Sveriges Riksbank Inflation Report June 1997

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Foreword

Since October 1993 the Riksbank has been publishing a regular series of reports on our assessment of future inflation. The purpose of these reports is to provide a basis for monetary policy decisions, besides making our deliberations known to a wider public so that our policy will be easier to follow. The reports are also intended to encourage a discussion of matters relating to monetary policy.

The present report is arranged like its predecessors. It primarily analyses economic tendencies since the previous report and their significance for future inflation and monetary policy. The aim is to present a comprehensive picture of the factors and deliberations that are important for the assessment of inflation. The underlying statistical material is contained in an annex of diagrams and tables. The work on the report has been done mainly in the Economics Department of the Riksbank, where it has been led by the head of the Department, Claes Berg, and the head of the Price Analysis Division, Jonas Ahlander.

The inflation report served as a basis for the Governing Board's discussion of monetary policy on 22nd May 1997. The conclusions from that discussion are presented in Chapter 3.

Stockholm, June 1997

Urban Bäckström Governor of Sveriges Riksbank

Summary

• To date in 1997 CPI inflation has been between 0.0 and 0.2 per cent, while the rates indicated by the new EU-harmonised consumer price index and various indicators of underlying inflation have been between 1 and 1.5 per cent. This path is broadly in line with the assessment in the March inflation report.

Economic activity in Sweden picked up during 1996. The growth came mainly from a continuation of high exports and rising private consumption. The overall growth was held back by stock reductions and a further fall in public sector consumption and investment. To date in 1997 the recovery in manufacturing and trade appears to have continued, though the picture is not clear-cut.

■ In the coming years the Riksbank considers that GDP growth will strengthen. As in the March report, the rounded GDP growth rates for 1997 and 1998 are put at 2 and 3 per cent, respectively. Even so, in the light of current resource utilisation, a continuation

of high growth in the early part of 1999 is not expected to involve general capacity shortages.

■ Against this background the Riksbank foresees that underlying inflation will follow the same path as in the March report's main scenario: given an unchanged monetary stance, the rate will move up to between 1.5 and 2 per cent during 1998. CPI inflation would average about 1 per cent in 1997 and about 2 per cent in 1998; these figures are somewhat higher than those presented in the March report, above all because we now assume a weaker exchange rate than before and Statistics Sweden has revised the method for calculating house mortgage interest costs in the CPI.

■ A weaker exchange rate could lead to higher inflation than in the main scenario. The opposite risk could be a slower increase in consumption. Other notable sources of uncertainty are the outlook for capacity utilisation and productivity. All in all, the monetary stance is judged to be well balanced. CHAPTER I

Developments since the March report

Economic developments since the previous inflation report are discussed in this chapter, focusing on factors that have a bearing on future inflation. The account begins with the development of inflation in recent months, followed by an analysis of various factors that are significant for future inflation, for instance the state of demand and supply as well as inflation expectations. Finally there is a discussion of the direction of monetary policy and recent movements in interest and exchange rates.

Inflation

In April 1997 the consumer price index (CPI) was 0.2 per cent higher than a year earlier (Fig. 1). To date in 1997 the 12-month rate of inflation has been in the interval 0.0–0.2 per cent. Since the March report the CPI item "House mortgage interest costs" has been revised by Statistics Sweden from January 1995 onwards. As a result, for 1996 the average rate of inflation has been adjusted from 0.7 to 0.8 per

cent. Moreover, a negative 12-month rate of inflation, registered previously in the period October 1996 to March 1997, is now reported only for November 1996, when the CPI was 0.1 per cent lower than a year earlier.¹

1 The method for calculating house mortgage interest costs that Statistics Sweden applied from 1995 did not allow for the compensation for the interest difference that borrowers are charged when they redeem loans prior to maturity. When advance redemption became more widespread towards the end of 1996 and in 1997, this led to an underestimation of household interest costs.

Figure 1. CPI* and HICP**. Percentage 12-month change



*Revised from January 1995 onwards.

**Harmonised index for international comparisons of consumer price movements; approximate figures before 1996.

Note. The horizontal lines from 1995 onwards represent the Riksbank's tolerance interval for the annual increase in the CPI.

Source: Statistics Sweden.

INFLATION REPORT 2/1997

The new harmonised index of consumer prices (HICP) puts the rate of inflation in Sweden in April 1997 at 1.2 per cent, an increase of 0.2 percentage points from the preceding month, when Sweden had the second lowest inflation rate among EU member states (Finland was lowest with 0.8 per cent). At present the HICP does not include home owners' capital costs and this explains the greater part of the discrepancy with Sweden's CPI.

A breakdown of the CPI shows that the very subdued rate of increase to date in 1997 has to do with the continued, marked fall in house mortgage interest costs (Fig. 2). In March 1997, however, the rate of this fall slowed from the previous month for the first time since April 1995.

The domestic component of inflation has been just above 1.5 per cent since the end of 1996, while the price rise for products that are mainly imported has recently displayed a slight upward tendency.

The domestic component of inflation has been rising at just over 1.5 per cent since the end of 1996, while the price rise for products that are mainly imported has recently displayed a slight upward tendency.² But neither the weakening exchange rate since midautumn 1996 nor the fall in oil prices has had a marked effect on consumer prices. The upward tendency in consumer prices for imported goods to date in 1997 has come mainly from higher prices for fruit and vegetables. The producer price rise for imported consumption goods has also been very moderate.

One conceivable explanation for the limited pass-through may be that the weaker exchange rate has been perceived as temporary, causing exporters abroad as well as Swedish wholesalers and retailers to hesitate about passing on increased costs. Another explanation, discussed in earlier reports, is that with the reduction of both inflation and inflation expectations, passing on increased costs has become more difficult.

Underlying inflation, measured as UND1 and UND2, has been stable around 1 per cent since the end of 1996.

2 The classification for this breakdown is updated with the aid of the weights in the PPI system. This calls for some independent judgements, for example the extent to which imported products have gone directly to private consumption or been used as intermediate goods. Products that are mainly imported are taken to be those with an import share above 50 per cent; this has led to some minor shifts between the group of imported goods and the group produced in Sweden but it has not altered the earlier picture of the paths for imported and domestic inflation.

Figure 2.

Components of the CPI*. Percentage 12-month change



*The calculations for imported and domestic inflation have been adjusted (see footnote 2) and interest costs are Statistics Sweden's revised series from 1995 onwards. Note. The figures in parentheses are the component's CPI weight in 1997.

Sources: Statistics Sweden and the Riksbank.

Underlying inflation, measured as UND1 and UND2, has been stable around 1 per cent since the end of 1996 (Fig. 3). Both these indicators represent the CPI excluding house mortgage interest costs and effects of changes in indirect taxes and subsidies; UND2 also disregards petroleum and petrol prices. Another indicator of underlying inflation, presented in the March report, is UND1 excluding prices of all goods that are mainly imported. To date in 1997 this measure of underlying domestic inflation, UNDINH, shows a rate around 1.5 per cent, after a level around 2 per cent in 1996.

An explanation for this downward tendency may be that in 1996 the sharp increase in wage costs contributed to a temporary upward shift in underlying domestic inflation. The main difference between the indicators of inflation is that the CPI, but not underlying inflation or the HICP, reflects the fall in house mortgage interest costs. Disregarding the revision of mortgage interest costs, in recent months both registered and underlying inflation have been broadly in line with the assessment in the March report.

The impact of all changes in indirect taxes and subsidies, assuming that it materialises in full, will raise the rate of registered inflation by an average of just over 0.5 percentage points in both 1997 and 1998. Government proposals in the Spring Economic Bill will have future effects on consumer prices. They include an increased tax on tobacco from August 1997 and the replacement of the intended 1998 reform of dental care by an increased personal risk in dental care insurance as of October 1997. These proposals will raise the average rate of inflation in 1997 and 1998 by less than 0.1 percentage point. The impact of all approved and proposed changes in indirect taxes and subsidies, assuming that it materialises in full, will raise the rate of registered inflation by an average of just over 0.5 percentage points in both 1997 and 1998.

Figure 3. CPI and underlying inflation*. Percentage 12-month change



^{*}The calculations for underlying domestic inflation (UNDINH) have been adjusted (see footnote 2). Sources: Statistics Sweden and the Riksbank.

HAS THE INFLATION PROCESS CHANGED?

The factors that condition the rate of inflation include inflation expectations and cyclical movements in production and employment. In other words, inflation is affected both by confidence in monetary policy's ability to safeguard the value of money and by changes in the level of activity.

A simple inflation equation can be written as:

 $\pi = \pi e + b * GAP + c * \pi u + e$

where π is registered domestic inflation, π^e is expected inflation, *GAP* is the cyclical situation (output gap or unemployment), π^u is external inflation (or other supply shocks) and *e* stands for random shocks; *b* and *c* are parameters that set the extent to which domestic inflation is affected by changes in the cyclical situation or in external prices and supply shocks.

A lasting change in the inflation process can result from a variety of factors. For one thing, the process that generates *inflation expectations* may have altered; a different formation of expectations may be a result, all else equal, of increased *inflation target credibility*, for example. For another, a *different trade-off* may have developed between the situation as regards supply and demand and the rate of inflation (this amounts to changing the values of the parameters that relate demand and supply shocks to inflation).

A clear indication of increased inflation target credibility is that the inflation expectations of households have fallen steeply in the 1990s. In the 1980s household expectations of inflation in the coming twelve months averaged 6–7 per cent. Since the beginning of 1992 the corresponding average level is little more than 2 per cent.

The clear trend break in households' inflation expectations from the beginning of this decade can be interpreted as an initial sign of a change in the inflation process. It is of even greater interest that expectations of inflation in the longer run (five years) among bond investors have been falling since 1991, though it was not until 1996 that they were under 3 per cent.

Demonstrating the occurrence of structural shifts with econometric methods is not easy, in this case partly because the interval since the adoption of the inflation target is fairly short. Results are presented below from two Riksbank studies. *One study* presents estimations of a simple relationship for inflation for the period 1972:Q2–1996:Q2.³ Inflation in a particular period is explained by a

Figure 4.

Output gap calculated with a W-H filter (λ =100,000), the production function approach (PF) and seasonally-adjusted registered unemployment. Per cent



combination of the preceding period's inflation, demand and external price changes, together with an average of historical external consumer price movements.⁴

Moreover, a number of dummy variables are used to catch changes in VAT rates during the period. The predictive properties of three demand indicators (the output gap measured with a Whittaker-Henderson filter (W-H) as well as with the production function approach (PF), and unemployment) were evaluated from 1994:Q3 onwards (Fig. 4).

The econometric results, presented in Table 1, show that when demand is represented by either of the two indicators of the *output gap*, the simple relationship for inflation tends to overestimate inflation after 1993. When a regime shift dummy is introduced from 1993:Q1, however, the relationship's predictive power is increased, particularly in the case where demand is measured with a W-H filter. With this dummy variable, inflation begins to move down from the beginning of 1993 by about 0.6 percentage points per quarter, that is, by about 2.4 percentage points a year. The relationships between the output gap (as specified here) and inflation suggest that the path of inflation has shifted to a lower level.

When demand is represented instead by *unemployment*, the relationship no longer overestimates inflation in the period after 1993.

In the *other study*, the relationship between growth on the one hand and unemployment, inflation and the level of activity on the other is analysed in a broader way, using the UC model⁵ (see Box on p. 17).

The UC model confirms that when demand is derived from unemployment, the picture of the inflation process differs from that when production is used. In the UC model the equilibrium level of unemployment is allowed to vary over time. With demand represented by cyclical unemployment (the difference between the registered and the equi-

Table 1.

Average registered inflation and predictions, with and without a regime-shift dummy, for 1994:II, 1995 and 1996:I.

Annual percentage change

	Registered inflation	Predicted, no regime dummy	Predicted with regime dummy				
 Output gap, W-H filter (λ=100,000)							
1994:II	2.6	3.2	2.6				
1995	2.9	5.0	3.1				
1996:I	1.4	3.5	1.5				
Output gap, PF approach							
1994:II	2.6	2.9	2.6				
1995	2.9	4.2	3.2				
1996:I	1.4	2.5	1.6				
Unemployment as demand variable							
1994:II.	2.6	2.4	2.5				
1995	2.9	2.5	2.8				
1996:I	1.4	1.0	1.3				

librium rate of unemployment), an estimation without a regime-shift dummy gives a fit to inflation that is roughly as good as an estimation with this dummy.

The changes that have occurred in the structure of Sweden's economy, in the form of deregulations, internationalisation and increased competition, have contributed to an improved price formation.⁶

Since about 1980 markets have been deregu-

3 See Berg, C. & Lundqvist, P. (1997), Has the inflation process changed?, Sveriges Riksbank *Quarterly Review* No. 2 (in press).

^{4~} As data are not available on inflation expectations prior to 1979, they are approximated on the right-hand side of the relationship by registered inflation in the preceding period.

⁵ See Apel, M. & Jansson, P. (forthcoming), System Estimates of Potential Output and the NAIRU, Sveriges Riksbank *Working Paper*.

⁶ See Borg, T. & Croneborg, M. (1997), Structural change and price formation, Sveriges Riksbank *Quarterly Review* No. 1.

lated to a greater or lesser extent in virtually all the industrialised countries. At the same time, public activities have been privatised and exposed to competition.

Pressure for change is also generated via advances in technology. In particular, developments in communication and information technology have had a major impact on the organisation of production and distribution. Expanding foreign trade and internationalisation also play an important part.

In Sweden a number of sectors have been deregulated in the past decade, for example transport and telecommunications. Other important events are the tax reform and the new competition laws. EU membership has also had positive effects on competition in Sweden. The market for food products has been deregulated in some respects. The 1990 food policy reform entailed a deregulation of agricultural policy, with less price support and an end to export subsidies. EU membership has involved some re-regulation but increased food imports have exerted downward pressure on prices.

Competition in everyday retailing has grown in that the wholesale-retail chain has been weakened in favour of direct deliveries from producers. The number of low-price shops has risen. Food prices have fallen in the 1990s. Even excluding the changes in VAT rates, the price of food products has moved up considerably less than the general price level. Increased competition from imports has been promoted by EU membership. In transport, increased competition has had positive price effects in air charter and the taxi market, for example.

Moreover, the telephone monopoly has been abolished. Prices have fallen sharply for products exposed to competition, such as international calls and mobile telephony, while they have risen in markets that are more protected. Rents, on the other hand, are rather immune to market forces and have risen more than the CPI.

Other CPI items that show above-average increases are highly-taxed goods (e.g. alcohol and petrol) and administrative prices (e.g. medical care and postal services). This is partly explained by the consolidation of government finance in that subsidies have been reduced and the degree of fee financing has risen.

The analysis of the lower inflation expectations points to an increase in inflation target credibility. There are many indications that the inflation process has shifted downwards. The magnitude of this shift is, however, difficult to specify. The reason for this is that actual inflation responds both to cyclical factors and to structural factors underlying the inflation propensity. Empirical results for these parameters are highly contingent on the specification of the demand situation.

Price formation has changed in a number of areas, with lower price increases and greater flexibility in consumer prices in the 1990s compared with the 1980s. For many categories of goods it seems that the rate of price increases has shifted downwards. Positive price effects are discernible above all in the food sector, import-dependent trade and some service sectors.

Factors of importance for future inflation

It was noted in the March report that during 1996 economic activity in Sweden was recovering. Towards the year-end the main contributions to growth were coming from sustained exports and rising private consumption. The upward tendency was being countered by stock reductions and a continued fall in public consumption and investment. To date in 1997 the differences in the level of activity between different economic sectors have remained substantial. Moreover, the statistics for such major sectors as manufacturing and trade do not point to a clear trend.

CONTINUED RECOVERY

Industrial activity slackened during 1996 but towards the end of the year there was a renewed, sharp upswing that then slowed again early in 1997. The level of production in the first quarter of 1997 was 8 per cent higher than a year earlier. Mixed signals about the strength of industrial activity have come from business tendency surveys by the National Institute of Economic Research. The survey in March 1997 showed that in the first quarter the tendency for production had been somewhat weaker than expected, while the order inflow had exceeded expectations; plans for production in the second quarter were therefore notably optimistic.

Production plans for manufacturing for the second quarter of 1997 were notably optimistic.

Industrial capacity utilisation as measured by Statistics Sweden rose from the third to the fourth quarter of 1996 by not quite 1 percentage point to over 88 per cent (Annex, Fig. 4). The year-end level was as high as during the period of overheating in 1987–90. As measured by the National Institute, however, capacity utilisation in the fourth quarter was lower, 85 per cent, and then fell in the first quarter of 1997 to 84 per cent. One reason why industrial capacity utilisation can be relatively high without generating inflation impulses is that the downward shift in inflation expectations, the low registered inflation and increased competition have appreciably limited the possibilities of raising prices without incurring substantial costs, for example in the form of lower sales. Another explanation is that in the period 1993-96 labour productivity in manufacturing rose more than 30 per cent; the number of employees at the end of this period was virtually the same as four years earlier. An assessment of the risk of industrial capacity shortages should therefore also include other indicators. The March survey from the National Institute showed that the supply of production factors was the primary obstacle to increased output for 16 per cent of firms; in earlier periods of high activity the figure has been 50 per cent or more.

Construction activity has continued to weaken in recent months.

In other respects the picture of business activity in the Institute's surveys is mixed. Construction activity has continued to weaken in recent months and expectations remain pessimistic. Just a few construction companies report that supply factors are a restriction; during the periods of overheating in the 1970s and '80s that was the case for between 80 and 100 per cent of this sector.

Activity in retailing seems to have improved on the whole in 1997.

In wholesale and retail trade the volumes of sales in the first quarter of 1997 were lower than a year earlier. The main explanation for this is no doubt that in 1996 everyday turnover was temporarily increased by the cut in VAT on food. Infrequent retail purchases rose appreciably in the first quarter this year and retail activity as a whole seems to have improved to date in 1997. Demand in business services (e.g. consultancy, legal services, accountancy and advertising) has gone on rising and expectations in March were generally positive. That was still more the case in computer consultancy and computer services. In the services sector it is the supply of personnel rather than facilities that is liable to restrict capacity. In most of this sector, e.g. wholesale and retail trade, there are no personnel shortages. In computer services, however, the labour situation has been deteriorating since 1993; in March 1997 over 80 per cent of firms reported a shortage of competent personnel and stated that this restricted production. This is the only category in the Institute's surveys where price increases are envisaged to an appreciable extent. There is also some shortage of personnel in business

services.

Summing up, the recovery in manufacturing and trade seems to be continuing, though the picture is not clear-cut. Activity is high in many business services and labour shortages have been reported for a few of them. There are hardly any general indications in the business sector of capacity restrictions that have generated inflationary impulses, though prices in manufacturing do show some upward tendency to date in 1997.

RISING HOME MARKET PRICES THIS SPRING

In April 1997 home market prices (prices for goods produced and sold in Sweden) were almost 1 per cent higher than at the end of 1996 (Annex, Fig. 5). In the case of consumption goods, the home market price rise in annual terms was almost 2 per cent. The price increases have occurred mainly in 1997. To date in 1997, however, the consumer price rise for goods has been very moderate. The extent to which higher import and producer prices are passed on to later stages is essentially contingent on the state of domestic demand.

Falling crude oil prices have offset effects of the weaker exchange rate on import prices.

Compared with the latest high, in November 1996, in April 1997 the (import-weighted) exchange rate had weakened by about 7.5 per cent. In this period the level of import prices rose almost 3 per cent (Annex, Fig. 5). Prices rose most for intermediate goods, while import prices for consumer goods hardly changed. At the same time, crude oil prices have been falling for the past six months, which offsets price effects of the weaker exchange rate. From November 1996 to April 1997 the price level for imports excluding energy-related goods rose more than 4 per cent, while the level for energy products fell 10 per cent.

Thus it is mainly prices for intermediate goods that have been affected by the weaker exchange rate, while the impact on imported consumer goods has been limited. This tallies with the historical experience that the impact tends to come sooner and be greater on categories of products that are comparatively homogeneous.

MONEY SUPPLY AND CREDIT POINT TO A RECOVERY

The development of the money supply and credit are relevant for monetary policy as indicators of demand. The tendencies have been very weak in recent years but a turn was observed in 1996.

The increase in the *non-bank sector's holdings of banknotes and coins (M0)* has continued recently (Annex, Fig. 11). The 12-month increase in April 1997 was over 5 per cent, which probably indicates a recovery in private consumption.

The growth of the *broader money supply (M3)* has fallen back to just over 4 per cent in April 1997, from a level above 10 per cent during 1996 (Annex, Fig. 11). The slowdown has come mainly from a less rapid increase in bank deposits from the business sector.

Lending by credit institutions to the resident non-bank public in April 1997 was about 2 per cent higher than a year earlier.

Lending by credit institutions to the resident nonbank public in April 1997 was about 2 per cent higher than a year earlier (Annex, Fig. 12). This contrasts markedly with 1996, when the 12-month change in lending was downwards for most of the year. Lending to the household sector in April rose just over 4 per cent, the highest 12-month change figure since 1991. The increase came mainly from housing intermediaries, where it largely represented the transfer of housing credits from banks and insurance companies. Bank lending to the household sector accordingly fell about 3 per cent, even though some new lending presumably occurred. Some increase in lending to the household sector was also achieved by finance companies.

Most signs point to an underlying growth of the money supply and credit, which supports the impression of a recovery in domestic demand.

The growth of the money supply and credit aggregates is partly a result of occasional effects (maturing premium and private bonds and the transfer of loans to housing intermediaries). But most signs still point to an underlying growth of these aggregates, which supports the impression of a recovery in domestic demand.

LABOUR MARKET STILL WEAK

To date in 1997 there have been no new signs of an improvement in the labour market. The level of registered unemployment in the first four months was almost 9 per cent, which is approximately 1 percentage point higher than a year earlier (Annex, Fig. 9). The difference represents about 40,000 more people out of work. The total unemployment rate (the registered component plus participants in labour market programmes, expressed as a percentage of the labour force) was almost 13 per cent, a 12-month increase of 15,000 persons.

The few positive signs during the winter that were noted in the March report have continued this spring. To date in 1997 the number of new job vacancies has been higher than a year earlier and the number affected by discharge notices has been lower. This may point to an upturn in labour demand. However, the employment tendency to date in 1997 has been downwards; in April 1997 the number in employment was over 60,000 lower than a year earlier. Total employment reached a low at the beginning of 1994; at the beginning of 1997 the increase since then amounted to only 24,000 persons.

Total employment reached a low at the beginning of 1994; at the beginning of 1997 the increase since then amounted to only 24,000 persons. Employment in manufacturing and private services rose during 1994 and the beginning of 1995 but from the second half of 1995 it has remained unchanged in private services and has fallen in manufacturing. Employment in construction also declined from the end of 1995. The downward tendency coincided with a slowdown in activity in the latter part of 1995 but the outcome of the 1995 wage negotiations probably accentuated the continued drop in private sector employment during 1996. In the public sector the number in employment has been declining since 1990; this tendency was particularly marked in 1992 and 1993.

The number of hours worked rose somewhat faster than the number in employment in 1994 but the tendencies since then have been about the same. At the beginning of 1997 the volume of hours worked was about 3 per cent lower than a year earlier.

The deterioration in the labour market situation that started towards the end of 1995 continued in the early months of 1997.

All in all, the deterioration in the labour market situation that started towards the end of 1995 continued in the early months of 1997. Declining employment has been accompanied by rising unemployment. With a continued economic recovery, however, it should be possible to turn the labour market trend in a more positive direction, particularly if the outcome of wage negotiations in 1997 and 1998 is appreciably lower than in 1995 and 1996.

LOWER WAGE INCREASES IN LINE WITH EARLIER ASSESSMENT

In 1996 the rate of registered wage increases was 6.3 per cent but since then it has fallen, as expected (Fig. 5).⁷ The overall wage level in the first two months of 1997 was 3.8 per cent higher than a year earlier, with increases of 4.4 per cent for the private sector and 2.9 per cent for the public sector. The highest private sector rate, around 7 per cent, was for transport, where it reflects large negotiated increases, and the lowest, around 3 per cent, was for trade (Annex, Table 1). The rate of wage increases also remained high for county councils, likewise mainly on account of large negotiated increases, e.g. for nurses.

Wage increases in recent new agreements are below 3 per cent and also lower than the outcome of agreements concluded earlier.

Since the March report new private sector wage agreements have been concluded for the paper, wood and construction industries, the financial and insurance sector and the telecommunications and postal sector, for example. The agreements are below the unions' initial demands, which were around 4 per cent. The lower level compared with earlier agreements is probably a reflection of lower inflation expectations and falling employment, coupled with the attention that wage formation has attracted. The negotiated increases are below 3 per cent. This is lower compared with recent years in each sector as well as with other sector agreements for 1997.

The development of wages in the early part of 1997 matched or was somewhat below earlier expectations. There may, however, be an upward revision in that many local negotiations for 1997 wages were not completed until later in the spring. Consideration must also be paid to the larger element of local negotiations and individual wage setting. In addition, some union agreements from this spring lead to retroactive wage increases for January and February. All in all, wage developments to date in 1997 are in line with the earlier assessments for the coming years.

7~ As indicated in earlier inflation reports, the 1996 wage rise included carry-over effects from 1995 wage settlements.

Figure 5. Total and sector wage levels. Percentage 12-month change



Sources: Statistic Sweden, Association of Local Authorities, Federation of County Councils and Riksbank calculations.

HOUSEHOLDS MORE OPTIMISTIC: RISING PRIVATE CONSUMPTION

Private consumption pointed upwards during 1996 and the annual level rose 1.5 per cent from 1995. Despite the 1996 wage rise of over 6 per cent, household disposable income was virtually unchanged, which had to do with a substantial fiscal withdrawal of purchasing power in order to consolidate government finance. To finance increased consumption, households accordingly saved a smaller proportion of income than before.

The growth of retail turnover to date in 1997 shows an upward tendency, though it was weak initially. Turnover in the first quarter of 1997 was almost 4 per cent higher than a year earlier. The March survey from the National Institute also points to rising retail activity in the first quarter this year. Infrequent purchases grew markedly and for April the number of new car registrations in the household sector shows a 12-month increase of over 70 per cent.

Rising imports of consumer goods support the impression of a recovery in domestic consumer demand.

Another point to note is that imports in the first quarter of 1997 were over 10 per cent higher than a year earlier and part of the increase came from imports of consumer goods. This supports the impression of a recovery in domestic consumer demand. The strong tendency in the money supply and credit is another sign that consumption is still rising. The upswing has accompanied an optimistic shift in households' personal economic expectations (Annex, Fig. 7).

The completion of the greater part of government financial consolidation may pave the way for lower precautionary saving by households.

In the coming two years the growth of disposable income is likely to remain low or negligible on account of a persistently tight fiscal policy. In addition, the unexpectedly weak development of disposable income and the low saving ratio in 1996 represent a restriction of the future scope for consumption.⁸ An uncertain factor, however, is the extent to which households did not anticipate the 1996 fall in the saving ratio and whether, to make up for this, they will save more (and consume less) of their future income than they had planned. The high saving earlier has included a precautionary component, based on growing uncertainty about the household's future income. Although the continued consolidation of government finance in the next two years will have a sizeable impact, its effects have probably peaked and this could lead to decreased precautionary saving in the future.

Summing up, since the recession in the early 1990s the consumption trend has been comparatively stable despite the weak development of income. In a situation where the conditions for increased income are improving, it therefore seems less probable that the growth of consumption will begin to level out. However, the labour market situation is likely to contribute to an increase in consumption that is relatively cautious.

UNUTILISED RESOURCES AT THE END OF 1996

The calculations of the output gap that were presented in the March report showed that in the fourth quarter of 1996 the actual level of production was below potential output. Gap estimates with the methods used there ranged from about -0.5 per cent to -3 per cent.⁹ Using data from the March forecast by the National Institute, the W-H filter and PF approaches both yield an output gap in the fourth quarter of 1996 that is smaller than previously: about 0 per cent and -2.5 per cent, respectively (Fig. 6).

No new national accounts statistics have been published since the March report but further work

⁸ To some extent the over-estimation of household disposable income in 1996

is explained by unexpectedly marked effects of the consolidation programme.A Whittaker-Henderson filter approach, the Unobserved Component method

⁹ A Whittaker-Henderson filter approach, the Unobserved Component method and the production function approach.

has been done to develop the estimation based on the Unobserved Component method (UC; see p. 17 for further details). Calculations with the new UC method give an output gap for the fourth quarter of 1996 of about -4.5 per cent; this is larger than the result with the earlier UC model, largely because the labour market situation is taken into account. The new calculations are in line with the assessment in the March report that at the end of 1996 the economy had plenty of unutilised resources. This is also indicated by other factors, for instance the labour market situation, industrial production and investment, retail turnover and price tendencies in different stages of production and distribution.

Figure 6.

Output gap calculated with three alternatives: the Whittaker-Henderson filter (W-H),* the Unobserved Component method (UC) and the production function approach (PF)**. Per cent





** Based on an estimate of 6.5 per cent for equilibrium unemployment in 1995-96 in Giorno et al. (1995), "Estimating potential output, output gaps and structural budget balances," OECD Working Paper No. 152.

Source: The Riksbank.

NEW VERSION OF UNOBSERVED COMPONENT METHOD

The notion behind the Unobserved Component (UC) method is that observable variables, such as inflation and actual GDP, can be used to try and determine variables that are not observable. The procedure starts from a model of the relationships between these two types of variables.¹⁰ The new calculations with this approach are based on a modified model that seems to fit the economic statistics better than the earlier version.

The principal components of the new, modified model are an equation where the path of inflation is influenced by cyclical unemployment (a Philips curve relationship) and a relationship between cyclical unemployment and the output gap (an Okun's law relationship).¹¹ The model produces time-varying estimates of unobservable variables such as the levels of potential output and equilibrium unemployment (NAIRU).¹²

The Philips curve relationship is such that the influences on inflation also include inflation in earlier periods. This mirrors rigidities in the inflation process that arise from, for example, the slow adjustment of inflation expectations to the monetary policy stance or to actual inflation and the time that passes before nominal price and wage contracts are renewed. The new calculations differs from the earlier UC method mainly in that it incorporates the Okun relationship and tries to allow for supply shocks (exogenous shocks, occasioned for example by sudden changes in raw material prices or taxes, that affect the level of economic activity and inflation as well as their interrelationship).

The analysis which the UC model's development has provided as regards the dynamics of the inflation process suggests that both the *size* of the output gap and *changes* in this are of significance for inflation's path. Cyclical effects on inflation may accordingly vary with the rate at which the output gap is closing or widening. A gap that is negative but closing rapidly may therefore lead to rising inflation. This means that the growth profile is of major importance for how inflation will develop and the relationship between the output gap and inflation is rather complex.

10 For a more detailed account of the UC method and other ways of calculating the output gap, see Apel, M., Hansen, J. & Lindberg, H. (1996), Potential output and output gap, Sveriges Riksbank *Quarterly Review* No. 3. 11 Apel, M. & Jansson, P. (forthcoming), System Estimates of Potential Out-

put and the NAIRU, Sveriges Riksbank Working Paper.

 $12\;$ The estimate of NAIRU in 1996 is around 6 per cent, which is in relatively good agreement with other calculations.

INFLATION EXPECTATIONS STILL IN LINE WITH THE TARGET

The level of inflation expectations fell markedly during 1996 for both the short and the medium term. Since the March report, one-year inflation expectations have been virtually unchanged among households as well as the manufacturing and services sectors. In April 1997 households on average expected a rate of 1.2 per cent, which is 0.2 percentage points lower than in February (Annex, Fig. 14). The National Institute's survey showed that in the first quarter this year both industrial and service firms expected rates that averaged around 1.0 per cent.

Surveys of inflation expectations among agents in markets for labour, goods and money in May 1997 show little change from the levels in the two preceding surveys (Annex, Table 2). It can be noted, however, that compared with the February survey, the employer organisations have adjusted their expectations downwards somewhat as regards wages as well as inflation. All the groups in the survey believe that in the coming years inflation will move up by degrees and reach around 2 per cent at the end of the period to which the expectations refer. The inflation expectations of money market agents are well in line with the result of Aragon's survey in the middle of May 1997 (Annex, Fig. 15). Outside observers' forecasts of inflation in 1997 and 1998 have been lowered on average since the end of 1996 by 0.6 and 0.3 percentage points.

A compilation of inflation forecasts by outside observers shows a successive downward revision during the past year (Fig. 7). In May 1997 it was expected on average that inflation would be 1.1 per cent in 1997 and 1.9 per cent in 1998, a downward revision since March of two-tenths of a percentage point. Since the end of 1996 the inflation forecasts for 1997 and 1998 have been lowered by an average of 0.6 and 0.3 percentage points, respectively.

Interest and exchange rates

It is mainly via interest and exchange rates that monetary policy influences the economy.¹³ A rule of thumb is that monetary policy measures exert their full impact on inflation after an interval of one to two years. Interest rates influence credit demand and

13 This transmission mechanism was described in more detail in *Inflation Report* 1996:2 (June).

Figure 7. Average of inflation forecasts from selected forecasters. Per cent



Sources: Forecasters and the Riksbank.

supply, leading to effects on the general demand situation and future inflation, while the exchange rate affects price movements directly in the form of import prices and indirectly via the impact on demand in the sector exposed to foreign competition. Interest and exchange rates, moreover, are indicators of expected inflation and monetary policy, which means that they also mirror the credibility of economic policy.

The expectations of further repo rate cuts that existed at the beginning of 1997 have now virtually disappeared.

On 17 December 1996 the Riksbank lowered the repo rate from 4.35 to 4.10 per cent. Since then the rate has not been changed. In the course of 1996 the repo rate was lowered by a total of 4.81 percentage points. Investors' expectations of the future repo rate can be derived from *short implied forward interest rates* (Fig. 8).¹⁴ The repo rate cuts during 1996 were fairly well in line with market agents' expectations for the coming quarter or so. At the beginning of 1997 there were expectations of further repo rate cuts; these have now virtually disappeared.

Expectations about future monetary policy are also mirrored in *medium-term implied forward interest rates,* which are influenced in addition by medium-term inflation expectations. This means that the impact on these interest rates that stems from rising inflation expectations is compounded by the associated expectations of monetary policy measures. Since the turn of 1996 the medium-term forward interest rates have moved up about 0.4 percentage points. This is largely explained by the disappearance of expectations that the repo rate will continue to be lowered.

The *long-term implied forward interest rate*, which indicates the long-term inflation expectations of financial investors, was at the end of May at about the same level as at the turn of 1996. *The long-term interest rate difference with Germany*, which can serve as a measure of economic policy credibility in Sweden, has widened since the turn of 1996 by about 0.5 percentage points and was at the end of May 0.9 percentage points.

Recently the SEK/DEM exchange rate has covaried strongly with the long-term interest rate differential (Annex, Fig. 21). This suggests that credibility effects were still an important explanation of financial market tendencies. The increased differential and the weaker exchange rate this spring have probably reflected not just domestic factors but also,

14 For a more detailed account of implied forward interest rates and how they can be used in the analysis see *Inflation Report 1996:4* (December).



Source: The Riksbank.

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for example, the uncertainty about the EMU process.

As a result of the interest and exchange rate movements in recent months, from February to April 1997 the three-month ex ante real interest rate¹⁵ rose 0.3 percentage points to 2.9 per cent (Fig. 9) and the five-year ex ante real interest rate¹⁶ moved up 0.5 percentage points to 3.9 per cent. In the same period the real (TCW) exchange rate weakened almost 2 per cent. Between February and April 1997 the monetary conditions (the combined impact of short

interest rates and the exchange rate on demand) accordingly became somewhat more expansionary. Since then the real exchange rate has become somewhat stronger, while the real interest rate has remained virtually unchanged.

16 The five-year bond rate adjusted for financial investors' expectations of inflation five years ahead (Aragon).

Figure 9.

Real three-month interest rate and real effective (TCW) exchange rate. Per cent and index: October 1992=100



Source: The Riksbank.

¹⁵ The nominal rate for three-month treasury bills adjusted for the CPI change expected by households in the coming year.

DETERMINANTS OF THE EXCHANGE RATE

From the beginning of October 1996 to the end of May 1997 the krona's effective (TCW) exchange rate weakened by 7.5 per cent. Factors that are considered to be important for the value of the krona are discussed here, mainly with reference to recent tendencies.

In general it can be said that the nominal exchange rate is determined by the real exchange rate and the rate of inflation relative to the rest of the world.¹⁷ The real exchange rate is an expression of the price of goods and services in Sweden relative to other countries. It is therefore affected by factors underlying supply and demand in Sweden and abroad, for example productivity, saving and external debt. If inflation in Sweden is higher than elsewhere, this has to be offset by a depreciation of the krona to keep the real exchange rate stable. The exchange rate is also affected by expectations of its future path. Expectations that the krona will depreciate because, for example, an expansionary monetary policy is anticipated, will weaken current demand for kronor and cause the exchange rate to fall immediately. In this context an important factor for the exchange rate is the credibility of an economic policy for long-term price stability.

Real exchange rate equilibrium exists when the economies of Sweden and our main trading countries are in internal and external balance. Internal balance requires full employment and perfect confidence in an economic policy for long-term price stability, while external balance means that external debt is sustainable. In such a situation there are no grounds for a permanent inter-country transfer of resources via shifts in relative prices. During a period of adjustment, however, the real exchange rate may deviate from its equilibrium level. Moreover, if the real growth trend deviates from the rest of the world, the equilibrium real exchange rate may display a long-term trend. In a study at the Riksbank the *real* equilibrium (TCW) exchange rate has been judged to be in the interval 109–118, with the emphasis on the lower side.¹⁸ Except as regards employment, in recent years Sweden's economy has been moving towards internal and external balance; confidence in economic policy has grown and the current-account surpluses are sizeable. A continuation of the disciplined economic policy, aimed at sound government finance and price stability, should lead in time to exchange rate appreciation towards the equilibrium level.

In addition to the adjustment mechanisms mentioned above, the exchange rate can be affected by more temporary factors that have recently played a greater part.

For one thing, *cyclical* factors may be at work. Countries in a phase of stronger activity may have cause to tighten the monetary stance, which normally leads to an appreciation of the domestic currency.¹⁹ The monetary stance in the United States and the United Kingdom is relatively tight at present compared with many other European countries. This has contributed to a marked appreciation of the dollar and sterling against other European currencies, including the krona (Fig. 10). The strengthening of the dollar and sterling accounts for approximately half of the krona's weakening since October 1996.

For another thing, the exchange rate may reflect *credibility*. The krona has weakened recently against the German mark, for instance, accompanied by a rising long-term (forward) interest rate

¹⁷ The real exchange rate (RX) is defined here as $RX = NXP^*/P$, where NX is the nominal exchange rate and P and P^* are the domestic and the external price level, respectively.

¹⁸ Alexius, A. & Lindberg, H. (1996), The krona's equilibrium real exchange rate, Sveriges Riksbank *Quarterly Review* No. 1.

¹⁹ New information that elicits a monetary policy measure in the form of a change in the instrumental rate in one country will lead to a shift in the short interest rate differential and this in turn generates increased demand for investment in the country with the higher interest rate. This strengthens the high-interest currency until such time as depreciation expectations arise that match the short interest differential, making investments in different currencies equivalent.

difference with Germany (Annex, Fig. 21). This has to do with uncertainty both about the EMU process, which has been particularly liable to elicit effects in countries with a history of high inflation and problems with government finance, and about the future direction of domestic economic policy, which is partly connected with the persistently high level of unemployment.

Thirdly, in addition to cyclical factors and credibility, the exchange rate may be affected by *temporary fluctuations in exchange market supply and demand.* Such fluctuations may be occasioned by portfolio adjustments or short-term positioning. For some time now, Swedish insurance companies, for example, have been re-weighting portfolios in favour of foreign securities.²⁰ There are times when these mechanisms may tend to accentuate exchange rate movements even though economic fundamentals point in the opposite direction; after a while, however, there should normally be an adjustment to levels that are more representative of the fundamental situation.

It is difficult to single out a particular factor behind the recent weakening of the krona. A combination of cyclical factors, credibility effects and short-run market reactions seems to be a more probable explanation. The Riksbank does not target the exchange rate; monetary policy is directed at maintaining price stability. In this context the exchange rate is to be regarded as one of several factors with a bearing on future inflation.

20 A part of these securities transactions may stem from an altered appraisal of the credibility of Sweden's economy and policy; another part may have to do with more liberal investment regulations.



Chapter 2

Inflation assessment June 1997

The assessment of inflation in the coming years is presented in this chapter, together with some conceivable alternative paths. The outlook is based on the analysis in Chapter 1. The monetary policy conclusions to be drawn from inflation's conceivable paths are discussed in Chapter 3.

The picture of real economic activity to date in 1997 has been rather mixed. The substantial differences in the level of activity in different parts of the economy have continued and even become somewhat more pronounced. Growth has been comparatively good in computer and other business-type services, with some specific activities that can be described as overheated. Activity in the construction industry, on the other hand, is still stagnant. Trade and manufacturing have been comparatively expansive, whereas public activities are still contracting.

It is conceivable that the upswing in consumption that was noted during 1996 was partly a transitory result of the tax reductions for food products and passenger cars. The weak development of household disposable income in 1996 may restrict future consumption in so far as households prefer to save more in the coming years to make up for the reduced saving ratio in 1996. It is likely, moreover, that the development of income in the years ahead will be notably weak, in the first place because of measures for consolidating government finance.

A factor which speaks for a stable economic recovery is that for a year now the volume of imports has been rising markedly.

It is also conceivable, on the other hand, that the fall in the saving ratio represents a preference for bridging a number of weak income years, in which case the income situation in 1996 would be of little consequence for future consumption and saving. The strong tendency in the money supply and credit aggregates suggest that the underlying growth of consumption is good. Another factor which speaks for a stable economic recovery is that for a year now the volume of imports has been rising markedly. The broad increase in imports probably reflects expectations of a rising propensity for household consumption but also, in that it includes intermediate and investment goods, an end to the reduction of stocks. The labour market tendencies suggest, however, that the recovery of consumption will be cautious.

The overall assessment, as previously, is that the rounded GDP growth rates for 1997 and 1998 will be 2 and 3 per cent, respectively.

A comprehensive analysis of the factors behind the outlook for growth leads to the conclusion that the assessment in the March report still holds: growth will pick up in the coming years. In that the main scenario now starts from a weaker exchange rate than in the March report, the composition of growth in the years ahead may however be different in some respects, with somewhat stronger exports and marginally weaker consumption. The overall assessment, as previously, is that the rounded GDP growth rates for 1997 and 1998 will be 2 and 3 per cent, respectively. Considering the present level of total capacity utilisation, the continuation of high growth in the early part of 1999 would not be likely to close the output gap.

The wage settlements for 1998 onwards will have a major impact on the conditions for inflation and the labour market situation.

Recent wage tendencies and settlements have been in line with the assessments in earlier inflation reports. It now looks as though wage formation, after the excessively high wage increases in the period 1994–96, has begun to adjust to a low inflation economy. This process may be facilitated by other arrangements such as the cooperation agreement in manufacturing. The wage settlements for 1998 onwards will have a major impact on the conditions for inflation and the labour market situation.

There have been discussions this spring about how future wage formation is to be arranged so that real wages and employment can rise without boosting inflation. Opinions about this differ between the labour market organisations but there does seem to be a greater awareness of the link between wage setting and employment. However, there are still only a few signs that wage formation and the labour market will adapt to the extent that is required to achieve a substantial reduction even of structural unemployment (the non-cyclical component).

SAME UNDERLYING INFLATION AS IN THE MARCH REPORT

The development of both registered and underlying inflation this spring has been much as expected in the March report. Neither do the latest statistics alter earlier assessments of the outlook for the real economy and wage formation. General capacity restrictions that would generate additional inflationary impulses are not foreseen. The stable conditions for inflation are underscored by the fact that since the autumn of 1996 expectations of inflation some years ahead have been in the vicinity of the 2 per cent inflation target. The Riksbank's assessment of *underlying* inflation in the years ahead is the same as in the March report.

All this means that the Riksbank's assessment of underlying inflation in the years ahead is the same as in the March report. Given an unchanged monetary stance, some increase in underlying domestic inflation (inflation generated in Sweden apart from effects of altered taxes and subsidies) is accordingly expected in the rest of 1997 and in 1998 but the level will remain in the interval 1.5–2 per cent. As regards inflation as measured by the CPI, however, there are factors which will cause a deviation from underlying domestic inflation, above all during 1997.

Inflation as measured by the CPI will deviate from underlying domestic inflation, above all during 1997.

Given unchanged market interest rates, the fall in *house mortgage interest costs* will level out, though it will continue to contribute to lower registered inflation in 1997 and 1998 as house mortgage loans are successively renewed at the lower interest rates. The Riksbank judges that interest costs will lower registered inflation by an average of almost 1 percentage point in 1997 and just under 0.5 of a point in 1998. This is less than was assumed in the March report, mainly on account of Statistics Sweden's revised outcome figures for January 1995 to March 1997.

This inflation assessment starts from some appreciation of the nominal effective (TCW) exchange rate from the level of 122, which means that the rate is around 2.5 per cent weaker than in the March version of the main scenario.

The *exchange rate* has not followed the path that was envisaged in the main scenario in March. The average level of the TCW index in the period since the March report is 122. A weaker exchange rate has effects on import prices and, after a time, normally on consumer prices, too.

To date the recent depreciation's impact on consumer pries has been slight. A more extensive effect on consumer prices for imported goods would probably arise if the krona's weaker level is perceived as permanent and the growth of consumption rises. This inflation assessment starts from some appreciation of the nominal effective (TCW) exchange rate from the level of 122, which means that the rate is around 2.5 per cent weaker than in the March version of the main scenario. A full effect on prices would raise the annual level of inflation by up to half of a percentage point.

On top of this, the *changes in indirect taxes and subsidies* that were proposed in the Spring Economic Bill mean that the annual level of registered inflation in 1997 will be 0.1 percentage points higher than with the changes proposed earlier.

An assessment of future inflation indicates that in terms of the CPI the annual rates will be about 1 per cent for 1997 and about 2 per cent for 1998.

Against this background, a comprehensive assessment of inflation indicates that in terms of the CPI the annual rates will be about 1 per cent for 1997 and about 2 per cent for 1998. From the summer of 1997 the registered rate is expected to move up to around 1.5 per cent at the end of the year and then be around 2 per cent during 1998. This assessment implies a higher rate of inflation in terms of the HICP, about 1.5 per cent for 1997 and somewhat more than 2 per cent for 1998.

The present assessment of registered inflation is somewhat higher than in the March report, which foresaw an annual rate around 0.5 per cent for 1997 and somewhat less than 2 per cent for 1998. The reasons for the difference are Statistics Sweden's revision of the outcome for house mortgage interest costs, the present assumption of a weaker exchange rate and, to some extent, the new proposals for changes in taxes and subsidies. Underlying domestic inflation, on the other hand, is expected to remain in line with the March version of the main scenario.

ALTERNATIVE PATHS

It is conceivable that the essential factors for future inflation take a different course so that, with an unchanged monetary stance, inflation may be either higher or lower than in the main scenario. For this reason the Riksbank regularly assesses conceivable alternative paths for the economy and inflation. The main factors behind present uncertainty about future inflation are considered to be largely the same as in the March report: the exchange rate tendency and the path of consumption. To these there is reason to add the output gap and the development of productivity.

An exchange rate that remains weak or depreciates still more, for instance as a consequence of uncertainty about the EMU process, would lead to increased demand for Swedish exports as well as for domestic production that competes with imported goods. In the same way as some years ago, increased inflationary pressure in the internationally oriented sector can generate impulses to inflation that ultimately threaten to spread to other parts of the economy. The extent to which this will happen and the degree to which higher import prices as a direct consequence of a weaker exchange rate will lead to high consumer price inflation will probably depend mainly on the strength of domestic demand, above all for private consumption.

With growth about 1 percentage point higher than in the main scenario, inflation could average about 1.5 per cent in 1997 and approach the inflation target's upper tolerance limit during 1998.

There are signs that may herald a stronger consumption tendency. Examples are the growth of the money supply, imports of consumer goods, household wealth and a more optimistic mood among households. A strong trend presupposes, however, that households largely foresaw the drop in saving during 1996. Together with a persistently weak exchange rate, a total growth rate in the coming years that is about 1 percentage point higher than in the main scenario could lead to a registered annual rate of inflation of around 1.5 per cent for 1997, followed by a rise that approaches the inflation target's upper tolerance limit during 1998.

It is not the case, however, that the weaker exchange rate which is now assumed in the main scenario, or an even weaker rate, would necessarily lead to an appreciably higher pass-through from import to consumer prices. For one thing, in recent years this pass-through has been lower than before in Sweden as well as in several other industrialised countries. For another, weak consumer demand could make it difficult for trade to pass on high import prices to consumers to any sizeable extent.

The possibility of persistently weak consumer demand is indicated above all by the fall in employment and perceptions that the risk of becoming unemployed has grown again. Moreover, if the reduction of the saving ratio in 1996 was not largely planned by households, the decrease in saving in the coming years may be less. A weak consumption trend could mean that the total growth rate in 1997 and 1998 is about 1 percentage point lower than in the main scenario. This would also mean that inflation is lower, above all during 1998, around 1.5 per cent.

A growth rate about 1 percentage point lower than in the main scenario implies lower average inflation, above all during 1998, around 1.5 per cent.

Few factors are of such importance for inflation as capacity utilisation (or the output gap) and productivity. The inflation assessment starts from an economy with plenty of unutilised resources at the end of 1996 and an annual increase in potential output of about 2 per cent of GDP. Together with the prospect of a rounded 5 per cent increase in GDP in 1997 and 1998 combined, these assumptions imply that inflationary pressure should continue to be limited in the first half of 1999. Another favourable factor as regards inflation is the stronger productivity growth to date in the 1990s.

The element of uncertainty is evident, however, from the repeated occasions on which estimates of the output gap have had to be revised in recent years. This is underscored by the fact that inflation is affected not just by the size of the gap but also by the rate at which it closes.

Productivity growth has likewise proved difficult to predict. The increase in the latter half of 1996, for instance, was underestimated by most observers, including the Riksbank. An essential question that cannot be answered at present is the extent to which the stronger productivity growth is permanent rather than the result of a temporary combination of weak demand and rapidly rising labour costs. CHAPTER 3

Monetary policy conclusions

The conclusions for monetary policy are discussed in this chapter. Monetary policy's objective is price stability. The Riksbank has formulated this as limiting the annual increase in the consumer price index to 2 per cent, with a tolerance interval of ± 1 percentage point. On account of the time lag before monetary policy measures affect inflation, the construction of monetary policy is based on assessments of inflation in the coming two years. Those assessments are presented in Chapter 2.

As noted in the March report, inflation during 1996 was underestimated by the Riksbank mainly on account of transitory effects. Falling interest rates, brought about in part by the conduct of monetary policy, contributed to an unexpectedly steep downward shift in the registered rate of price increases. A stronger exchange rate also played some part in bringing consumer prices onto a lower path than had been foreseen. Altogether these factors reduced the annual CPI increase in 1996 by almost 1 percentage point (allowing for Statistics Sweden's changes in the method for calculating house mortgage interest costs). During 1997 the fall in these interest costs has continued to hold registered inflation down. In March 1997, however, the rate of the fall weakened from the previous month for the first time since April 1995. During the spring, CPI inflation (measured with Statistics Sweden's revised method) has been between 0.0 and 0.2 per cent. According to the earlier statistics the 12-month changes had been negative.

Underlying domestic inflation is a concept that aims to exclude transitory price effects (such as house mortgage interest costs and altered indirect taxes), international factors and direct exchange rate effects. The trend for this measure of inflation has been falling since the beginning of the 1990s. To date in 1997 the rate of increase has been around 1.5 per cent.

This means that to date in 1997 both registered and (domestic) underlying inflation have broadly followed the path that was expected in the March report. Inflationary pressure in the Swedish economy remains limited but recent tendencies indicate that inflation's downward trend has probably come to an end.

Inflationary pressure in the Swedish economy remains limited but recent tendencies indicate that inflation's downward trend has probably come to an end.

In the main scenario underlying domestic inflation is judged to follow the same path as in the March report and amount to between 1.5 and 2 per cent during 1997 and 1998. Registered CPI inflation, however, will be below the underlying rate on account of the fall in house mortgage interest costs. With Statistics Sweden's revised method the difference will be smaller than the Riksbank envisaged earlier. At the same time, higher registered inflation compared with the March assessment is foreseen because the exchange rate is now assumed to be weaker and the Spring Economic Bill contains new proposals for changes in indirect taxes and subsidies. All in all, the Riksbank considers that CPI inflation will average about 1 per cent in 1997 and about 2 per cent in 1998.

The Riksbank considers that CPI inflation will average about 1 per cent in 1997 and about 2 per cent in 1998.

The opinion of the Riksbank concerning inflation in the coming years is based on real as well as monetary conditions in the economy. A central real economic factor is GDP growth. As previously, the assessment in the main scenario is that GDP growth in 1997 and 1998 combined will total about 5 per cent. The main reason why this relatively favourable path for growth is compatible with low inflation is the existence in general of plenty of unutilised capacity. The output gap, which is partly contingent on the labour market situation, is not expected to close in the coming two years. It should be noted, however, that it is not just the size of the output gap which is of significance for inflation; the rate at which the gap changes is also important. Structural changes and a lower inflation propensity on account of increased competition in several activities, for example, are judged to be favourable as regards the outlook for inflation.

The construction of fiscal policy is also relevant for the path of inflation in the coming years. The major consolidation of government finance has held back household income in recent years. This was the case not least in 1996, when income was virtually unchanged even though wages rose more than 6 per cent. Only a marginal increase in household income is also foreseen this year and in 1998 on account of the tight fiscal stance. Moreover, the future direction of fiscal policy conditions monetary policy via credibility effects. The krona's appreciation and the fall in bond rates in the second half of 1995 were very much an effect of enhanced confidence in fiscal policy. Similarly but with the opposite effect, any unrest concerning the policy's long-term durability can affect the Riksbank's future scope for action.

It was noted in the March report that the main scenario provided scope for somewhat more expansionary monetary conditions in that inflation during 1998 was expected to be below 2 per cent. This presupposed an appreciation of the TCW exchange rate from the level of 119 and an unchanged repo rate. In the meantime the monetary conditions have become somewhat more expansionary because the exchange rate has been weaker than envisaged in March. This has been accompanied by an unchanged repo rate. The weakening of the krona probably reflects a combination of cyclical factors, credibility effects and occasional portfolio adjustments in the exchange market.

The Riksbank does not target the exchange rate; monetary policy focuses directly on the objective of price stability. But the exchange rate is important as an indicator of future inflation; it also influences inflation via direct effects on import prices as well as through its importance for the development of demand.

WELL BALANCED MONETARY STANCE

The assessment of inflation in the coming years starts from an unchanged repo rate and a limited appreciation of the TCW exchange rate from the level of 122. Studies at the Riksbank show that at present the krona is undervalued in relation to long-term fundamentals.²¹ In recent years the Swedish economy has moved towards a more balanced situation. A continuation of this tendency should cause the exchange rate to adjust to a level that is more appropriate fundamentally. To a certain extent, the weakening of the krona is thus regarded as a temporary phenomenon.

The difficulty in predicting the krona's path and the uncertainty about the tendency for private consumption are still considered to be the factors that may cause inflation to deviate from the assessment in the main scenario. To this should be added the uncertainty in recent years concerning such impor-

²¹ See Alexius, A. & Lindberg, H. (1996), The krona's equilibrium real exchange rate, Sveriges Riksbank *Quartedy Review* No. 1.

tant factors for inflation as the output gap and the development of productivity.

In the main scenario it is judged that underlying inflation will be between 1.5 and 2 per cent, while

the rate of increase in the CPI during 1998 is expected to be in the vicinity of the 2 per cent inflation target. This assessment of inflation implies that the monetary stance is well balanced.

Annex

Figure 1.

Figure 2.

change

CPI components.

Percentage 12-month

CPI* and HICP*. Percentage 12-month change



*Revised data from January 1995 onwards.

**Harmonised index for international comparisons of consumer prices. Approximate data before 1996. Note. The horizontal lines from 1995 onwards represent the Riksbank's tolerance interval for the CPI. Source: Statistics Sweden.



Note. The figures in parentheses are the component's CPI weight in 1997. Sources: Statistics Sweden and the Riksbank.

Figure 3. CPI and underlying inflation. Percentage 12-month change









Source: Statistics Sweden.



Import, export and home market prices. Index: 1992=100



Source: Statistics Sweden.

Figure 6.

Private consumption and retail turnover. Volume, seasonallyadjusted quarterly data and moving 3-month average, respectively; index: 1991=100



Source: Statistics Sweden.

Figure 7.

Households' personal economic expectations* and private consumption. Net figure and annual percentage change



*The HIP statistics were revised in October 1995. Source: Statistics Sweden.

Figure 8.

Gross fixed capital formation relative to GDP: total, excl. residential and in mining and manufacturing. Seasonally-adjusted volume, per cent





Figure 9.

Unemployment and job vacancies. Per cent and thousands, respectively; seasonallyadjusted data



Sources: Statistics Sweden and National Labour Market Board.

Sectorwise wage formation. Percentage change, annual rate

	1993	1994	1995	1996	JanFeb. '97
Private sector	3.0	2.6	4.0	6.3	4.4
manufacturing	3.4	3.7	4.8	7.4	4.6
trade	2.8	1.5	4.0	5.1	3.5
construction	3.8	2.8	3.9	4.3	3.8
Central government*	2.9	4.2	3.9	6.9	2.8
Municipalities	3.2	3.2	1.0	5.4	2.0
County councils*	2.9	4.1	2.7	7.8	5.1
Total economy	3.0	3.1	3.3	6.3	3.8

* Adjusted for retroactive disbursements but not for inter-sector rearrangements of activities. For 1997 the central government figure is derived from wage agreements.

Sources: Statistics Sweden, Association of Local Authorities, Federation of County Councils and Riksbank calculations.

Figure 10.

Unit labour costs (ULC) and labour productivity. Percentage 12-month change, moving fourquarter average





Figure 11. Money supply and liquidity.

Percentage 12-month change



Note. The liquidity aggregate comprises holdings of M3, certificates, treasury bills, national savings accounts, National Debt Office accounts, premium bonds and private bonds. Source: The Riksbank.

Figure 12.

Net lending by credit institutions: to resident non-bank sector and household sector; and bank lending Percentage 12-month change



Note. From January 1995 onwards the figures include banks' repos with the non-bank public. Lending by housing institutions has been adjusted for the transfer of state housing loans to this category in July 1995. Source: The Riksbank.

Figure 13. Price index for owneroccupied housing (1981=100) and Stockholm Stock Exchange share price index (end 1979=100)



Note. Latest observation: 30 April 1997.

Sources: Statistics Sweden and Stockholm Stock Exchange

Figure 14.

CPI and inflation expectations* of households and industry. Percentage 12-month change



*The curves for expectations have been shifted twelve months into the future so that they coincide with the period to which the expectations refer.

**As of 1996 the ten most extreme responses at either end are excluded; prior to 1996 the curve shows responses in the range 0–15 per cent.

Note. The horizontal lines from 1995 onwards represent the Riksbank's tolerance interval for the CPI. Sources: Statistics Sweden and National Institute of Economic Research.

Figure 15.

Bond investors' inflation expectations. Average annual percentage rates for the next two and five years



*The implied average expected inflation rate in the period from three to five years ahead, calculated by the Riksbank.

Note. The horizontal lines from 1995 onwards represent the Riksbank's tolerance limits for the CPI. Source: Aragon Fondkommission.

Table 2.

Inflation expectations in May 1997 with the change from February 1996 in parentheses. Average figures, per cent and percentage points

	Annual change in CPI in:				
	1 yr.	2 yrs.	5 yrs.		
Employer organisations	1.3 (-0.2)	1.5 (-0.2)	1.8 (-0.1)		
Employee organisations	1.4 (0.0)	1.7 (+0.1)	2.0 (+0.1)		
Purchasing managers, industry	1.7 (+0.1)	1.9 (+0.1)	2.1 (0.0)		
Purchasing managers, trade	1.6 (0.0)	1.8 (0.0)	2.1 (+0.1)		
Money market agents	1.4 (0.0)	1.7 (0.0)	2.1 (0.0)		

Source: Prospera Research AB.

Figure 16.

Average of inflation forecasts from selected forecasters. Per cent



Sources: Forecasters and the Riksbank.





Figure 18. Implied forward interest rates in the United States and Germany. Effective annual rate, per cent

Figure 19.

exchange rate. Index: 18 November

1992=100

Effective (TCW) nominal



Source: The Riksbank.

Figure 20.

Implied real and nominal forward ten-year bond rates. Per cent



Sources: National Debt Office and the Riksbank.

Figure 21. Forward ten-year interest rate differential with Germany and SEK/DEM exchange rate. Percentage points



Source: The Riksbank.



*The ten-year treasury bond rate refers for 1992 to the Swedish issue no. 1030, maturing on 15 June 2001, for 1993 to issue no. 1033, maturing on 5 May 2003, for 1994, 1995 and 1996 to issue no. 1035, maturing on 9 February 2005 (from end October 1996 to end 1996 to issue no. 1038, maturing on 25 October 2006) and for 1997 to issue no. 1037, maturing on 15 August 2007. Source: The Riksbank.

Figure 22. Interest rates. Daily quotations, per cent





Source: National Debt Office.