

Mr Heikensten examines different aspects of the new economy and its implications for monetary policy

Speech by Mr Lars Heikensten, First Deputy Governor of the Sveriges Riksbank, to The Riksdag's Standing Committee on Finance, Stockholm, on 24 February 2000.

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The new economy, our topic today, is a concept that people are using frequently without always taking the trouble to explain what they mean by it. As interpretations differ somewhat, the discussion is liable to be a little confused.

According to the definition most people seem to have in mind, the new economy is a result of a favourable shift in trend productivity that has raised the potential growth rate. This shift is attributed in turn to the development and spread of information technology (IT). Another common explanation for the higher productivity growth is the stronger competition that has resulted from deregulations and an increasingly integrated global economy. Moreover, in that much of the discussion of the new economy originated in the United States in the light of the good economic performance there in the 1990s, emphasis has been placed on the importance of a good macroeconomic environment.

My starting point today is the US economy. My primary aim is not to present a comprehensive picture of developments there but rather to highlight the issues that these developments have raised and initiated the debate on the new economy. While my discussion will centre on the advances in IT, for the US economy there have been other beneficial factors. Then I shall look in a more principled way at what the new economy may imply for monetary policy. In this context I shall mainly consider the consequences in terms of higher productivity growth, but I shall also be touching on the new economy's impact on demand, which has attracted less attention in the public debate.

This will be followed by a look at Sweden and the conditions for a new economy and the inflation process. What is the situation here as regards, for example, the use of IT and competition? Has the new economy led to changes in the inflation process? Finally, I shall be saying something about what the Riksbank has to consider in the context of the new economy's existence or non-existence.

My review today obviously will not result in definite answers either way. The questions are too complex for that. Economists are finding it difficult in general to arrive at sound explanations for technical development and growth. The discussion about the new economy is therefore welcome on that account. It can inspire studies of the driving forces behind the technical progress we are aware is so important for our prosperity but about which we unfortunately do not know enough.

1. Starting point: experience in the United States

The American discussion about the new economy was instigated by a generally good economic performance that combined high growth and employment with low inflation. A variety of factors contributed to this achievement. They include a successful stabilisation policy, whereby inflation was reined in even though capacity utilisation has been high, as well as an efficient labour market, where unemployment has been lower than for several decades without leading to higher inflation. A number of occasional factors also contributed: the dollar has been strong when this was needed to restrain inflationary impulses; a reduction of employers' health insurance contributions has helped to hold wage costs down; and so on.

Some years ago, the general opinion among economists was that these cyclical factors, together with an efficient labour market, sufficed to explain much of the good performance. Recently, however, this view has been modified. The strong productivity growth, which is unusual so far into a demand-driven upswing, has raised the question of the extent to which the advances in IT may have played a part as well.

Compared with earlier decades, productivity growth in the United States, as in most other industrialised countries, was weak from 1970 up to the mid-1990s. Yet this was a period when computers with a steadily growing capacity were being introduced on a wide front. As Robert Solow, the Nobel laureate, observed in 1987, “You can see computers everywhere except in the productivity statistics”.

In the closing years of the century, however, productivity growth in the United States showed clear signs of climbing back to the levels in the 1950s and 1960s. A closer look at the figures reveals that the improvement has been most marked in manufacturing and particularly rapid in industries where computers are used most intensively.

The upward shift in US productivity growth was preceded by an investment boom that gave pride of place to investment in IT-related capital. Since the 1980s, American investment in computer capacity has doubled in nominal terms; in relation to the dramatic price fall for computer capacity, the level has risen by a factor of more than twelve.

To what extent, then, has the improvement in productivity come from IT? What are the mechanisms? Computers have clearly helped to make production processes more efficient and automated, just as new techniques have led to the creation of many new goods and services, from compact discs to tele-medication.

But in order to understand the broader implications for the workings of the economy, one should perhaps heed Alan Greenspan, head of the US Federal Reserve, and single out the word “information”. When information flows more efficiently, there will be a better matching of supply and demand both *internally* and *between* firms, as well as less tied-up capital for coping with contingencies. In that firms can use IT to enhance “just-in-time” routines, they can cut the levels of stocks and working capital. Better information also paves the way for smaller production units and less bureaucratic structures.

All these processes are now being further reinforced by the rapidly growing flow of information on the Internet. Access to the Internet as a national and global market place lowers the barriers to market participation. Opportunities are provided not only for economies of scale both nationally and internationally but also for the diversification, even individualisation, of goods and services. Market forecasts by international IT consultants predict that retail Internet commerce will grow from twenty to thirty billion dollars this year to several hundred billion dollars. And even this is dwarfed by prospects for business-to-business commerce, which involves asking for tenders on the Internet and matching the potential suppliers for increased efficiency. In an optimistic forecast from the American investment bank Goldman Sachs, this form of Internet commerce is predicted to expand to more than a thousand billion dollars by 2003 and to contribute a quarter of a percentage point to annual GDP growth in the coming decade.

The fact that clear signs of improved productivity did not appear until almost a decade after Solow’s observation can be attributed to computers and IT being what is commonly referred to as general purpose technology, in the sense that they interact with and modify many other processes and techniques. The economic impact of such innovations is liable to take a long time.

Parallels have been drawn with another innovation with far-reaching consequences, namely electricity. Although electricity began to be used in the late nineteenth century, its impact on productivity did not show up in earnest until the 1920s. One important reason is considered to be that various types of structural adjustments, in business as well as in society in general, were needed before the benefits of electricity could be reaped efficiently. At factory level, for example, more flexible production processes enhanced productivity when, instead of running much of the workshop in a cumbersome manner from a single large electric motor, smaller power units were developed for single machines. Thus, since it takes time to work out and implement various types of organisational changes that are most appropriate for the new techniques, there is liable to be a considerable time lag before general purpose innovations have an impact. This time lag unfortunately also makes it difficult to single out the factors that underlie technical advances and growth.

What has happened in the United States in recent years also illustrates another consequence of the new economy. Besides the strong trends for productivity, capital formation and employment, which have

resulted in a more positive appraisal of potential growth, share prices have risen dramatically and saving has fallen to low levels. A major question at present is how stable this situation will be.

Summing up, then, there are a good many signs that IT may have contributed to a more favourable productivity trend in the United States, particularly in recent years. But there have also been many other changes, such as increased competition and the emergence of deep and efficient markets for venture capital. For this and other reasons, the contribution from IT cannot be distinguished from other factors.

2. Implications for monetary policy

The implications that the new economy might be expected to have for monetary policy can be illustrated with the aid of a simplified notion of how the economy functions. In the long term, a country's productive capacity is usually assumed to follow a comparatively stable trend. This trend rate of growth is determined by demographic factors, for example, together with, above all, the pace at which technical advances are made and incorporated in the production process. Thus, the fact that Sweden's GDP per capita is now appreciably higher than in, say, the 1950s and even more so than a century ago is mainly explained both by our ability to develop new technologies and new modes of production and by the new technology that we have been able to import from elsewhere and introduce here.

Monetary policy's primary contribution is perceived today as being to ensure that the macroeconomic environment, mainly as regards inflation, is stable and predictable. A stable value of money and an efficient payment system are important preconditions for an efficient modern market economy.

Monetary policy affects aggregate demand via interest rate adjustments. Policy is normally aimed at steering demand so that the economy remains as close as possible to its long-term growth trend, thereby avoiding unnecessary cyclical fluctuations. This also helps to keep the level of inflation stable.

However, it is not only cyclical fluctuations around trend growth that influence inflation. Another important factor in the longer run is inflation expectations. If households and firms count on the Riksbank fulfilling its function, the inflation target can serve as a benchmark for their decisions about prices and wages.

So what effects might the new economy have in this simplified world? It could result in a more favourable path for productivity and thus a stronger expansion of potential output - a steeper path for trend growth - at least for a time. Demand could then rise more rapidly without exceeding the long-term capacity ceiling and generating inflationary pressure.

It is conceivable, moreover, that the new economy can lower price pressure in the economy even without an appreciable positive effect on productivity as usually measured. It is possible, for example, that Internet commerce and generally stronger international competition could tend to restrain inflation by making it more difficult for firms to raise prices. That could lead to a reduction of inflation that does not have to do with the level of demand in relation to trend growth.

It may be worth noting that strong competition as such does not necessarily imply lower inflation. There are many indications, on the other hand, that downward price pressure can be generated during the transition from lower to higher competition. As such a process probably takes a considerable time, the mounting competition's impact on inflation will also be protracted.

Another consequence of the new economy - perhaps the least controversial - is the direct effect on inflation from the steep price fall for IT-related products, which are not a negligible item in the CPI basket. The falling prices are explained in turn by the very strong productivity growth and high rate of innovations in this product area. The result may be what is commonly known as a positive price shock, which in many respects resembles the effects of a marked price fall for some other specific CPI component.

So far I have discussed the monetary policy implications solely in terms of a notional new economy's consequences for supply. New techniques and strong productivity growth leave their mark on profit

expectations and capital formation, for example, and thereby add to the forces that are raising potential growth. With rising share prices, however, increased household wealth adds to demand. This raises questions to do with dynamic aspects. One risk is that demand grows faster than supply despite an improvement in potential output. That could lead to stronger price pressure and accordingly motivate a tighter monetary stance in the traditional way. Another risk is that investment activity becomes unduly optimistic and leads to financial imbalances. This problem is more difficult to handle in monetary policy's normal analytical framework, where undesirable changes in price pressure are parried with the interest rate.

To sum up, to the extent that the new economy is a reality, its supply-side effects can be expected to make price tendencies somewhat more subdued than otherwise. If the effects are not transitory, they could pave the way for a less tight monetary policy. At the same time, demand is normally affected as well and there is a risk of this getting out of step with the stronger growth.

3. Conditions in Sweden

One approach to the question of whether the new economy could also show up in Sweden involves looking at conditions in Sweden for some of the factors that are generally considered to have played an important role in the United States: the IT revolution, increased competition and the macroeconomic environment.

3.1 One question is how Sweden compares with the United States in terms of the technologies that are considered to drive the process. Although there is a lack of fully comparable statistics, it is hardly controversial to say that IT *use* in Sweden is high - higher than in many other countries in Europe and possibly much the same as in the United States. The per-capita level of Internet subscriptions is one of the highest in the world, on a par with the United States, and so is the number of PCs per capita. In certain respects Sweden is even ahead of the United States. In per-capita terms, mobile phones are used *more* in Sweden than in the United States and most other European countries. Sweden also tops the United States in the domain of mobile Internet, as witness both Microsoft's decision to locate the development of such systems here and the first WAP phones in Swedish shops.

Internet use in Sweden is also well in line with the United States. Market surveys by IT consultants admittedly indicate that in relation to total retailing, Internet shopping for goods is somewhat higher in the United States but Sweden is ahead of many other countries in Europe. Most of the portals and e-commerce sites are also American. But a considerably higher proportion of Swedish banking is done on the Internet and Sweden has been an early starter with models for Internet business-to-business transactions.

We also know that in the latter part of the 1990s, IT-related sectors, including the successful telecom industry, accounted for almost a tenth of manufacturing output in Sweden. Figures from the Association of Swedish Engineering Industries show a remarkable increase during the decade, from a share of just over 2% in 1993 to more than 12% in 1999. According to the same source, one fifth of Sweden's GDP growth from 1995 to 1998 came from the IT and telecom sector. Comparing statistics can be difficult but a similar indicator - from the Department of Commerce - of the IT and telecom sector's share of GDP growth in the United States shows that in the same period this sector made approximately the same contribution there.

3.2 Another important aspect in America has been *efficient markets and strong competition*. In this respect there are some notable differences in Sweden.

External competition in markets for goods has also tended to grow in Sweden. Since the mid-1980s the traditionally high GDP share for imports has almost doubled. Domestic competition has also increased, for instance in markets that have recently been deregulated - electricity and telecommunications, of which the latter is particularly strategic for IT.

Even so, price levels in Sweden are still high in many areas - higher than in most other EU countries as well as compared with the United States. Differences in taxation clearly play a part but so does a lack of competition. This in turn may have to do with the degree to which markets for goods are

regulated. In the OECD index of product market regulation, Sweden is admittedly lower than many other EU countries but appreciably higher than the United States.

A breakthrough for the new economy is also dependent on the situation in factor markets. The Swedish *risk capital market* has undergone major improvements and relative to GDP is now the third largest in Europe, after the United Kingdom and Ireland. And whereas in 1983 it was only a quarter of the relative size of the risk capital market in the United States, by 1998 it had already become half as large. A notable feature in recent years is the greatly increased input of foreign capital. But the US risk capital market is, of course, considerably more developed and in Sweden the supply of risk capital is associated with specific problems, for instance as regards taxation, that ought to be looked into.

The *labour market* is naturally a major factor, too. Besides being suitably competent, labour must be prepared to transfer rapidly to the sectors and jobs that arise as the new economy takes hold. Even with a good level of education in general and a rising number of university graduates, the supply of people with spearhead competence poses problems both because the output is too small and to some extent because qualified persons move elsewhere. One explanation is the lower return on tertiary education in Sweden compared with, for example, the United States. Compared with their American colleagues, moreover, relatively fewer graduates in Sweden start new businesses and exploit new commercial ideas. Neither does wage formation in Sweden function so well in general that the available job vacancies are filled without friction; in the United States this has played a central part in maintaining high growth and rising employment without strong upward pressure on wages.

3.3 Finally, as regards *macroeconomic policy*, the Swedish and American economies now have a good deal in common in that in both cases inflation is low. But it is only about five years ago that the sustainability of the Swedish economy was rather uncertain.

To sum up, it can perhaps be said that the conditions whereby the new economy might also catch on in Sweden are good in certain respects. Two examples are the level of IT use and the macroeconomic environment. At the same time, it must be asked why what appears to constitute a new universal technology has not had a greater impact. This probably has to do with the workings of factor markets.

4. The inflation process to date in Sweden

So there are arguments both for and against the notion that the new economy can gain a hold, or is possibly already on its way, in Sweden as well. Now I should like to move on and look at whether the inflation process in Sweden has changed appreciably. Here I shall be using the simplified concept of how the economy functions that I outlined earlier.

It should be noted in this context that in the past decade a great deal has happened in Sweden's economy. Inflation and the general workings of the economy have presumably been favourably affected by such structural changes as the establishment of a low-inflation regime, tax cuts, adjustments of many transfer systems, market deregulations and Sweden's membership of the European Community. So any signs that can be discerned in the statistics are probably mainly the fruit of more traditional structural adjustments rather than evidence of the new economy.

One of the more pronounced differences with earlier periods is that Sweden has broken the pattern of high inflation, recurrent cost crises and devaluations that characterised the 1970s and 1980s. Surveys and other information indicate that for some time now, households and firms have adapted their inflation expectations to the Riksbank's target. In that it influences the behaviour of those who set prices and wages, this in itself assists our endeavours to keep inflation down. Estimates by the Riksbank suggest, moreover, that the long-term component of inflation decreased appreciably in the 1990s, in which case there is a more permanent restraining force that is not directly dependent on how the real economy is functioning. But as I mentioned earlier, there are good grounds for supposing that a low, stable path for inflation can generate positive *indirect* effects on the real economy. There are also certain signs that the cyclical fluctuations in inflation - and not just its average level - have been smoothed in recent years.

Thus, there are some indications that the present cyclical upswing will not generate the same acceleration of inflation as its predecessors. But as output in the Swedish economy has been below the sustainable trend ever since the beginning of the 1990s - so that what we have experienced, strictly speaking, is a long period of low activity - it is difficult to tell whether the behaviour of inflation over a complete cycle has in fact changed.

Another indication that the workings of the economy may have taken a turn for the better is the Riksbank's upward revision of potential output in the light of, for example, good productivity growth and very moderate inflationary tendencies even when GDP growth has been comparatively high. At the same time, methods have now been developed that probably enable us to get a little closer to the mark than before. The current output gap estimates, which represent the difference between actual and potential GDP, suggest that total production will rise above the potential level in the coming years. There is nothing dramatic about this, however. In the longer run one would expect the economy to be above its potential level about as much as it is below.

As regards potential growth, the Riksbank, like most other observers, now counts on a rate somewhere between 2 and 2.5%. One approach to estimating this rate is based on the trends for labour supply and productivity. The latest assessments from the Medium Term Survey, based on such factors as demographic changes and labour force participation, put the annual increase in the labour force up to 2008 at 0.5%. Labour productivity, according to the available statistics, has risen faster in the 1990s than it did in the 1970s and 1980s; whereas the annual increase in the period 1974-93, for example, averaged approximately 1.4%, since 1994 the rate has averaged about 1.9%. In the really long term, the recent level is more normal than the relatively low figures in the 1970s and 1980s. This accordingly means that the potential annual growth rate could be between 2 and 2.5%.

A feature of the picture in the United States that I touched on earlier is the combination of high productivity growth and an investment boom. One factor behind the investment activity appears to have been the high profit expectations associated with the new technology. The massive investment has paved the way in turn for good productivity growth in that it has introduced new technology and led to a higher capital input per employee.

No corresponding pattern is discernible in Sweden. It was mainly in connection with rapidly rising capacity utilisation in 1992-94 that industrial productivity improved. Productivity growth since then has been more normal. Manufacturing investment has risen but not as markedly as in the United States.

It should be borne in mind, however, that compared with the United States, resource utilisation in Sweden was considerably lower in the 1990s. This can explain a part of the upswing for productivity, particularly in 1992-94, at the same time as it implies a weaker propensity to invest, either to save labour or to expand capacity in response to growing demand. Against this background it will be interesting to see how the Swedish economy performs when resource utilisation is high again.

Briefly, then, it looks as though the inflation process in Sweden has been modified in recent years. The economy appears to be less inflation prone than before. Indications of somewhat higher potential growth may also be discernible. The new economy, with IT as a central component, may have contributed but there is still no definite evidence of this.

5. Monetary policy considerations

In order to dispel any misunderstandings, I should like to point out that - contrary to what is sometimes implied in the public debate - the Riksbank does *not* dismiss all talk of the new economy and its possible implications, in the first place for monetary policy. After all, the existence or otherwise of the new economy is a matter that does not differ in principle from the forecasting problems we have to deal with all the time. As I mentioned earlier, extensive structural changes have occurred time and again, not least in the past decade. So even without the new economy hypotheses, it is difficult to form an exact picture of either the path for trend growth or the extent to which the general workings of the economy have changed.

Assessments of this type are accordingly very uncertain. This is evident not least from the revisions we have been obliged to make, as I mentioned earlier. It should be underscored, however, that output gap estimates, for example, are not the sole foundation for either our current or our earlier inflation assessments. We work simultaneously with several different models of inflation, some of which require absolutely no knowledge of, for instance, the output gap or potential growth. Even models that use comparatively insignificant assumptions from economic theory can have satisfactory predictive power. We also use disaggregated data on price and wage tendencies, shortages and so on. In the light of all this information we then try to complete the puzzle of future inflation.

Another matter to emphasise in this context is that even when outcome figures for inflation are available, it is not always possible to separate the contributory factors. When forecasting future inflation, we normally start from a notion of the size of the output gap, the level of potential growth and so on. If it then turns out that inflation has been lower than we calculated even though growth followed the expected path, it may seem natural to attribute this to a better trade-off between inflation and growth. But the proper explanation may well prove to be something else, for instance that there was more unutilised capacity than the forecast assumed or that we underestimated potential growth. The impression that earlier relationships have changed does not necessarily mean that we are in the throes of a new economy; we may simply have gained better insights into how the earlier, essential relationships work.

While it is true that the contributions to the monetary policy decision-making process that have been made by economic expertise and econometrics can scarcely be overestimated, the fact remains that to some extent monetary policy is still a matter of trial and error. It is some consolation in this context that we have a continuous supply of new information. If our policy happens to be unduly restrictive, for instance, this will show up in weaker inflation and vice versa. The direction of policy can then be adjusted. This is relevant not least with respect to the new economy. It seems unlikely that the mechanisms I talked about earlier would cause economic relationships to change overnight. Presumably it would be more a matter of gradual changes that we can incorporate in the foundation for decisions.

Then it is naturally the case that our decisions invariably involve taking some degree of unavoidable chance as the risks associated with alternative strategies are weighed in the balance. The economy's cyclical position is important here. It is generally agreed at present that economic prospects for the coming years are unusually bright. Most forecasters count on stable growth of between at least 3 and 4% this year and next, followed it seems by the continuation of a favourable trend. In this situation, when resource utilisation is rising rapidly, a transition from low to more normal interest rates can hardly constitute a sizeable threat to activity. That was how the Federal Reserve reasoned, for example, in a similar situation in 1994. Matters are different when interest rates are at a more normal level and growth is closer to what can be regarded as a sustainable rate. The balance of risks is then different and there is more cause to proceed with caution.

As we all know, it is up to a central bank to represent continuity and stability - what might be called a somewhat conservative stand. Establishing low inflation in Sweden has been a laborious process and the fund of confidence that has been accumulated should not be squandered. At the same time, it is difficult to dismiss the feeling that the rather revolutionary developments we are seeing, above all in connection with information technology, will leave visible traces in the workings of the economy. It therefore seems advisable to leave the door to the new economy ajar. An apt description of the Riksbank's attitude to the new economy would accordingly be: optimistically tentative but not dismissive.