

The cyclical movement of total employment in the formal non-agricultural sectors of the economy

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Introduction

The prime objective of economic policy is to improve the material welfare and the quality of life of the population of a country. High-quality economic growth which ensures that increasing numbers of workers are gainfully employed, is a sure way of achieving this objective. Over the past decade and a half the growth of the South African economy was too low to fully absorb the growing number of people seeking employment – a phenomenon which should be taken to have reflected certain structural features of the South African economy and characteristics of the South African workforce. This led to a sharp rise in unemployment and forced many people to turn to informal economic activities for a living.

The flatter medium-term trend in the growth of employment was hidden to some extent by slowdowns and accelerations in aggregate employment in the short term. These short-term variations corresponded closely with the ebb and flow of overall business activity and seemed to confirm the international experience that fluctuations in the aggregate business cycle have a significant impact on employment levels.

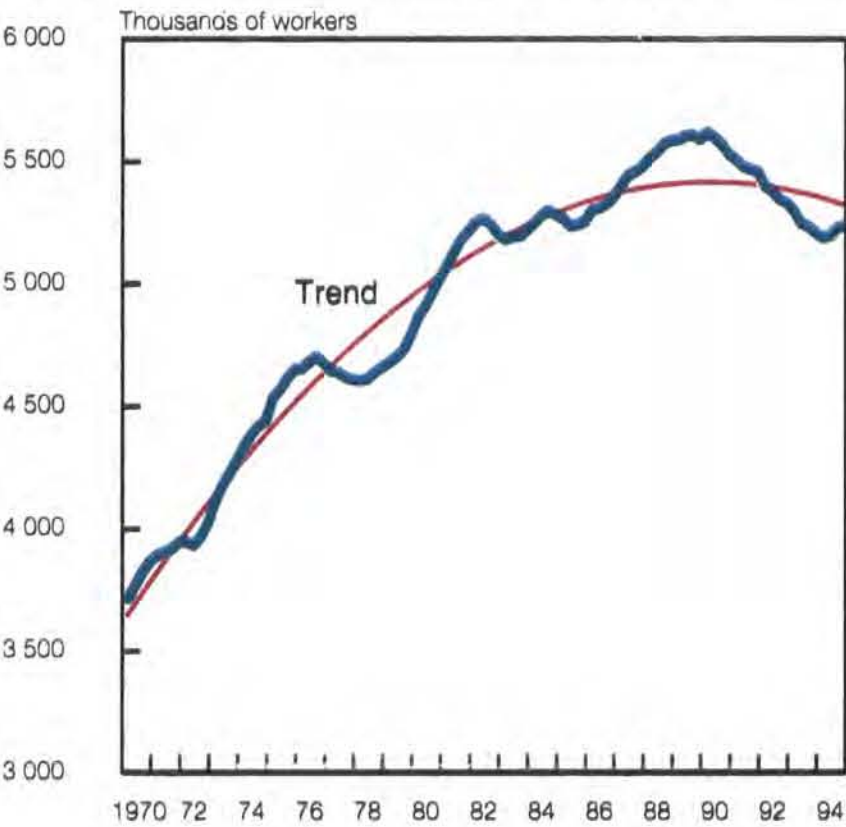
When the South African economy moved into a renewed recovery phase about halfway through 1993, overall employment levels were still declining and on the surface it appeared as if the current pattern of cyclical recovery in employment was different from previous recoveries of the employment cycle. This warrants further investigation. The purpose of this article is to analyse the common characteristics of employment cycles over the past two and a half decades and to determine in what way and to what extent the impact of the recent economic recovery on the employment cycle was different from previous recoveries. The cyclical changes in the formal employment in the private sector and by public authorities are analysed separately. It seems natural to assume on *a priori* grounds that short-term employment responses by profit-maximising private-sector enterprises will differ from those in the public sector, especially when the authorities are committed to stabilisation objectives.

Cyclical changes in employment

Total non-agricultural employment

The changes in total formal employment in the non-agricultural sectors of the economy are illustrated in Graph 1. The "best-fitting" non-linear function passing through the data points clearly indicates a levelling-off, perhaps even a decline, in the longer-term movement of total employment since the middle of the 1980s.

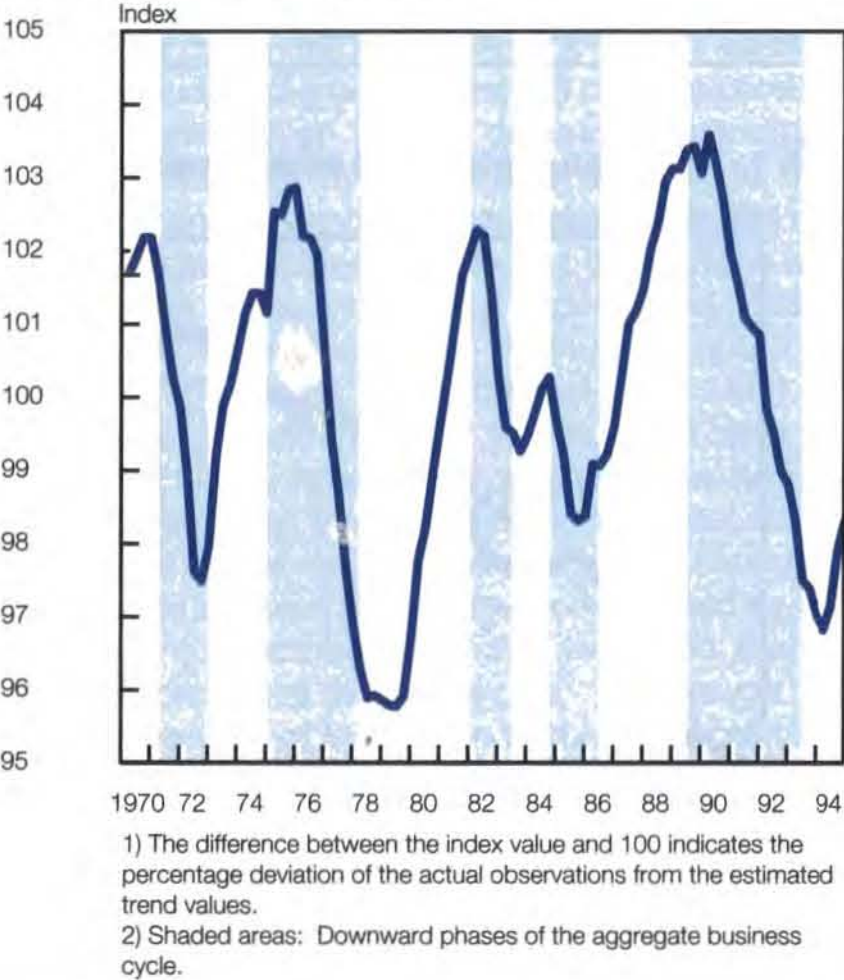
Graph 1. Total non-agricultural employment



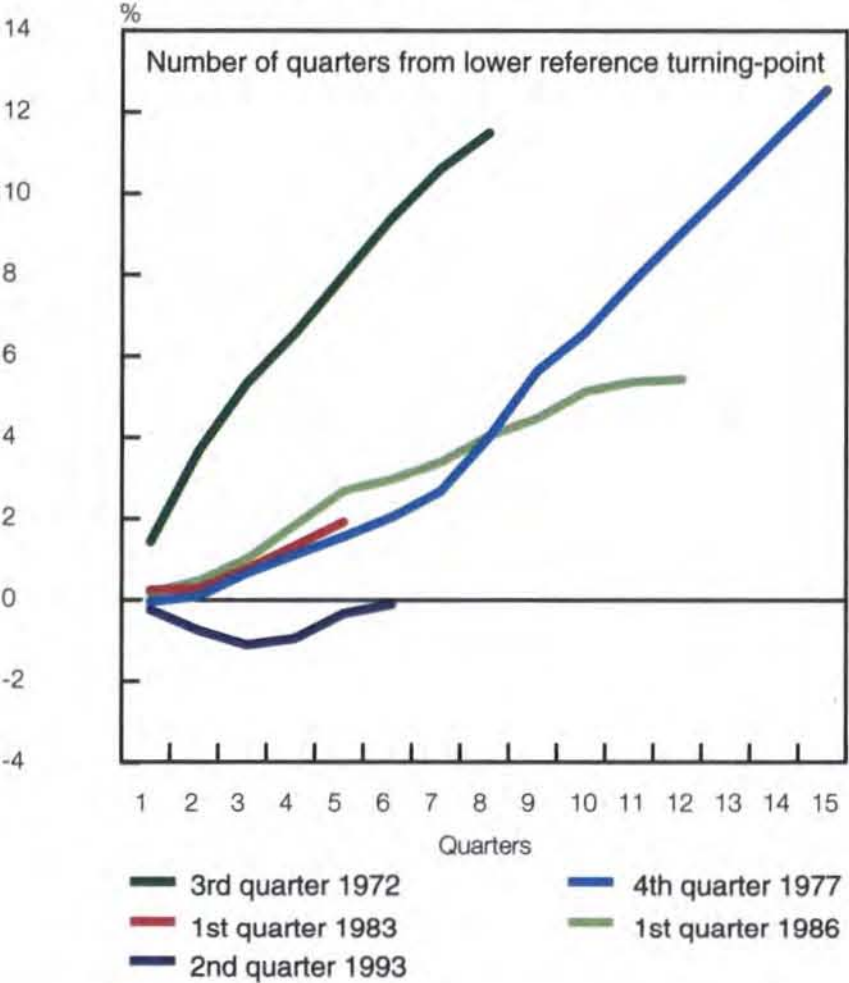
The short-term cyclical movements in total employment are shown in Graph 2. The cyclical movements were derived from changes in the error component of the best-fitting non-linear function, i.e. the deviations of actually observed employment levels from their estimated long-term values. The graph clearly illustrates a close relationship between the aggregate business cycle and the cyclical movement of total non-agricultural employment: a strengthening of overall economic activity gave rise to faster employment growth in the formal sectors of the economy and a slowdown in the pace of overall economic activity was usually accompanied by declining employment growth or, as was the case more recently, a reduction in employment numbers. The cyclical movements in employment generally appeared to follow the turning-points of the aggregate business cycle with a short time-lag of variable length.

During the past two decades the upper and lower turning-points of the aggregate business cycle preceded the corresponding turning-points of the employment cycle on all but two occasions, the two exceptions being in the third quarter of 1970 and the third quarter of 1985. The specific upper and lower turning-points of the employment cycle are identified in Table 1 and compared with the reference turning-

Graph 2. Cyclical changes in total non-agricultural employment ^{1) 2)}



Graph 3. Percentage changes in total employment from the lower reference turning-points of the aggregate business cycle



points in the aggregate business cycle.

Apart from 1970, when the upper turning-point of the employment cycle preceded that of the aggregate business cycle by one quarter, upper turning-points of the employment cycle consistently lagged on the upper

turning-points in the aggregate business cycle. At lower turning-points the relationship between the aggregate business cycle and employment cycle was somewhat less consistent. The upswing in overall economic activity that

Table 1. The leading and lagging tendency of the cyclical upper and lower turning-points in total non-agricultural employment relative to the reference turning-points of the aggregate business cycle

Turning-point	Aggregate business cycle	Employment cycle	Lag in quarters (+) Lead in quarters (-)
	Year and quarter		
Upper	1970/04	1970/03	-1
Lower	1972/03	1972/03	0
Upper	1974/03	1975/04	+5
Lower	1977/04	1979/02	+6
Upper	1981/03	1982/01	+2
Lower	1983/01	1983/03	+2
Upper	1984/02	1984/03	+1
Lower	1986/01	1985/03	-2
Upper	1989/01	1989/03	+2
Lower	1992/02	1994/01	+3

started in the second quarter of 1986 was, for example, preceded by two quarters by the start of the upward movement in the employment cycle. In the third quarter of 1972 the aggregate business cycle and the employment cycle reached a lower turning-point simultaneously. On average, however, the aggregate business cycle seemed to reach its upper and lower turning-points about two quarters ahead of the employment cycle.

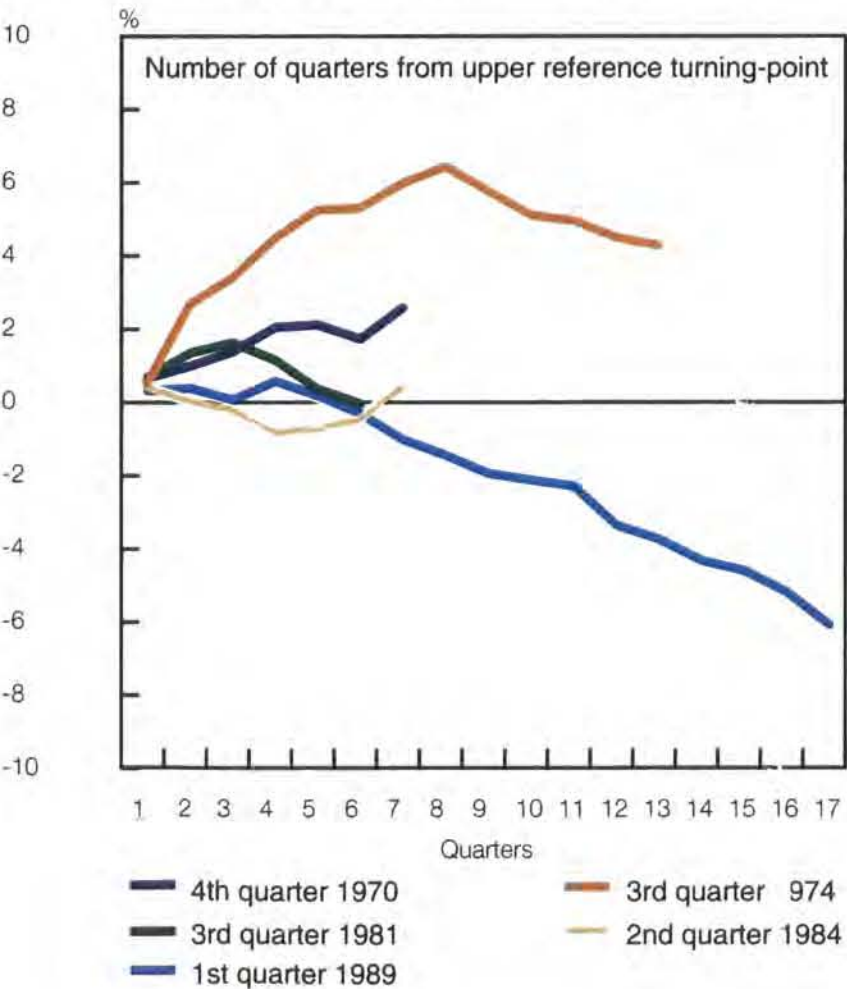
A comparison of the changes in total employment during the various upward phases of the aggregate business cycle (Graph 3) indicates that the employment growth during the upswings of the 1980s and the early 1990s was weaker than during the 1970s. More specifically, the employment response to the current strengthening of overall business activity was much weaker than during previous recoveries.

In one respect, changes in total employment during the downward phases of the 1980s differ substantially from those of the 1970s (Graph 4): in contrast to the recessions of the 1970s, when total non-agricultural employment continued to rise, the downswings of the 1980s were characterised by absolute declines in the size of the formal-sector workforce.

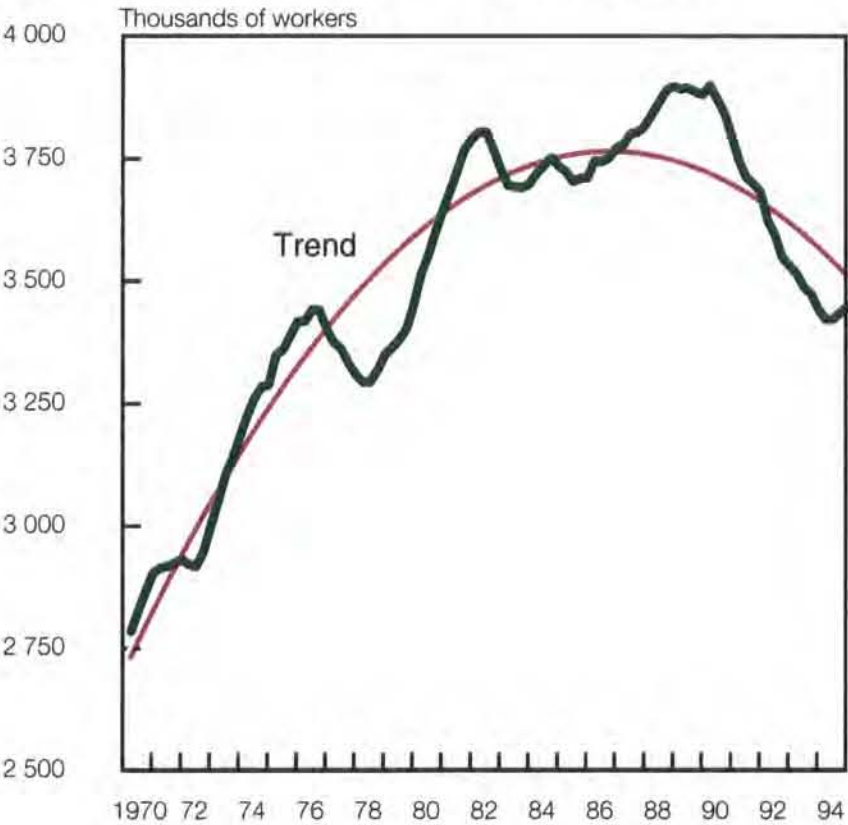
Employment in the private sector

Employment in the private sector in 1994 constituted about 66 per cent of the total employment in the formal

Graph 4. The percentage changes in total employment from the upper reference turning-points of the aggregate business cycle



Graph 5. Employment in the private sector



non-agricultural sectors of the economy. As shown in Graph 5, the non-linear function of private-sector non-agricultural employment showed a distinct declining trend since the middle of the 1980s. Deviations from this trend also clearly indicate that private-sector employment fluctuated sharply during the business cycle. In their drive towards profit-maximisation, private sector companies followed flexible employment practices and responded quickly to the onset of slack economic conditions. They cut back their complement of unskilled workers and reduced the number of hours worked by skilled workers during economic slowdowns. These practices ensured a higher quality of labour input during recessionary periods, which meant that productivity growth during recessions tended to be higher than during times of brisk economic expansion.

The cyclical changes in formal non-agricultural employment in the private sector are illustrated in Graph 6, while the leading and lagging relationship between the private-sector employment cycle and the aggregate business cycle is reported in Table 2. It is apparent from this information that the reaction period of the private-sector employment cycle to upper turning-points in the aggregate business cycle has shortened considerably since the 1970s. It took five quarters for employment in the private sector to react to the downturn in economic activity in the third quarter of 1974; in 1989 it took only one quarter for private-sector organisations to attune their employment levels to the softening of business conditions which had

Table 2. The leading and lagging tendency of the cyclical changes in employment in the private sector to the reference turning-points in the aggregate business cycle

Turning-point	Aggregate business cycle	Private-sector employment cycle	Lag in quarters (+) Lead in quarters (-)
	Year and quarter		
Upper	1970/04	1970/04	0
Lower	1972/03	1972/02	-1
Upper	1974/03	1975/04	+5
Lower	1977/04	1978/02	+2
Upper	1981/03	1982/01	+2
Lower	1983/01	1983/03	+2
Upper	1984/02	1984/03	+1
Lower	1986/01	1985/02	-3
Upper	1989/01	1989/02	+1
Lower	1993/02	1994/01	+3

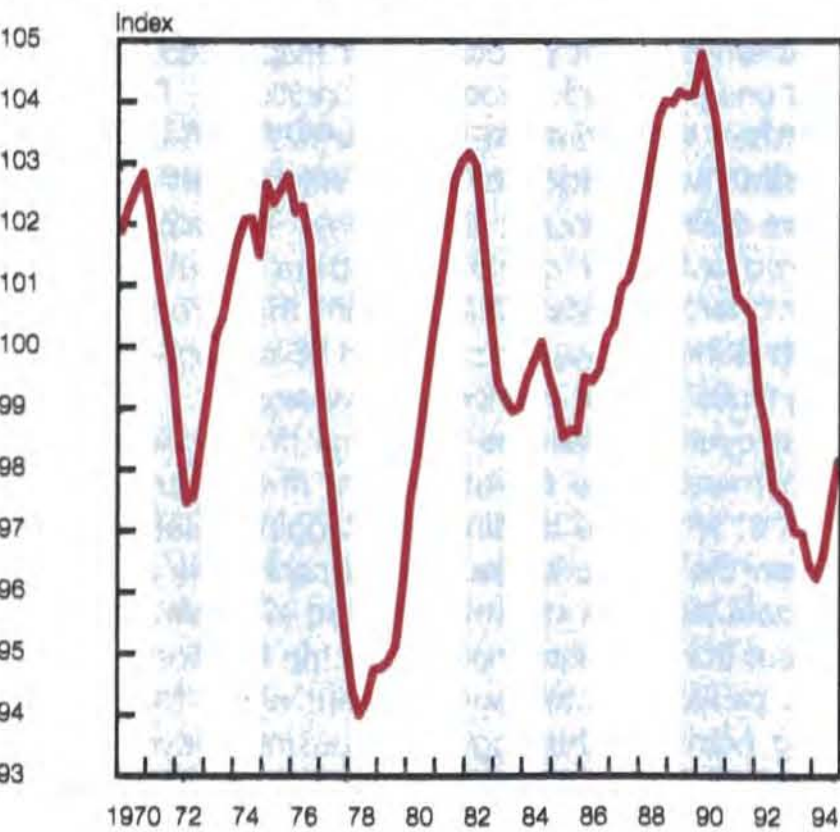
started in the first quarter of that year. At the bottom of the business cycle, the private-sector employment cycle tended to follow the aggregate business cycle with a time delay varying between two and three quarters.

The lagged relationship between changes in

aggregate business cycle conditions and changes in employment could be ascribed to factors such as:

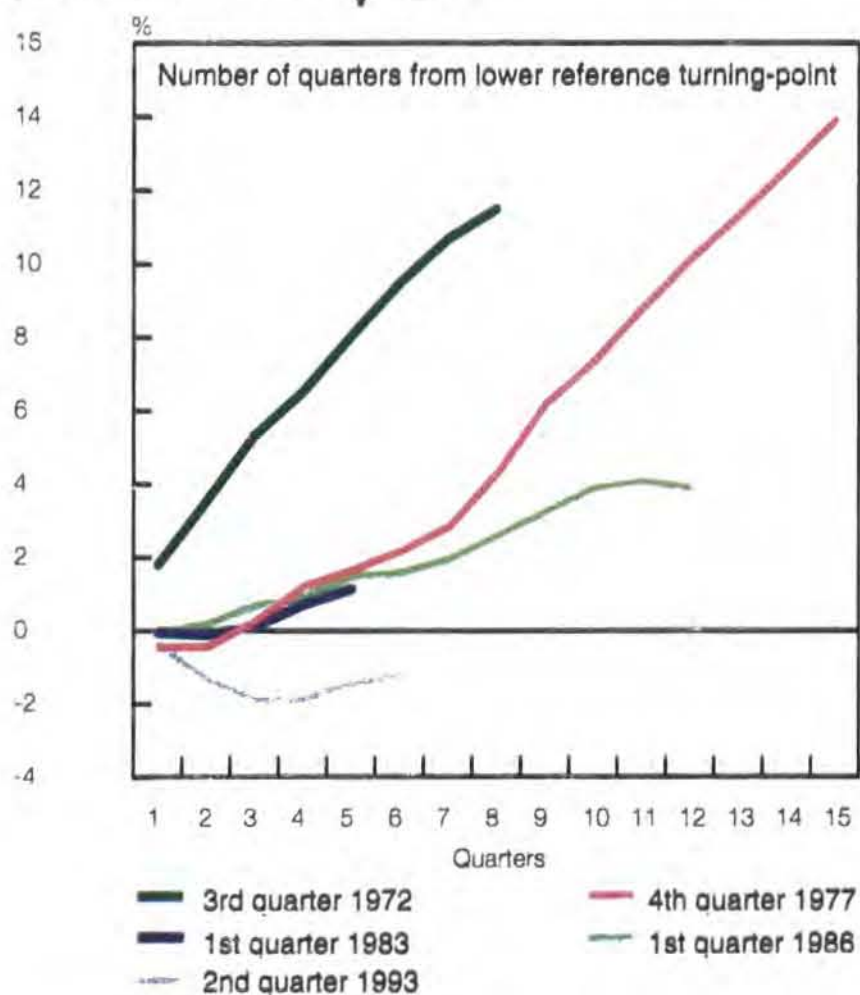
- the uncertainty among employers regarding the permanence of the change in the level of economic activity;
- the under-utilisation of available production factors, which allows employers to expand levels of utilisation before employing additional workers;
- the reluctance of firms to reduce their workforce at the beginning of an economic downturn because of the firm-specific skills they have developed;
- the hiring of workers after an upturn in the business cycle, which means that additional training costs are incurred; and
- the fact that it is costly for firms to vary the size of their workforce – it is simply not feasible for a firm to change employment in response to every bit of new information regarding the state of demand, especially in the very short term.

Graph 6. Cyclical changes in total employment in the private sector ¹⁾²⁾

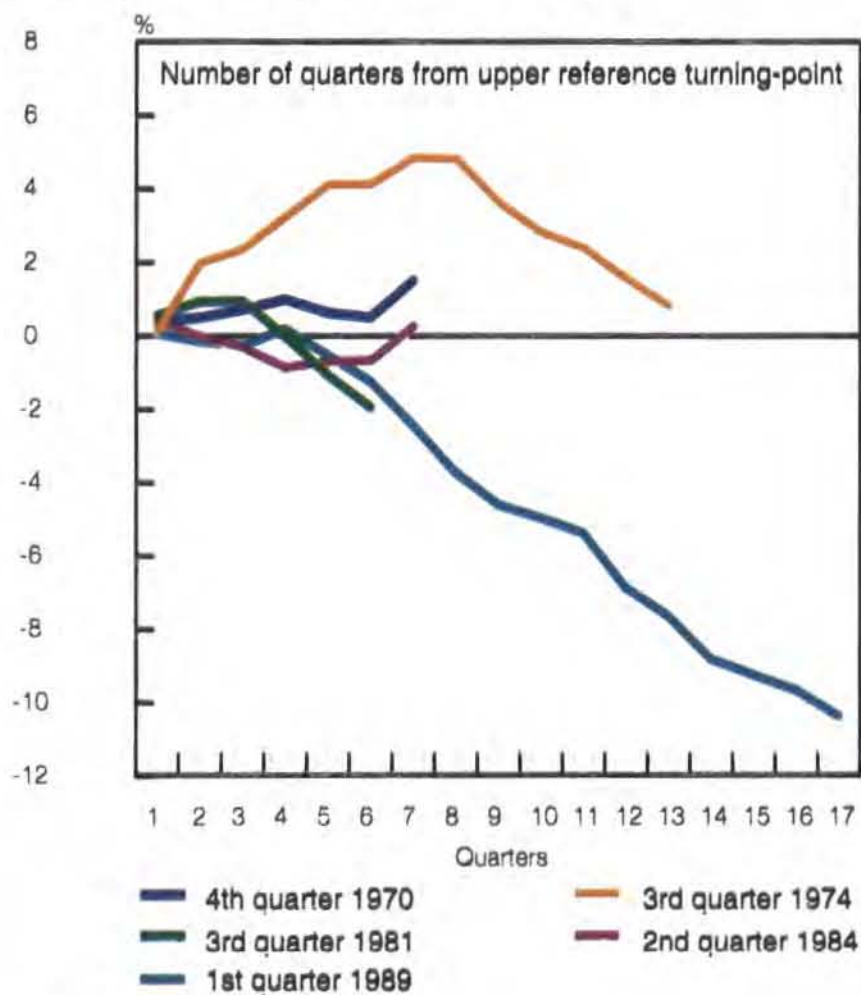


1) The difference between the index value and 100 indicates the percentage deviation of the actual observations from the estimated trend values.
2) Shaded areas: Downward phases of the aggregate business cycle.

Graph 7. The percentage change in private-sector employment from the lower reference turning-points in the business cycle



Graph 8. The percentage change in private-sector employment from the upper reference turning-points in the business cycle



economic upswings private organisations quickly began to expand their workforce.

Graph 8 indicates that private-sector employment still tended to increase during the recessionary periods of the 1970s. During the 1980s, however, employment totals in the private sector declined as soon as, or almost as soon as, the economy moved into a recessionary phase.

The trend as well as the cyclical changes in private-sector employment in the 1980s and early 1990s therefore differs distinctly from those of the 1970s. The long-term growth in private-sector employment levelled off in the 1980s and downturns in overall economic activity in the 1980s brought with them declining levels of employment in the private sector; in the 1970s employment levels in the private sector kept rising, even when the economy moved into a recession.

At least four factors accounted for these changes in the behaviour of private-sector employment. Firstly, overall output growth and the employment-creating potential of the South African economy slowed down in the 1980s. The average annual growth rate in the real gross domestic product amounted to 3,2 per cent between 1970 and 1984, but then slowed down to 0,6 per cent per year from 1985 to 1994. The effect of

financial and trade sanctions imposed by the international community played a meaningful role in reducing the rate of economic advance in South Africa in the 1980s.

Secondly, the elasticity of labour absorption with respect to changes in real output declined noticeably in the 1980s compared with the 1970s. During the 1970s an increase of one per cent in the non-agricultural real gross domestic product gave rise to an increase of about 0,8 per cent in the level of private-sector employment; in the 1980s the production elasticity of private-sector labour absorption fell to 0,5.

Thirdly – and perhaps one of the more important factors responsible for the decline in private-sector labour absorption capacity – trade unions among all segments of the labour force were legalised in the 1980s. The formation of black trade unions and their growing strength and militancy during the 1980s impeded wage employment and encouraged private-sector producers to change increasingly to more capital-intensive methods of production. The conclusion of so-called “closed shop agreements” prevented non-unionised workers from bidding themselves into work and in this way also contributed significantly to the inability of private-sector employers

to expand their workforce and simultaneously preserve profitability.

Fourthly, the removal of certain legal restrictions on the mobility of labour resources during the 1980s resulted in higher variability in the level of employment of private-sector companies. During the 1970s these so-called "influx control measures", and the problems they created for labour recruitment, made employers reluctant to reduce their workforce when the economy moved into a recession. Private-sector companies preferred to retain their workers and even to increase their staff complement during times of shrinking economic activity. The removal of many of these labour-market rigidities in the 1980s and the growing excess supply of labour in the industrialised areas eased some of the constraints on companies and made it easier to shed labour when sales growth tended to slow down.

Employment by public authorities

In 1994 approximately 34 per cent of all the workers in the formal non-agricultural sectors of the economy were employed by public authorities. Employment by public authorities was much less sensitive to changes in the rate of overall economic activity, as can be seen from the relatively small fluctuations of the employment by public authorities around its long-term trend line (Graph 9). Although less conspicuous than the cyclicity of private-sector employment, it is clear from Graph 10 that employment by the public authorities also displayed a definite cyclical movement. The relationship between the cyclical movement in employment by public authorities and the aggregate business cycle is, however, less consistent over time and occasionally public-sector employment failed to react to a change in the direction of the aggregate

business cycle.

The leading and lagging tendency of the public-sector employment cycle to the turning-points in the aggregate business cycle is summarised in Table 3. The relationship between the two cycles differs from public-sector employment leading the aggregate business cycle by two quarters to an inverse relationship of seven quarters. On three occasions public-sector employment failed to react at all to the movement in the aggregate business cycle.

The changes in employment by public authorities during the various cyclical upward phases are illustrated in Graph 11. The public sector increased its workforce during all the expansionary phases of the business cycle since 1970. The higher rate of increase in employment by public authorities in the fifth quarter of the current cyclical upswing phase was partly related to the employment of temporary workers during the general elections in April 1994.

The changes in the number of workers employed by public authorities during the various recessionary periods are illustrated in Graph 12. Unlike private-sector employment, the employment by public authorities mostly continued to increase from quarter to quarter during each of the economic downswings of the aggregate business cycle. The public sector ostensibly acted as a stabiliser of aggregate employment in the downward phase of successive business cycles during the past two and a half decades.

An explanation for the behaviour of employment during the current upswing phase

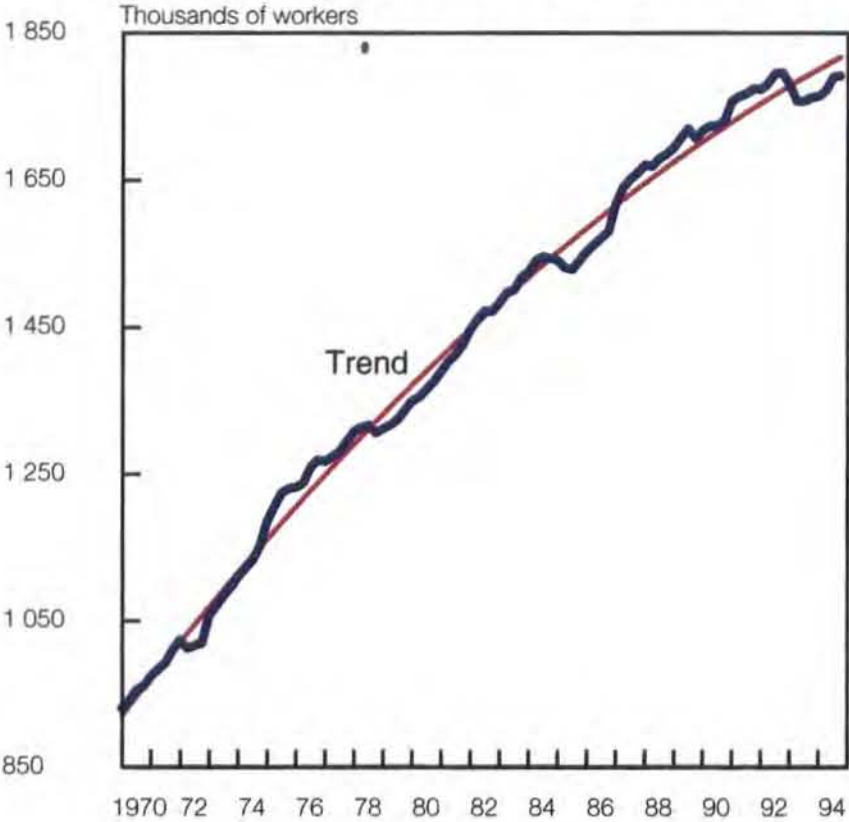
As shown previously, the change in the total employment in the non-agricultural sectors of the

Table 3. The leading and lagging tendency of the cyclical movement in the employment by public authorities to the reference turning-points in the aggregate business cycle

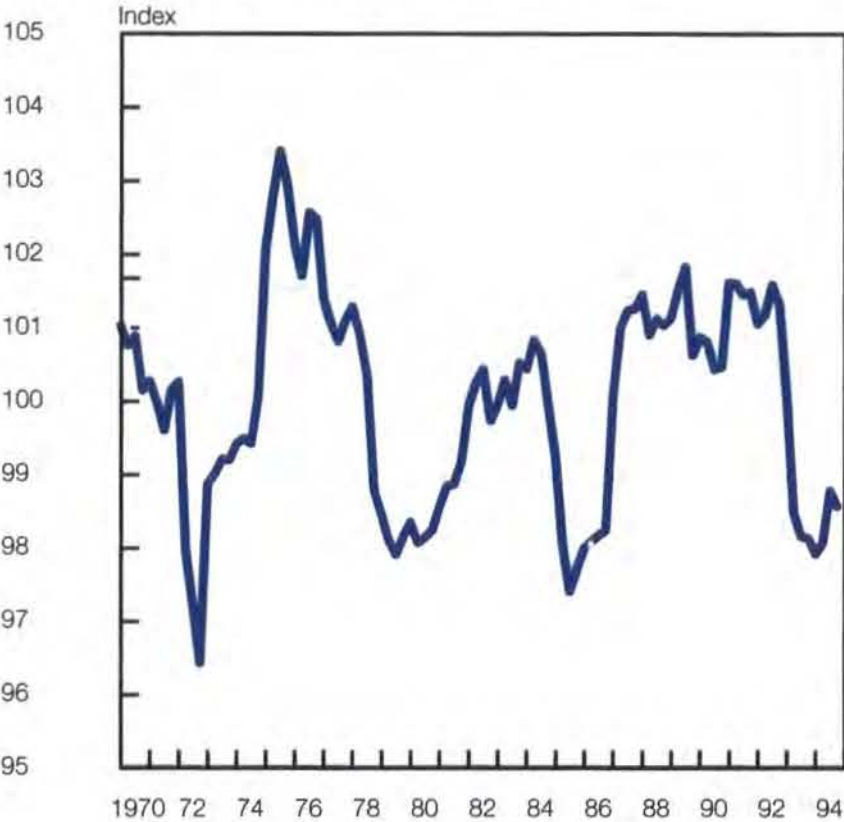
Turning-point	Aggregate business cycle	Public-sector employment cycle	Lag in quarters (+) Lead in quarters (-)
	Year and quarter		
Upper	1970/04	n.c.	n.c.
Lower	1972/03	1972/04	+1
Upper	1974/03	1975/03	+4
Lower	1977/04	1979/03	+7
Upper	1981/03	n.c.	n.c.
Lower	1983/01	n.c.	n.c.
Upper	1984/02	1984/02	0
Lower	1986/01	1985/03	-2
Upper	1989/01	1989/03	+2
Lower	1993/02	1994/01	+3

n.c.: No corresponding turning-point

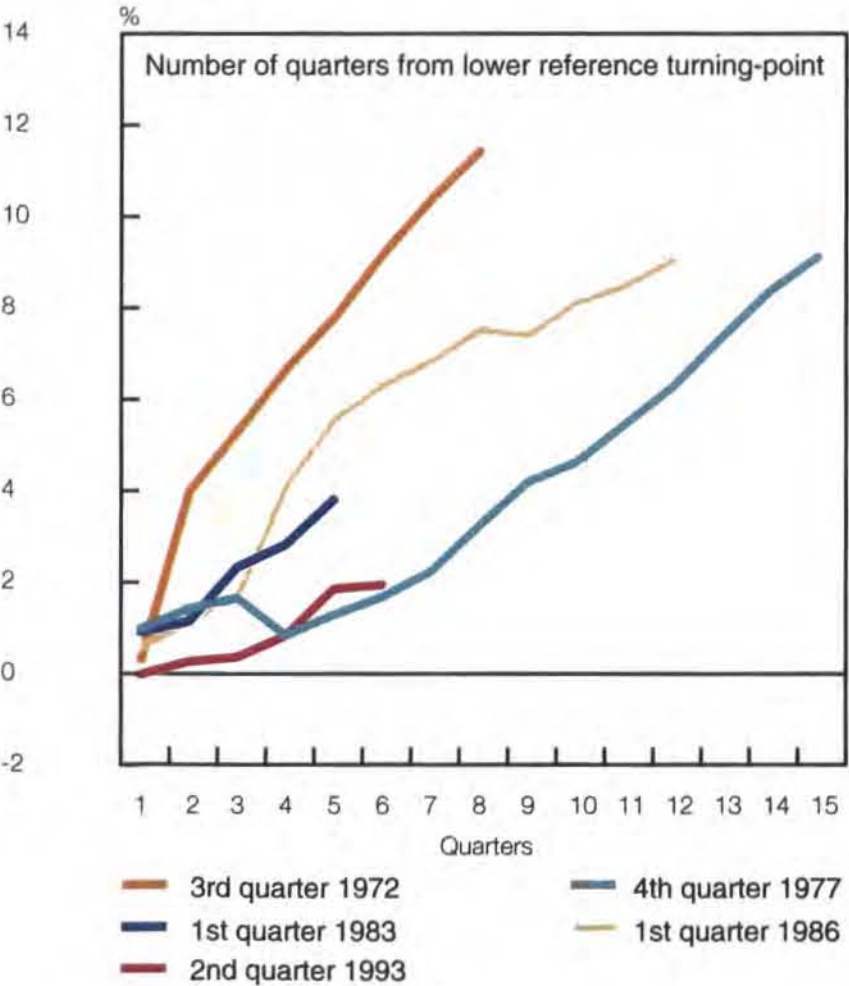
Graph 9. Total employment by public authorities



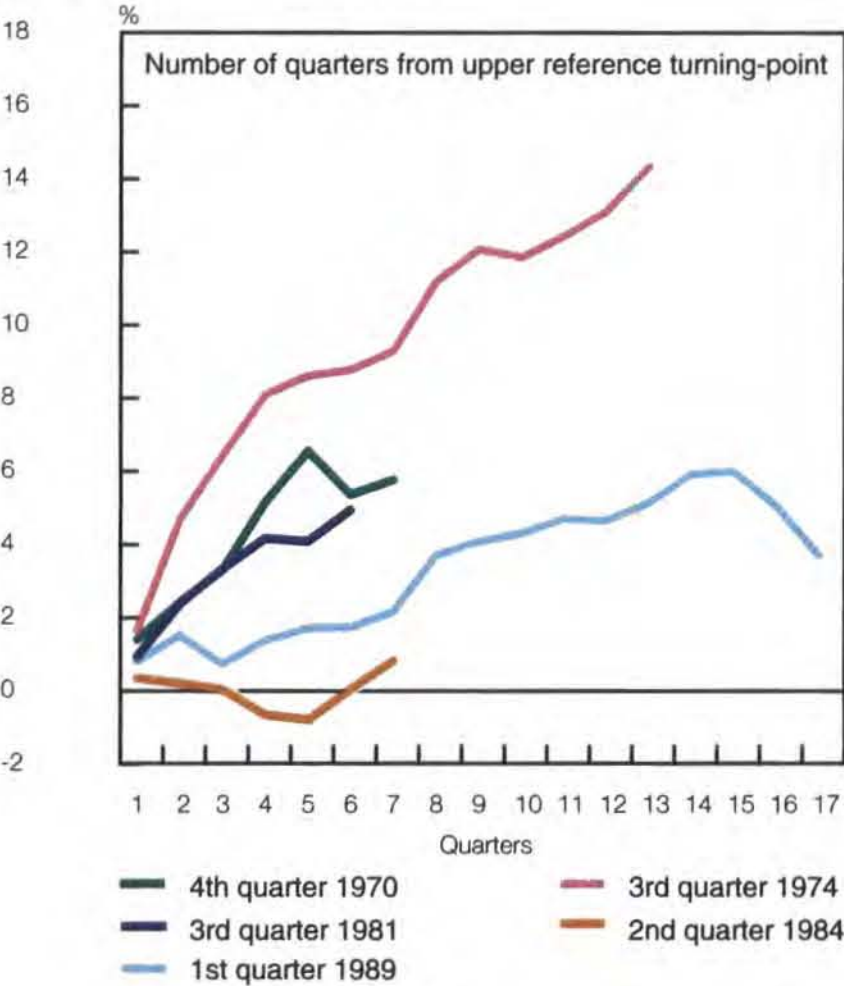
Graph 10. The cyclical movement in the employment by public authorities ¹⁾²⁾



Graph 11. The percentage change in the employment by public authorities from the lower reference turning-points in the aggregate business cycle



Graph 12. The percentage change in the employment by public authorities from the upper reference turning-points of the aggregate business cycle



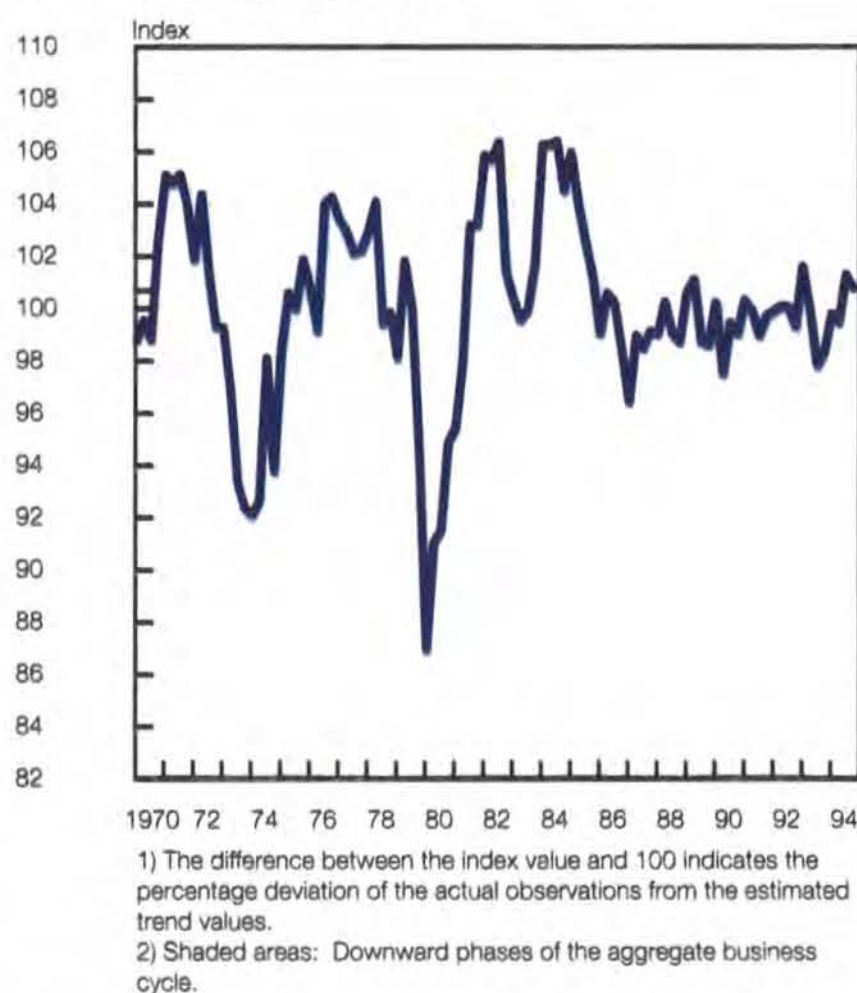
economy during the first number of quarters of the current economic recovery differed significantly from that recorded during previous periods of economic upswing. The slow response of particularly private-sector employment could, *inter alia*, be ascribed to:

- The extended statutory requirements and regulations that raised the non-wage cost of labour and impeded the employment of additional workers.
- The unstable conditions in the labour market and the apparent inclination of trade unions to utilise strikes and work stoppages to strengthen their demands.
- The climate of political uncertainty that preceded the general election of April 1994 which, albeit to a lesser extent, still prevails.
- A tendency among companies to subcontract certain production activities to smaller private labour-broking firms because of the high cost of labour and the high incidence of labour unrest. The employment by these labour-broking firms is not, however, recorded in the official employment statistics because of the way in which employment statistics are recorded.
- The continued high rates of increase in the real remuneration of unskilled workers in particular, which are not related to their contributions to the profitability of private-sector undertakings. According to economic theory, the condition for profit maximisation is that the real marginal wage cost per worker should equal the real marginal revenue product of labour. Any increase in the real wage that does not have a counterpart in a corresponding increase in the real labour productivity, will therefore impact negatively on total employment.

As illustrated in Graph 13, the cyclical changes in the real remuneration per worker during the 1989-93 downswing phase of the aggregate business cycle differed significantly from changes in the real remuneration per worker during most of the previous economic downswings of the aggregate business cycle. The only other time that the change in real labour remuneration deviated from the regular pattern was during the recession of 1974-77. Usually the real remuneration per worker reached a cyclical upper turning-point together with or very soon after the upper turning-point in the aggregate business cycle, and a lower turning-point some time into the subsequent recovery of aggregate economic activity.

During the 1989-93 downward phase in the aggregate business cycle the change in real remuneration per worker, in keeping with the historical relationship, reached an upper turning-point almost at the start of the recession. It then declined quickly to

Graph 13. Cyclical changes in real remuneration per worker ¹⁾²⁾



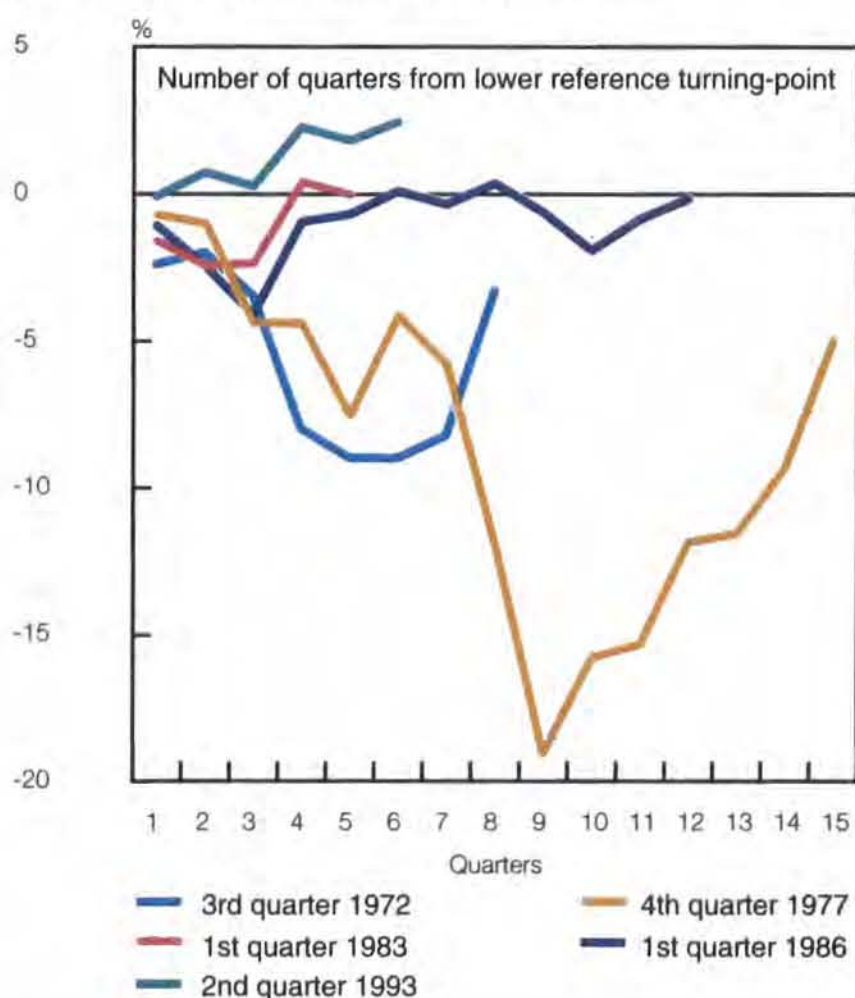
reach a low point in the first quarter of 1990, but then in contrast to its usual pattern, resumed a moderately upward trend during the remainder of the recession.

The continued high wage demands of the organised labour movement and the consequent upward drift of real remuneration per worker during the first six quarters of the current expansionary phase of the aggregate business cycle caused real unit labour costs to increase almost from the start of the recovery in 1993 (see Graph 14).

Because of the recent behaviour of real unit labour costs, employers were unsuccessful in improving their profitability during the first number of quarters of the current upswing of the aggregate business cycle to the same extent as they had been able to do during previous periods of recovery. The downward stickiness of real unit labour costs and the consequent pressures on profitability probably discouraged private-sector employers from expanding their workforces. The resolve of employers to contain production costs was strengthened during the downswing of 1989-93 when large numbers of workers were retrenched by employers facing relatively weak domestic demand growth and persistently strong wage pressures.

The only other time during which real remuneration per worker had been rising in the midst of an economic downturn was during the 1974-77 recession. The real

Graph 14. The percentage changes in real unit labour costs in the non-agricultural sectors of the economy from the lower reference turning-points in the aggregate business cycle



remuneration per worker was then driven higher by sharp rises in the relative wages earned by gold-mining workers at a time when the price of gold showed a strong improvement.

Conclusion

Total formal employment in the non-agricultural sectors of the economy has displayed a definite cyclical pattern. This cyclical movement has historically exhibited a close relationship with business cycle movements in the economy. In general, the employment cycle tended to follow the aggregate business cycle with a lag. At the upper turning-points of the cycle, the tendency of total employment to lag behind the turning-points of the aggregate business cycle was highly consistent over time, but at the lower turning-points the lagged relationship had been reversed occasionally.

Employment in the private sector was more sensitive to the aggregate business cycle movements than employment by the public sector. Furthermore, the length of the time-lag between the upper turning-points in the private-sector employment cycle and the corresponding turning-points of the aggregate business cycle shortened progressively from five

quarters in 1974 to only one quarter in 1989. Although the response time of private-sector employment to changes in general business conditions has shortened over time, the available evidence suggests that it has not disappeared completely. Public-sector employment was less sensitive to changing business conditions than private-sector employment. Employment by the public authorities has thus acted as a stabilising measure for aggregate formal-sector employment.

Although the delayed response of employment levels to the current strengthening of general business activity is not unusual, the level of formal-sector employment has recovered very slowly in the current economic upswing. Six quarters into the recovery employment was still below the level attained at the end of the preceding downward phase of the business cycle. This was the first time since the beginning of the 1970s that aggregate employment took that long to register a net gain during a period of economic expansion. This somewhat anomalous behaviour of formal-sector employment could partly be explained by growth in real unit labour costs during the early stage of the current economic recovery. During previous economic recoveries real unit labour costs tended to decline, or at least to remain unchanged, thereby encouraging companies to increase wage employment. It seems plausible that current employment levels would have been higher had it not been for the relatively high real wage rates and the recent rises in real unit labour costs.

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