Figure B19. Labour shortages in manufacturing and construction.

- Manufacturing, skilled workers
- - - - Manufacturing, salaried technicians
- Construction, labour as primary shortage
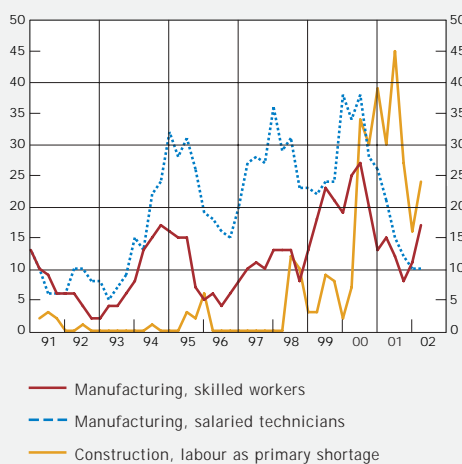
Source: National Institute of Economic Research.

Figure B20. Labour shortages in private services.

- Computer services
- - - - Business services
- Wholesale trade
- - - - Infrequent goods trade

Source: National Institute of Economic Research.

SHORTAGES AND MATCHING PROBLEMS IN THE LABOUR MARKET?
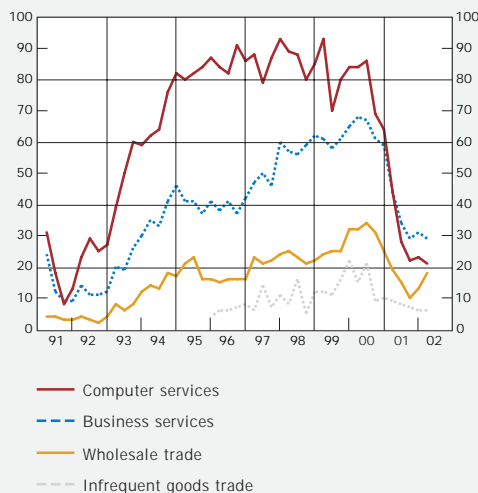
Notwithstanding the cyclical slowdown, the labour market is relatively tight. The rate of open unemployment in August was 4.1 per cent. This raises questions about the available amount of unutilised resources and how well the matching of job-seekers and job vacancies works. These issues are relevant for monetary policy, partly because difficulties with recruitment can lead to inflationary rates of wage increases when economic activity improves.

LABOUR SHORTAGES TODAY AND IN THE FUTURE

According to the quarterly business tendency surveys from the National Institute of Economic Research (NI), the level of labour shortages in *manufacturing* is currently comparatively low. Recently, however, certain shortage figures have shown a slight upward tendency (Fig. B19).

In construction, the NI figures indicate that labour shortages decreased substantially during 2001 and the early part of this year. In this year's spring interview study by the National Labour Market Board, however, difficulties with recruitment were reported by one construction firm in four.[10]

The NI surveys also show that during 2001 labour shortages fell in most service industries (Fig. B20). According to Statistics Sweden's labour force barometer for 2001, however, there are shortages of experienced labour with a technological and scientific education.[11] These shortages may grow in the future.[12]

The latest NI survey of the public sector indicates staff shortages in schools, child care, old-age care and medical care. According to the Federation of County Councils, the prevailing lack of doctors, nurses and care

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10 Israelsson, T., Strannefors, T. and Tydén, H. (2002), *Arbetsmarknadsutsikterna för 2002 och 2003* (Labour market prospects for 2002 and 2003), Ura 2002:4, AMS (National Labour Market Board).

11 Statistics Sweden's labour force barometer is an annual questionnaire survey of a sample of employers, who are asked for their assessments of the supply of applicants with specific skills and how they expect the number of employees will change one and three years ahead.

12 See Statistics Sweden (2002), *Trender och prognoser 2002 – Befolkningen, utbildningen, arbetsmarknaden med sikte på år 2020* (Trends and forecasts 2002 – Population, education, labour market, with the sights on the year 2020).

personnel is liable to grow up to 2010.[13] The shortage of teachers is also expected to grow in time.[14]

Demographic developments combined with a numerous recruitment of replacements (mainly for retirees) will face parts of the public sector with a need to obtain a large number of new employees in the future.[15] Such factors as the future development of sick leave will also be important.

IMPAIRED MATCHING IN THE 1990S?

The large future need to recruit personnel, above all in the public sector, can perhaps be facilitated by an efficient process for matching job vacancies and the unemployed. Frictions in the matching process are one reason why labour shortages can co-exist with a relatively large proportion of jobless persons in the labour force. The efficiency of this process is commonly illustrated graphically as the relationship, usually referred to as the Beveridge curve, between unemployment and job vacancies.

The basic notion is that an increased number of vacancies leads to more people being employed and fewer being unemployed. The position on the Beveridge curve can also be used to interpret the efficiency of the matching process. The more efficiently a given number of vacancies is matched with those unemployed, the quicker will be the outflow from unemployment and the closer the curve will be to its origin.[16] The Beveridge curve can also be used to interpret changes in unemployment and vacancies. A situation where unemployment rises

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13 The total labour market's annual need for personnel trained in care, for example, is calculated to be about 18,000 persons, which exceeds the educational quotas for upper secondary school care programmes and adult education (totalling 7,000 persons a year). See Landstingsförbundet (2001), *Det finns alltid behov av en till, men … Prognos 2001–2010. Rekryteringsbehov och tillgång* (There's always a need for one more, but … Forecasts 2001–10. Recruitment need and supply).

14 The aggregate recruitment requirement for child care, pre-schools and schools in the period 2000–10 is calculated to be over 225,000 persons, with the recruitment of teachers as the greatest need. See Svenska Kommunförbundet (2001), *Personalen i fokus 2000* (Focus on personnel 2000).

15 Large numbers of participants in the Swedish labour market will be pensioned off in the period up to and including 2015. In public services it is foreseen that 47 per cent of those employed in 2001 will leave the labour market up to 2015; this is accompanied by figures of 37 per cent in manufacturing, 44 per cent in construction and 35 per cent in private services. See Johnreden, A-C. and Wallin, C. (2002), *Den framtida personalförsörjningen. Tre scenarier fram till 2015* (The future supply of personnel. Three scenarios up to 2015). Document presented at the National Labour Market Board's seminar at Almedal on 11 July 2002: Labour supply – will Swedish industry cope with the major generational change?

16 For a detailed description of the Beveridge curve and the matching process, see for example Björklund, A. et al (2002), *Arbetsmarknaden* (The labour market), SNS Förlag.

Figure B21. Job vacancies (*y* axis) plotted
against open unemployment (*x* axis).
Per cent of labour force
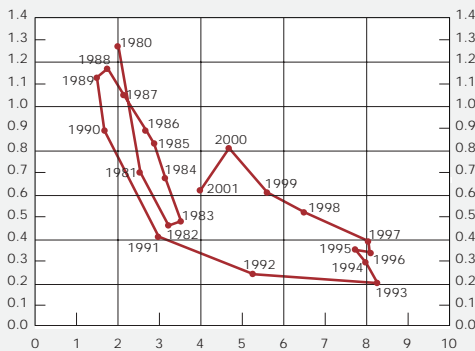
Sources: National Labour Market Board (unfilled job
vacancies) and Statistics Sweden (unemployment and
labour force).

Figure B22. Long-term unemployment (*y* axis)
plotted against total unemployment (*x* axis).
Per cent of labour force
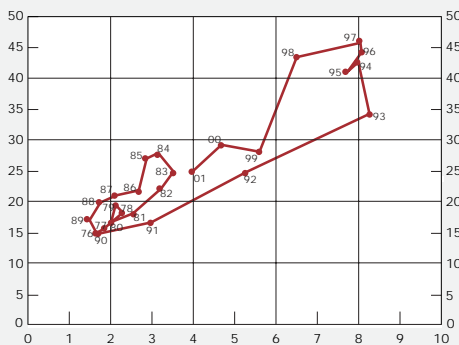
Source: Statistics Sweden.

while vacancies fall gives a movement *along* the curve and can be interpreted as a cyclical fall in labour demand. Structural changes in the labour market, on the other hand, can *shift* the entire curve; an increase in both unemployment and vacancies, for example, indicates that the matching process has become less efficient.

A Beveridge curve for Sweden in the period 1980–2001 is presented in Fig. B21. A simple graphic analysis shows that in the 1980s the long-term relationship between vacancies and open unemployment was remarkably stable.[17] The cyclical fluctuations show up as movements along the curve, downwards as vacancies fall and unemployment rises in a slowdown and vice versa during an upswing. In connection with the crisis in the early 1990s the picture became more dramatic. From 1991 to 1995 an increase in the unemployment rate of almost five percentage points was accompanied by little change in the vacancy rate. This can be interpreted as a loss of efficiency in the matching of jobless persons and vacancies. Some support for that interpretation is proved by the course of events since then. Since the mid 1990s there has been a upward movement along the curve towards the long-term relationship that prevailed in the 1980s, though the unemployment rate now tends to be higher for a given vacancy rate. From 2000 to 2001, however, the curve appears to have shifted inwards.[18]

A factor that can cause a shift in the Beveridge curve is changes in long-term unemployment.[19] Long periods of unemployment can weaken the drive to look for a job and lead to the job-seeker being stigmatised. The relationship between the total unemployment rate and the proportion in long-term unemployment is presented in Fig. B22.[20] The cyclical dynamics in the 1970s and 1980s are clearly visible as upward and downward movements. The major increase in unemployment in the early 1990s is likewise evident in the rising proportion in long-term unemployment, which from 1990 to

17 National Labour Market Board figures for unfilled vacancies; note that according to the Board's estimates, the registered vacancies represent approximately 30 per cent of all vacancies.

18 This interpretation tallies with estimations of structural unemployment in, for example, Lindblad, H. and Sellin, P. (forthcoming in 2002), "Equilibrium rate of unemployment and real exchange rate, an unobserved components system approach," *Sveriges Riksbank Working Paper Series*.

19 Other factors that may affect the matching process include changes in geographical and occupational mobility, the demographic composition of job-seekers and rule systems connected with unemployment compensation, for example.

20 Long-term unemployment is defined here as being out of work for a period of at least six months.

1994 moved up from approximately 15 per cent to 43 per cent. This trend was reversed after 1997, since when the proportion in long-term unemployment has fallen back towards the level in the 1980s.

The proportion in long-term unemployment is affected, like the general unemployment rate, by the scale of labour market programmes.[21] This can be taken into account by modifying the analysis so that participants in these programmes are also included in the number of job-seekers. For the revised Beveridge curve in Fig. B23 the vacancy rate is related to the open unemployment rate augmented with participants in labour market programmes. The curve resembles the picture in Fig. B21 but differs when it comes to what happened in the early 2000s. For a given vacancy rate, the revised Beveridge curve shows an unemployment rate that in principle is currently on the same level as in the 1980s, making it difficult to talk of this curve undergoing a clear outward shift.[22] An interesting point in this context is whether the picture of the matching process would have been worse if sick leave had not risen so dramatically in recent years. The statistics on job-seekers do not include unemployed persons who are registered as sick and there are also some indications that tighter rule systems in labour market policy have resulted in a cross-flow from the unemployment insurance system to the system for sickness insurance.[23]

The analysis so far refers to the matching process for the total economy. This aggregated Beveridge curve is affected by developments in different segments of the labour market. Earlier studies of the matching process at a disaggregated level have mostly focused on regional differences but it is also relevant to examine developments in different occupations, partly to supplement the picture presented above of labour shortages in different sectors.

Beveridge curves for four occupational areas – health and social care, education, manufacturing and construction – are presented in Figs. B24 and B25. In all these cases the picture resembles that for the total economy. There is the

21 See e.g. Edin, P-A. and Holmlund, B. (1991), Unemployment, vacancies and labour market programmes: Swedish evidence, in Padoa-Schioppa, F. (ed.), *Mismatch and Labour Mobility*, Cambridge University Press.

22 For a closer look at the relationship between labour market policy and the matching process see, for example, Calmfors, L., Forslund, A. and Hemström, M. (2002), Vad vet vi om den svenska arbetsmarknadspolitikens sysselsättnings-effekter? (What do we know about Swedish labour market policy's impact on employment?), *IFAU Report 8*, Uppsala University.

23 See Larson L. (2002), Sick of being unemployed? Interactions between unemployment and sickness insurance in Sweden, *IFAU Working Paper* 6, Uppsala University.

Figure B23. Job vacancies (*y* axis) plotted against total unemployment plus labour market programmes (*x* axis). Per cent of labour force

Sources: National Labour Market Board (unfilled job vacancies an d labour market programmes) and Statistics Sweden (open unemployment and labour force).

Figure B24. Beveridge curves for manufacturing and construction.

— Manufacturing (left scale)
— Construction (right scale)
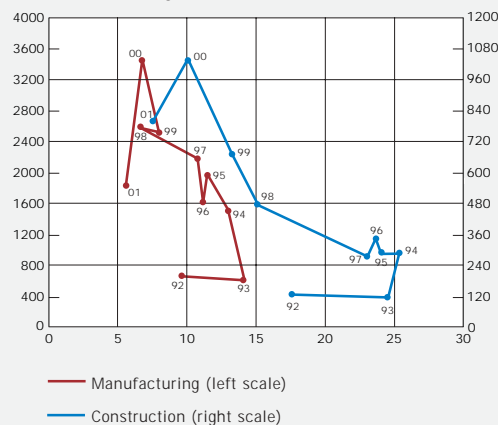
Note. Unemployed percentage of members of benefit societies for manufacturing and for construction and painting, respectively.

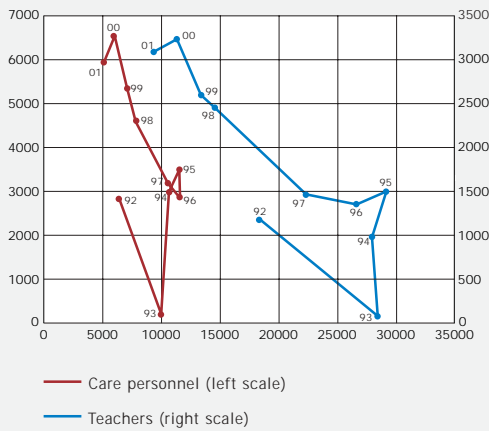Source: National Labour Market Board.

Figure B25. Beveridge curves for teachers and care personnel.

— Care personnel (left scale)

— Teachers (right scale)

Note. For the care sector, unemployment is defined as the number of unemployed persons stating they are looking for work as a care attendant/carer, personal assistant, assistant nurse/nursing aid, nurse or doctor, and the number of unfilled vacancies refers to these categories. For teachers, unemployment is defined as the number of unemployed persons who have looked for employment as a pre-school, compulsory school, upper secondary school or university teacher, and the number of unfilled vacancies refers to these categories.

Source: National Labour Market Board.

same dramatic development in the early 1990s and the same upward movement along the curves from the mid 1990s onwards. For all these occupational areas, there is also a tendency for matching to improve from 2000 to 2001, which is the period when these sectors (apart from segments of the public sector) reported decreased labour shortages.[24]

SUMMARY

To sum up, labour shortages have decreased recently but the shortages in schools, child care, old-age care and health care are still extensive and will probably grow in the future. Labour shortages may also arise in technological and scientific occupations. This raises questions about, for example, the dimensions of the educational system and the possibility of non-inflationary changes in relative wages. The main scenario envisages that wage increases in, above all, municipalities and county councils will be relatively high in the forecast period, with a risk of this leading to demands for compensation from other groups in the labour market. Another topical issue is the extent to which difficulties with recruitment will be aggravated by a general statutory shortening of working time. It may be inappropriate to implement such a shortening at a time when the labour market is characterised by labour shortages in certain sectors. Another future challenge for the labour market is demographic developments, in that forecasts from Statistics Sweden point to a reduction of the economically active age groups around the next decade.

Matching in the labour market seems to have deteriorated in the 1990s but there appears to have been some improvement in the early 2000s. An illustration of matching at a disaggregated level shows much the same pattern as for the total economy. A high proportion of long-term unemployment may have worsened the matching process. The proportion in long-term unemployment did rise sharply in connection with the crisis in the early 1990s but it has now fallen back to much the same level as in the 1980s.

24 Note that one should be cautious about comparing matching in different areas. There is, for example, no given measure of the total labour force in a particular industry or occupational category, which makes it difficult to normalise the numbers of unemployed and vacancies in Fig. B25. The same problem applies to Fig. B24, where vacancy statistics are compared with unemployment benefit statistics.