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A note on the business cycle in South Africa during the period to 1997 to 1999

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Introduction

The South African Reserve Bank has determined reference turning points in the South African business cycle for the period 1946 to 1996. These reference turning points are discussed in various articles published in earlier issues of the South African Reserve Bank's *Quarterly Bulletin.* The most recently identified upper reference turning point in the business cycle occurred in November 1996.[2]

1 The authors wish to thank Mr P J Weideman and Ms S Claassen for valuable contributions during the preparation of this note.

2 Pretorius, W S, Venter, J C and Weideman, P J. 1999. Business cycles in South Africa during the period 1993 to 1997. *Quarterly Bulletin.* Pretoria: South African Reserve Bank, March.

This article discusses the determination and identification of a lower reference turning point following the peak of November 1996. The methods used to determine the reference turning point are described in the next section, then the statistical results yielded by these methods are presented. A brief overview of economic events and developments between 1997 and 1999 follows. Finally, the date of the lower reference turning point is indicated.

Methods used in determining the reference turning point of the business cycle

The lower reference turning point in the business cycle was determined by using several methods. These included the calculation of composite leading and coincident business cycle indicators, the comprehensive historical diffusion index and the current diffusion index. It is important to note, however, that the identification of a reference turning point is never a purely statistical exercise. Economic events and developments occurring near a possible turning point have to be considered in order to pinpoint the turning point to a particular month, especially when the statistical methods employed do not all point to exactly the same turning point date.

The composite business cycle indicators

A composite business cycle indicator is compiled by integrating various economic indicators into a single indicator time series.[3] These composite indicators portray the movement of and turning points in the business cycle. The *composite leading business cycle indicator* comprises individual indicators which tend to shift direction ahead of changes in the business cycle. A change in the direction of the composite leading business cycle indicator is usually an early indication that a turning point in the business cycle may be imminent. The *composite coincident business cycle indicator* combines a number of economic time series which usually move in harmony with the business cycle. A change in the direction of the composite coincident business cycle indicator – generally occurring after the composite leading business cycle indicator has changed direction – indicates that a turning point might have been reached.

3 Van der Walt, B E and Pretorius, W S. 1994. Notes on revision of the composite business cycle indicators. *Quarterly Bulletin.* Pretoria: South African Reserve Bank, September.

The historical diffusion index

The *historical diffusion index* may be defined as a measure of the dispersion of the changes in a number of economic time series in a specific period, mostly a calendar month. The historical diffusion index was constructed from a total of 230 seasonally adjusted economic time series. These time series cover economic processes such as production, sales, employment and income in different sectors of the economy. The specific turning points of the cyclical component of each of the series are determined. A set of specific peak and trough dates is obtained in this way for each time series.

A series is regarded as decreasing for each period subsequent to a peak, up to and including the following trough. Conversely, a series is regarded as increasing for each period subsequent to a trough, up to and including the following peak. The historical diffusion index value for a particular month is then obtained by expressing the number of increasing time series as a percentage of the total number of time series considered. The sectoral contributions are weighed according to each relevant sector's contribution to gross value added. An index value below 50 therefore indicates that more than half of the series considered are decreasing at a particular date, implying that the economy is in a downward phase of the business cycle. Conversely, an index value exceeding 50 indicates that more than half of the series considered are increasing at a particular date, implying that the economy is in an upward phase of the business cycle.

The current diffusion index

The *current diffusion index* is a comprehensive composite index compiled from the actual month-to-month symmetrical percentage changes in each of the 230 seasonally adjusted time series used in constructing the historical diffusion index. A weight is allocated to each series according to the contribution to gross value added of the activity that the time series reflects. The deviation of the current diffusion index from its long-term trend is a quantitative indication of the cyclical movement in general economic activity.

Statistical results

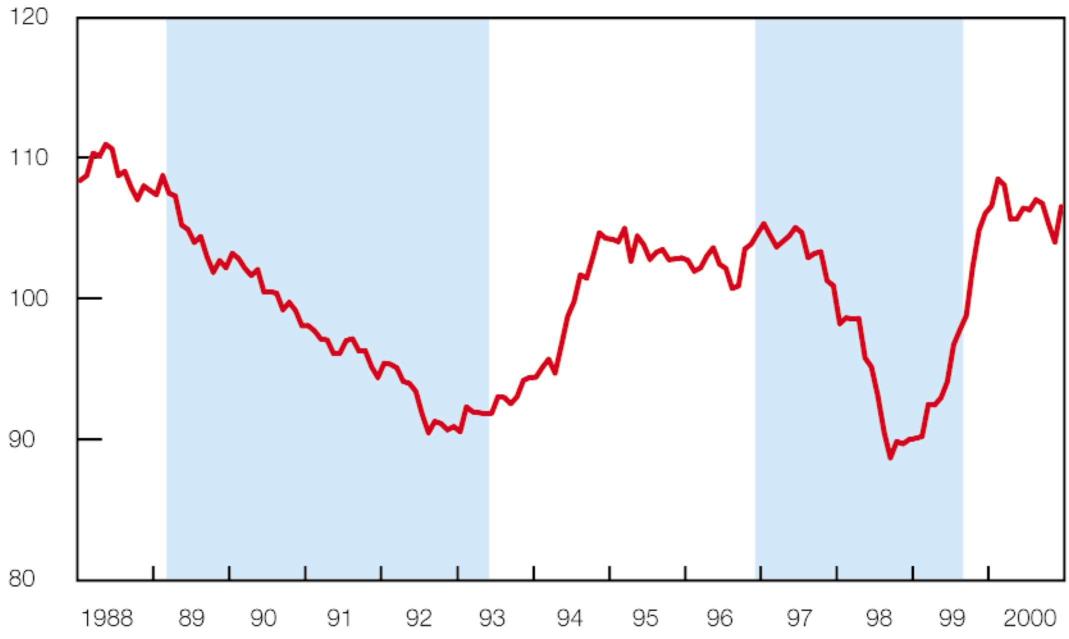
The results obtained from the methods described above, clearly indicate that a downward phase of the business cycle occurred in the South African economy after November 1996 (the latest upper reference turning point). The current results also confirmed the November 1996 upper reference turning point. As the discussion below indicates, the analysis also revealed that a lower reference turning point in the business cycle had already been reached.

The composite business cycle indicators

After declining markedly for almost two years, the composite leading business cycle indicator – expressed as the deviation from its long-term trend – reached a lower turning point in September 1998. After that the indicator increased moderately for a period of five months, followed by more significant increases during the remainder of 1999. The decisive change in the direction of the composite leading business cycle indicator after September 1998 was an early indicator that a reference turning point in the business cycle could soon be reached.

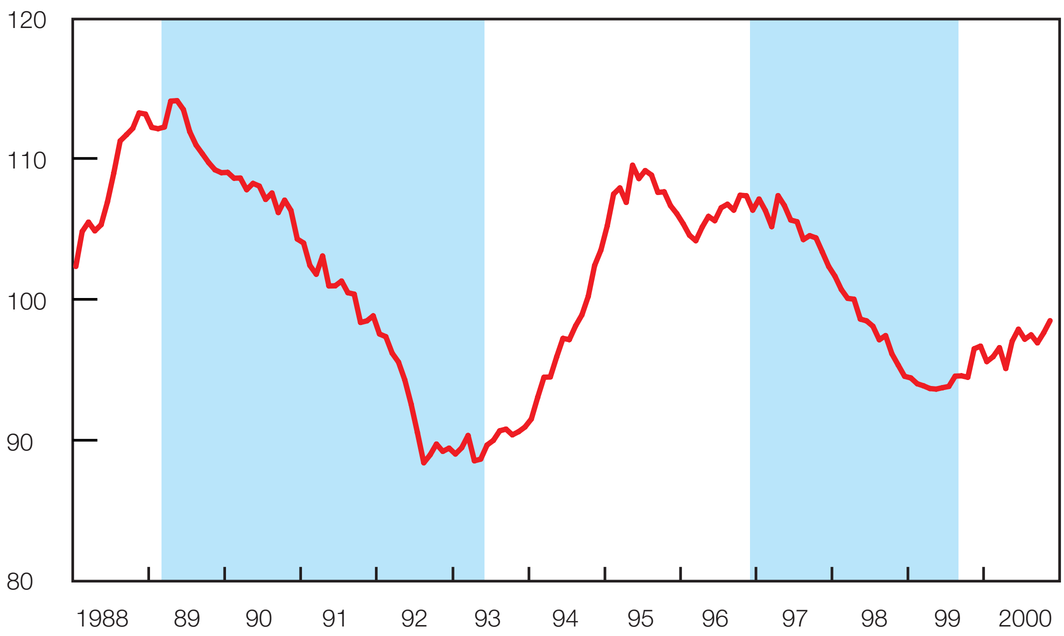
The composite coincident business cycle indicator – expressed as the deviation from its long-term trend – followed a declining time path during the whole of 1997 and 1998. After reaching a trough in May 1999, the indicator increased steadily during the latter half of 1999 and into 2000. This trough in the composite coincident business cycle indicator followed the lower turning point reached eight months earlier in the composite leading business cycle indicator.

Graph 1 Composite leading business cycle indicator (deviation from long-term trend)



Shaded areas indicate downward phases of the business cycle

Graph 2 Composite coincident business cycle indicator (deviation from long-term trend)

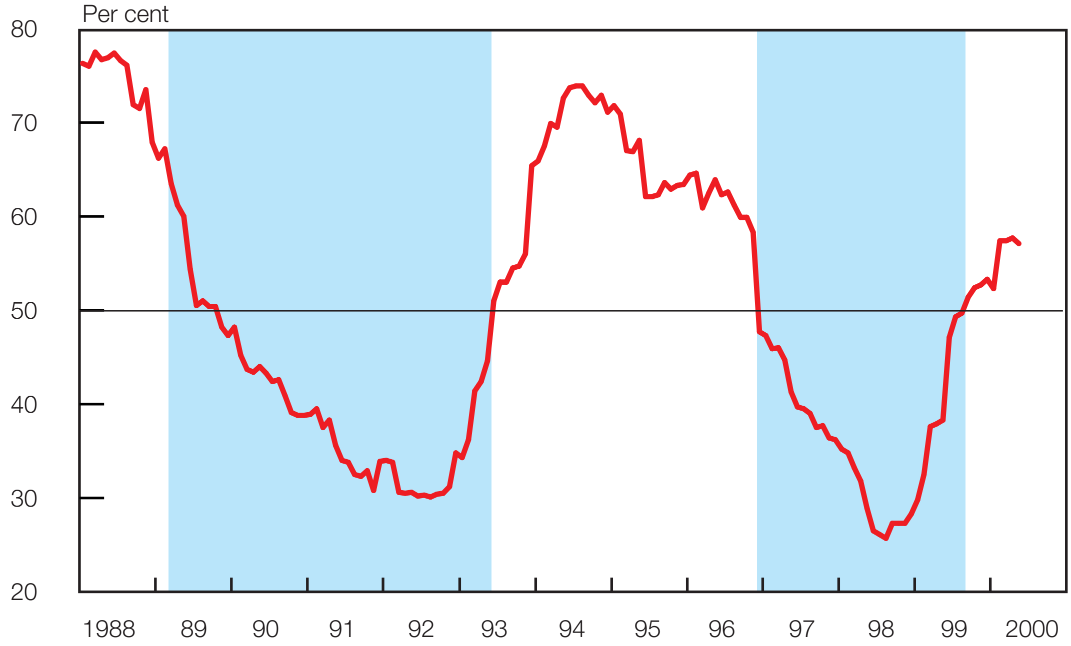


Shaded areas indicate downward phases of the business cycle

The historical diffusion index

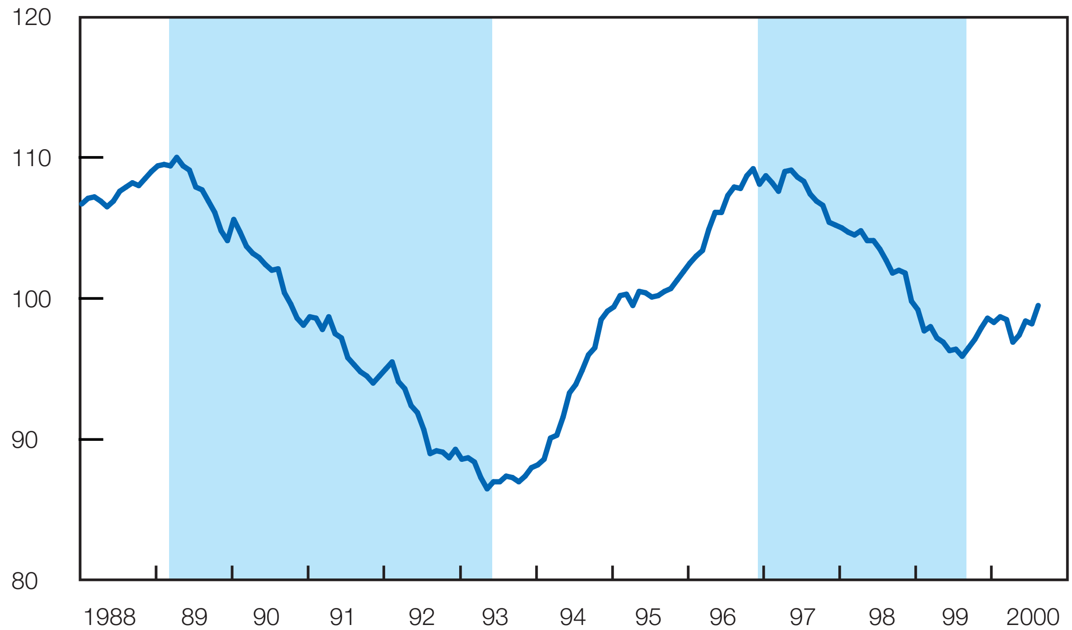
The historical diffusion index fell below 50 per cent in December 1996, confirming that November 1996 had been the date of the previous upper reference turning point. From December 1996 until August 1999, the number of variables moving

Graph 3 Historical diffusion index



Shaded areas indicate downward phases of the business cycle

Graph 4 Current diffusion index (deviation from long-term trend)



Shaded areas indicate downward phases of the business cycle downwards outnumbered those moving upwards. This movement was reversed after August 1999. The historical diffusion index therefore indicates that a lower reference turning point in the business cycle was reached in August 1999.

The current diffusion index

The current diffusion index – expressed as the deviation from its long-term trend – reached an upper turning point in November 1996, corroborating the previously calculated upper reference turning point in the business cycle. Graph 4 shows that the current diffusion index declined steeply after November 1996. This decline continued throughout 1997, 1998 and the first half of 1999. The current diffusion index reached a lower turning point in August 1999 and rose steeply during the latter part of 1999, before moderating somewhat in the first half of 2000.

Macroeconomic events and developments

During the second half of 1996 the recovery in general economic activity was nearing its end and the South African economy subsequently entered a downward phase of the business cycle in December 1996.

The disposable income of households grew progressively slower during 1996 and eventually declined from the fourth quarter of 1997 to the first quarter of 1999. Growth in real gross domestic expenditure also became sluggish during the second half of 1996 and continued its lacklustre performance up to the first quarter of 1999. Growth in household consumption expenditure began to moderate from the second half of 1996 and expenditure actually declined in the fourth quarter of 1998 and the first quarter of 1999. Inventories were also reduced sharply between the second half of 1996 and the first half of 1999.

Real consumption expenditure by general government declined during 1997 and throughout 1998 and 1999. This confirmed government's commitment to reducing the budget deficit and redressing macroeconomic imbalances in the country. Growth in real gross fixed capital formation tapered off towards the second half of 1996 and during 1997. However, growth in gross fixed capital formation accelerated during 1998 as a result of a strong rise in fixed capital formation by public corporations. Gross fixed capital formation by private business enterprises grew only marginally during 1997 and actually declined during 1998 and in the first half of 1999.

The high levels of indebtedness in the country further hampered domestic demand growth. Household debt as a percentage of disposable income reached a level of 60,9 per cent during the first quarter of 1997, then receded slightly before peaking at 61,1 per cent during the first quarter of 1998. Weak wholesale and retail trade sales during 1997, 1998 and the first half of 1999 further emphasised the weakness in domestic demand.

The slowdown in general economic activity was characterised more by a deceleration in aggregate domestic demand than in aggregate production. Nevertheless, production growth also decelerated in 1997 and 1998. Real gross value added in the primary and secondary sectors actually declined during 1997 and 1998, but the growth rate of real gross value added in the much larger tertiary sector only moderated during 1997 and 1998.

During the latter half of 1997, a number of emerging-market economies in Asia came under severe financial pressure. These financial market stresses spread to other emerging-market economies around the world, including South Africa. At first it seemed that the South African economy's growth prospects would not be disrupted by these developments. In fact, monetary policy was relaxed during October 1997 and again in March 1998.

In May 1998 a second round of Asian financial market turmoil erupted, which adversely affected South African financial markets. Net international capital flows into South Africa declined strongly and the nominal effective exchange rate of the rand depreciated considerably. These developments prompted policy makers to act immediately in order to restore financial market stability. Liquidity conditions tightened and interest rates rose sharply from April to August 1998. These events delayed the recovery in general economic activity and prolonged the downward phase of the business cycle.

Real merchandise exports continued to increase moderately throughout most of the economic slowdown. However, the sharp decrease in international commodity prices and reduced demand, especially from Asian markets, led to slower growth in merchandise exports during 1998. The decline in disposable income of households as well as the substantial depreciation of the rand eventually also led to a decline in real merchandise imports during the last quarter of 1998 and early in 1999. However, real merchandise imports improved substantially in the fourth quarter of 1999.

Towards the end of 1998 the worst of the international financial crisis seemed to be over. Output growth in the Asian region gained momentum throughout 1999 and the outlook for demand in the euro area has also improved since 1998. The downward trend in commodity prices was reversed from the first quarter of 1999 and the volume of merchandise exports from South Africa has increased unabatedly since the third quarter of 1999.

Monetary conditions eased from October 1998 when money-market interest rates began decreasing steadily. In this process the private banks lowered their lending rates. By July 1999 the predominant prime overdraft rate was lower than before the financial-market turmoil that had begun in April 1998. Net international capital outflows from South Africa were reversed and turned into strong inflows which strengthened from quarter to quarter in 1999, leading to an improvement in the net international reserves of the country. Business confidence rose again during 1999 from very low levels in 1998.

Real gross domestic final demand started to increase in the third quarter of 1999. This was evident mainly from the acceleration in the growth rate of final consumption expenditure by households and gross fixed capital formation by private business enterprises from the second half of 1999 onwards. Growth in real gross domestic product accelerated significantly in the second half of 1999. This acceleration was most notable in the secondary sectors of the economy. Gross operating surplus as a percentage of total factor income has also increased markedly since the third quarter of 1999.

Conclusion

The sharp reduction in interest rates as well as the fast expansion in world economic activity following the Asian crisis led to an improvement in the South African economy since 1999. Production and aggregate domestic and international demand picked up in the second half of 1999, signalling that the South African economy has moved through a lower turning point in the business cycle and into an upward phase.

The composite leading business cycle indicator reached a lower turning point in September 1998, and since then it has followed a definite upward trend. Eight months later the composite coincident business cycle indicator followed suit, reaching a lower turning point in May 1999. The historical diffusion index indicated a lower turning point three months later in August 1999. The current diffusion index also reached its most recent lower turning point in August 1999.

After due consideration of all the available information, the final reference date for the lower turning point in the business cycle is August 1999.