclical component of the index reached a lower turning point in August 1972. In the subsequent months a clear upward trend was shown until a peak was reached in August 1974. After having declined for six months, the index showed a moderate recovery during 1975, but declined sharply in 1976 and recorded a lower turning point in November 1977. The cyclical component of the composite index shows that the initial recovery was relatively weak, but increased strongly from the second half of 1979 to 1980. The slower growth of the index from November 1980 to March 1981 was again

Composite index of coincident business cycle indicators



followed by a sharp rise in the second and third quarters to reach a peak in August. The cyclical component of the index declined during the four months ended December 1981.

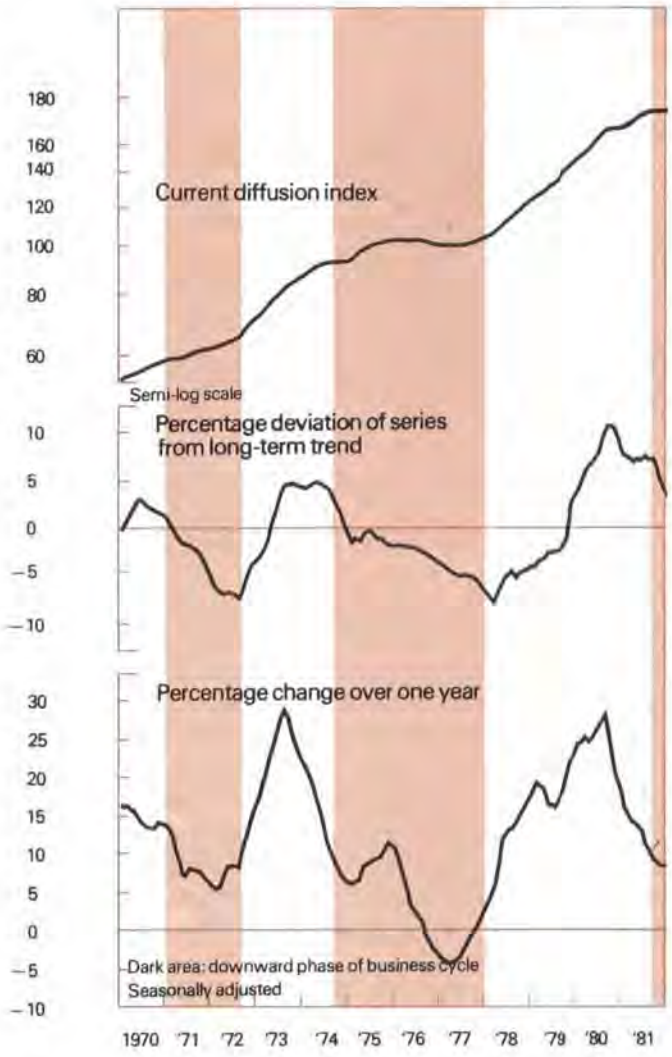
The current diffusion index

After reaching a lower turning point in August 1972, the cyclical component of the accumulated current diffusion index increased from the second half of 1972 to a peak in April 1974. The index shows that the slower growth in 1975 was followed by a more pronounced reduction in the current rates of change in economic activity during 1976 and 1977. As shown on the accompanying graph, the slight improvement in activity from the trough in February of 1978 continued through 1978, and the first half of 1979 but only accelerated from the third quarter of 1979 and in 1980. According to this index the high growth phase ended in September 1980 and the current rate of change in economic activity increased at lower rates in the subsequent five quarters. After recording a decline in the fourth quarter of 1980, the cyclical component of the index levelled off during the eight months ended August 1981. In the subsequent four months the percentage deviation of the index from its trend declined sharply and August 1981 was, therefore, indicative of a peak in the business cycle.

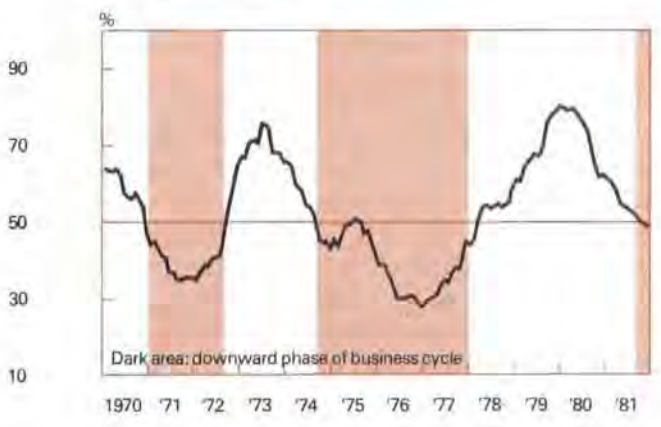
The historical diffusion index

The weighted historical diffusion index shows a clear cyclical movement with peaks and troughs in economic activity which lead the reference turning points of the business cycle. The turning points of the business cycle are determinated at those dates when the diffusion index reaches the 50 per cent level. According to this indicator, the first lower turning point or trough of the business cycle during the period under review was reached in August 1972. In the following period a clear expansion of economic activity occured and the upward phase ended in August 1974. The diffusion index shows a moderate recovery in a few sectors during 1975. As the amplitude of the change in the index was relatively small and it only marginally exceeded the 50 per cent level in 1975, the slight recovery was not considered to be the beginning of an independent cycle. In the subsequent period the index shows that the cyclical downswing was diffused in the economy and a lower turning point or trough of the business cycle was reached in March 1978. The moderate recovery in 1978 was followed by a sharp rise in the index until the first quarter of 1980. During the first half of 1980 about 80 per cent of all series were growing at rates exceeding their long-term growth. However, the index shows that the growth of economic activity slowed down as from the third quarter, but does not reach the 50 per cent level before September 1981.

Accumulated current diffusion index



Historical diffusion index



Economic developments and final reference turning point dates of the business cycle

Downward phase: January 1971 to August 1972

The movement of important and cyclically sensitive indicators suggests that the moderate slow-down of economic activity in 1971 was followed by a more pronounced cyclical decline in 1972. The growth rate of real gross domestic product decelerated and real gross domestic expenditure declined until the third quarter of 1972. Economic indicators relating to manufacturing, such as the volume of orders, output and utilisation of production capacity, as well as indicators reflecting domestic demand such as the volume of sales and imports recorded lower turning points in the second half of 1972.

The diffusion indices as well as the composite index of business cycle indicators indicate a lower turning point in August 1972. Various individual business cycle indicators recorded lower turning points from the second to the fourth quarters of 1972. August 1972 was, therefore, accepted as reference trough date of the business cycle.

Upward phase: September 1972 to August 1974

International economic and political developments had a significant influence on the South African business cycle during this phase. Initially, economic recovery was affected adversely by the instability of the international payments system, the recession in industrial countries, the oil crisis, and sharp increases in interest and inflation rates. These factors not only affected the balance of payments, but indirectly also domestic economic activity in general. However, as economic growth accelerated in industrial countries, the demand for and prices of South African commodities traded in international markets increased sharply. These favourable developments, including a sharp rise in the price of gold, were important stimulating factors during the second half of 1972.

The economic upswing gained considerable momentum during 1973, but both diffusion indices and the composite index of coincident business cycle indicators clearly show that the rate of growth of economic activity slowed down from the end of 1973. This tendency is confirmed by various economic indicators such as the volume of manufacturing and mining production, wholesale, retail and motor trade and series pertaining to building and construction activity. According to the historical diffusion index and the composite index of coincident business cycle indicators a peak was reached in August 1974. However, the cyclical component of the current diffusion index recorded a peak in April 1974. The behavior of economic indicators clearly show that economic activity continued to rise at a high rate throughout the first half of 1974 and, therefore, the peak in August 1974, as indicated by the historical diffusion index and the composite coincident index, was accepted as the final reference upper turning point of the business cycle.

The downward phase: September 1974 to December 1977

Apart from cyclical factors, the course of economic activity during this phase was influenced significantly by a number of structural and external developments. Initially, the rate of economic growth declined to a level equal to or slightly less than that of the longer-term trend, but in 1976 and 1977 it fell to well below the long-term growth trend. By the end of 1977 the downward phase of the business cycle had last 40 months, as against an average of 14 months during the post-war period. The most important reason for this exceptionally long downward phase of the business cycle was the adverse effect on the balance of payments of the combined cyclical and structural changes referred to earlier. The need to restore balance of payments equilibrium required a lowering of aggregate monetary demand and precluded an early general stimulation of the economy.

The three statistical methods used in this study to determine the reference turning points of the business cycle indicate that the downward phase from the peak in 1974 can be divided into an initial slower-growth phase from September 1974 to approximately the end of 1975 and a distinct recessionary phase in the ensuing period up to the end of 1977. The diffusion indices show that, after an initial slow-down, a moderate recovery occurred in 1975. However, since the amplitude of the change in the historical diffusion index was relatively small and only marginally exceeded the 50 per cent level in 1975, the recovery was not considered to be the beginning of an independent cycle. The cyclical component of the current diffusion index shows that a peak in 1974 and a period of slower growth in 1975 were followed by a more pronounced decline in economic activity during 1976 and 1977. The index reached a lower turning point in February 1978. The composite index of coincident business cycle indicators also reflects the moderation in growth during 1975 and the sharp cyclical downward movement from 1976. According to this indicator, a lower turning point of the business cycle was reached in November 1977. Important individual indicators, such as real gross domestic product, manufacturing output, employment and unemployment also recorded specific turning points in the fourth quarter. These results suggest that the recession ended at the end of 1977 or in early 1978. On the basis of available information December 1977 was selected as the final reference date of the cyclical trough.

Upward phase: January 1978 to August 1981

Following upon a relatively severe and prolonged recession, as well as structural changes in the economy, there was only a slight initial recovery during 1978 and the first half of 1979, but the economic upswing gained

significant momentum as from the middle of 1979. An analysis of changes in real and financial variables show that the cyclical expansion during 1978 to 1981 can be divided in three phases, namely:

(a) A recovery phase during 1978 and the first half of 1979, when the rate of economic growth was only approximately equal to, or slightly in excess of the longer-term growth potential of the economy.

(b) A high-growth phase during the subsequent period to about the third quarter of 1980, when the rate of increase in real economic activity accelerated appreciably.

(c) A lower-growth phase from the fourth quarter of 1980 until the third quarter of 1981, during which the rate of economic growth was approximately equal to the long-term growth rate.

Available information suggests that the cyclical upswing terminated in the third quarter of 1981. The composite index of business cycle indicators as well as the current diffusion index reached peaks in August 1981 and declined during the subsequent four months, whereas preliminary results of the historical diffusion index point to September 1981 as the upper turning point of the business cycle. Sensitive individual business cycle indicators showed a change of direction during the third quarter. For example, the seasonally adjusted volume of manufacturing production reached a peak in July and declined subsequently, while the seasonally adjusted number of registered unemployed Whites, Coloureds and Asians recorded a lower turning point in August and rose during the ensuing period. Selected leading economic indicators, in particular those that are related to prospective expenditure, output and financial developments, confirmed the cyclical downturn. Based on the observed changes, August 1981 was taken as the preliminary reference turning point date. The duration of the upward phase of the business cycle roughly equalled that of the longest cyclical expansion during the post-war period, namely the upswing from 1961 to 1965.

Final reference turning point dates of the business cycle

The turning point dates of the business cycle during the postwar period are given in the accompanying table.

Upward phase	Downward phase
Postwar - July 1946	August 1946 - April 1947
May 1947 - November 1948	December 1948 - February 1950
March 1950 - December 1951	January 1952 - March 1953
April 1953 - April 1955	May 1955 - September 1956
October 1956 - January 1958	February 1958 - March 1959
April 1959 - April 1960	May 1960 - August 1961
September 1961 - April 1965	May 1965 - December 1965
January 1966 - May 1967	June 1967 - December 1967
January 1968 - December 1970	January 1971 - August 1972
September 1972 - August 1974	September 1974 - December 1977
January 1978 - August 1981	

Appendix

Series used for business cycle analysis

Agriculture, forestry, hunting and fishing

Cash credit advances of the Land Bank
Cash income and farm consumption:
- Field crops
- Horticulture
- Livestock
- Total

Exports:
- Raw materials
- Semi-manufactured goods
- Total

Fixed investment:
- Construction works
- Transport equipment
- Other equipment

Gross domestic product:
- Gross operating surplus
- Other

Intermediary goods and services
Prices of farming requisites
Producers' prices of farm products

Mining and quarrying

Average salary and wage per worker
Corporate saving:
- Gold mining
- Other mining
- Total

Exports:
- Raw materials
- Semi-manufactured goods
- Total

Fixed investment:
- Buildings and constructions:
  - Construction
  - Non-residential buildings
  - Residential buildings
- Machinery and equipment:
  - Transport equipment
  - Other equipment

Employment:
- Gold mining
- Other mining
- Total

Sales:
- Gold mining
- Other mining

Gross domestic product:
- Gold mining
- Other mining
- Gross operating surplus

Physical volume of production
- Gold mining:
  - Kilograms fine gold
  - Ore milled
- Other mining:
  - Asbestos
  - Building materials
  - Coal
  - Copper
  - Diamonds
  - Iron ore
  - Manganese ore
  - Other metallic minerals
  - Other non-metallic minerals
- Total

Price of gold
Prices of ordinary shares:
- Coal mining shares
- Gold mining shares
- Other metal and mineral shares

Manufacturing

Average salary and wage per worker
Consumption of rolled and drawn steel products (ton):
- Flat steel
- Profile steel
- Total

Corporate profits after tax
Corporate saving:
- Private sector
- Public corporations
- Total

Employment
Fixed investment:
- Private sector:
  - Buildings and constructions:
    - Construction
    - Non-residential buildings
    - Residential buildings
  - Machinery and equipment:
    - Transport equipment
    - Other equipment
- Public corporations:
  - Buildings and constructions:
    - Constructions
    - Non-residential buildings
    - Residential buildings
  - Machinery and equipment:
    - Transport equipment
    - Other equipment

Gross domestic product:
- Gross operating surplus:
  - Private sector
  - Public sector
  - Total
- Other

Hours worked:
- Overtime as percentage of ordinary hours, production workers
- Total

Investment in inventories:
- Private sector
- Other

Labour cost per unit of production
Labour turnover per 100 production workers — number of engagements
New orders received, selected groups:
- Durable goods
- Non-durable goods
- Total

Physical volume of production:
- Basic metals and metal products
- Chemicals and chemical products
- Food
- Furniture
- Machinery
- Non-metallic mineral products
- Packaging materials
- Textiles, clothing and footwear
- Transport equipment
- Wood
- Other
- Durable goods
- Non-durable goods
- Total

Prices of ordinary shares
Production prices of goods for domestic consumption
Productivity (volume of production per hour worked)
Ratio of inventories to sales
Sales, selected groups:
- Durable goods
- Non-durable goods
- Total

Shipments of rolled and drawn steel products (ton):
- Domestic market
- Exports
- Total

Unfilled orders, selected groups:
- Durable goods
- Non-durable goods
- Total

Unfilled orders as percentage of sales, selected groups:
- Durable goods
- Non-durable goods
- Total

Utilisation of production capacity:
- Durable goods
- Non-durable goods
- Total

Electricity, gas and water

Corporate saving
Electric current consumed
Electric current generated
Employment
Fixed investment:
- Public authorities
- Public corporations

Gross domestic product:
- Gross operating surplus
- Other

Wholesale tariff - electricity, gas and water

Construction

Average salary and wage per worker
Buildings completed:
- Non-residential buildings
- Residential buildings
- Total

Building plans passed:
- Non-residential buildings
- Residential buildings
- Total

Employment — private construction
Fixed investment in buildings and constructions
Gross domestic product:
- Gross operating surplus
- Other

Hours worked:
- Overtime as percentage of ordinary hours, production workers
- Total

Investment in inventories
Labour turnover per 100 production workers — number of engagements
Physical volume of production:
- Building bricks and tiles
- Cement

Private sector:
- Non-residential buildings
- Residential buildings
- Total

Tender value of construction contracts:
- Work in progress:
  - Other constructions
  - Residential buildings
- Work not yet commenced:
  - Other constructions
  - Residential buildings

Wholesale prices of building and construction materials
Wholesale sales of building and construction materials

Wholesale and retail trade, catering and accommodation

Average salary and wage per worker:
- Motor trade
- Wholesale and retail trade

Corporate saving:
- Motor trade
- Retail trade
- Wholesale trade

Corporate profits after tax
Employment:
- Hotels
- Motor trade
- Wholesale and retail trade

Fixed investment:
- Private sector
- Public authorities
- Public corporations

Gross domestic product:
- Gross operating surplus
  - Motor trade
  - Retail trade
  - Wholesale trade
  - Total
- Other

Investment in inventories:
- Motor trade
- Retail trade
- Wholesale trade

Judgements for debt — number of civil
Motor vehicles sold:
- Number of new commercial vehicles
- Number of new motor vehicles
- Total number of new vehicles
- Number of used vehicles

Prices of ordinary shares
Retail sales:
- Bottlestores
- Chemists
- Clothing and footwear
- Food
- Furniture and household requisites
- General dealers
- General department stores
- Total

Summonces for debt — number of civil
Wholesale prices of goods for household consumption
Wholesale sales:
- Building materials
- Furniture and household requisites
- Metals, machinery and equipment
- Total

Transport, storage and communication

Air freight — inland traffic (ton km)
Average salary and wage per worker:
- Post Office
- Private road transport
- South African Transport Services

Employment:
- Post Office
- Private road transport
- South African Transport Services

Fixed investment:
- Private sector
- Public corporations
- South African Transport Services
- Other authorities

Gross domestic product:
- Gross operating surplus:
  - Post Office
  - Private transport
  - South African Transport Services

Passenger kilometre — inland air traffic
Railway earnings — transport services
Revenue — earning traffic, South African Transport Services:
- Ton kilometre
- Tons

Shipping — coastwise cargo handled
Transport, including freight and insurance:
- Payments to foreign countries
- Receipts from foreign countries

Finance, insurance, real estate and business services

Average salary and wage per worker:
- Banks
- Building societies
- Insurers

Bank debits
Building societies:
- Cash deposits and investments (excluding mortgage advances)
- Fixed deposits
- Investments in prescribed assets
- Mortgage advances granted but not yet paid out
- New mortgage advances granted during the month
- New mortgage advances granted for buildings
- Savings deposits
- Share capital

Commercial banks:
- Cash and call money loans
- Discounts and advances
- Surplus liquid assets
- Total deposit liabilities

Corporate saving:
- Banks
- Business services
- Other financial institutions
- Total

Employment:
- Banks
- Building societies
- Insurers

Fixed investment:
- Private sector
- Public authorities
- Public corporations

Gross domestic product
Monetary banking sector:
- Long-term deposit liabilities
- Money
- Money and near-money
- Net claims on the government sector
- Net gold and other foreign reserves
- Claims on the private sector

NFC:
- Call money rates
- Total deposit liabilities

NFC and discount houses — total deposits and call money loans
Prices of ordinary financial shares
Real estate:
- Transfer value of rural property
- Value of transactions on which transfer duties are paid

Treasury bill tender rate
Yield on shares:
- Commercial shares
- Industrial shares

Community, social and personal services

Average salary and wage per worker:
- Central government
- Local authorities
- Provincial administrations

Companies registered — number of new
Consumption expenditure on services
Current expenditure by general government:
- Salaries and wages
- Other

Employment:
- Central government
- Local authorities
- Provincial administrations

Exchequer issues
Exchequer receipts, excluding borrowing

Fixed investment:
- Central government
- Local authorities
- Private sector
- Provincial administrations
- Public corporations

Gross domestic product:
- Business enterprises
- General government

Mortgage bonds registered, number of (excluding Land Bank)

Sundry series

Average salary and wage per worker in the non-agricultural sectors:
- Non-whites
- Whites
- Total

Balance of payments:
- Exports:
  - Capital goods
  - Consumer goods
  - Intermediate goods
  - Total, excluding gold
- Imports:
  - Capital goods
  - Consumer goods
  - Intermediate goods
  - Total
- Tourism — payments to foreign countries

Companies registered — number of new
Consumer prices
Corporate profit after tax
Corporate saving
Employment in the non-agricultural sectors:
- Private sector
- Public sector

Fixed investment:
- Buildings and constructions:
  - Non-residential
  - Residential
  - Other
- Machinery and equipment:
  - Transport
  - Other

Gross domestic product:
- Gross operating surplus
- Other
- Total

Gross domestic saving
Insolvencies of private individuals and partnerships — number of
Investment in inventories:
- Industrial and commercial

Liquidation of companies — number of
Migration — number of immigrants
Prices of ordinary shares:
- All classes
- Industrial and commercial

Private consumption expenditure:
- Durable goods
- Non-durable goods
- Services

Ratio of inventories to sales — total
Stock exchange turnover
Unemployment:
- Number of registered Whites, Coloureds and Asians
- Number of registered White men
- Number of Blacks (Current Population Survey)