## Box 3 Productivity developments in Iceland

It is often argued that advances in information technology and telecommunications (sometimes referred to as the "new economy") have led to much greater productivity growth during the current upswing in the USA than in previous decades. This has enabled the US economy to grow much faster than before without generating inflationary pressures. It is worth examining whether there are any signs of a similar pattern in Iceland. Chart 1 shows productivity developments in Iceland over the past twenty years.



As the chart shows, productivity grew fairly rapidly in Iceland at the start of the present upswing in 1996-1997. As the business cycle comes to its latter stages, however, productivity growth has been slowing down. This is consistent with the features of typical business cycles, activating an ever-increasing part of the labour force, rather than a technology-driven boom of the type under a strong impact from the "new economy".

The chart also shows measurements of total factor productivity in the economy (see Box 2). As can be seen, growth in total factor productivity has closely matched average productivity of labour for the bulk of the period. However, average growth of productivity of labour ran higher at the end of the last decade and again during the past 2-3 years on account of a heavy buildup in the capital stock.

Chart 2 shows how productivity growth in recent years has been running above the average for the past two decades. A similar development has taken place in other



countries. On this scale, Iceland's productivity growth has ranked with the highest recorded anywhere.

Since measured productivity is strongly influenced by the business cycle it is difficult to use it to assess the underlying productivity trend in the economy. In such cases it is more natural to focus on the economy's output capacity. Measures of potential output are described in Box 2. Using an average of estimated potential output reveals the following development.

There has been relatively weak growth in underlying productivity of labour and total factors over the past two decades, as the accompanying table shows. Underlying productivity of labour has apparently grown by an average of 1½%, but total factor productivity by 1%. Faster

Productivity developments in Iceland (annual growth in %)				
	1971- 1980	1981- 1990	1991- 2000	1996- 2000
Labour productivity	3.7	1.0	1.4	2.1
Labour productivity trend	2.7	1.2	1.3	1.4
Fotal factor productivity	2.8	0.6	1.0	1.8
Fotal factor productivity rend	1.8	0.9	0.9	1.0

Labour productivity trend is obtained by using the average of potential output measures and labour demand as in Box 2. Total factor productivity trend is obtained by an HP-filter (see Box 2).

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productivity growth has therefore been recorded in recent years than is consistent with the underlying growth potential of the economy.

The same pattern seems to emerge from output per hour worked, which showed strong growth during the first years of the current upswing but has been slowing down somewhat over the past two years.<sup>1</sup>

Output per hour worked grew on average by  $1\frac{1}{2}$ % over the period 1996-2000. In the USA, on the other hand, output per hour worked rose by an average of  $2\frac{1}{2}$ % at the same time. According to estimates for the period 1999-2000, output per hour worked is expected to grow by less than  $\frac{1}{2}$ % each year in Iceland, but by 3% in the USA.

Thus the "new economy" is hardly making its presence felt in productivity growth in Iceland so far. Nonetheless, the trend resembles that elsewhere, apart from countries such as the USA, Finland and Ireland. What makes Ice-



land's relatively low productivity growth per hour worked over the past two years a particular cause for concern is the intense pressure in the domestic labour market, which has led to large increases in wages. If productivity growth fails to keep pace with wage rises, there is a risk that inflation will prove more difficult to keep under control.

Data for working hours per week are based on the Statistics Iceland labour market surveys. In spite of familiar shortcomings, this survey should present a good picture of the development of hours worked over a longer period.