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New measure for competitiveness

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Two types of changed national competitiveness can be distinguished: increased competitiveness that creates the conditions for rising incomes – positive competitiveness, and increased competitiveness that presupposes decreased incomes – negative competitiveness. The ITPS definition is based on positive competitiveness.

A measure of competitiveness should relate to the nation's competitor countries, which for Sweden are a grouping of eleven comparable OECD countries. It should also minimise the effects of factors that do not genuinely reflect a change in positive competitiveness, such as demography, annual working hours and terms of trade.

For the period 1980-2004, the OECD11 have experienced a growth of real GNI per capita (15-64) of 1.8 per cent, taking the difference in the economically active population into account, while the corresponding figure for Sweden was 1.6 per cent. The size of the difference within the period is striking.

During the period 1988-1993, Sweden's competitiveness was weakened by 17 per cent, to continue increasing during almost the entire period after 1993. It is also interesting that the ITPS competitiveness measure turns downward as early as 1987 and indicates that Sweden was losing competitiveness, despite good GDP growth.

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Companies and countries compete on different terms

Sweden has a small, open economy highly dependent on the outside world. It is therefore natural that Sweden's competitiveness in international markets is subject to continuous debate. National competitiveness, however, is neither an unambiguous or uncontroversial concept.

In contrast to what applies to companies active in the same market, if the revenues of one country increase, those of other countries need not necessarily decrease.

Based on macroeconomic theory, some researchers, including Paul Krugman (1996), have claimed that national competitiveness as a concept is deceptive and risks leading to mistaken conclusions. Within economic theory, the concept of competitiveness is applied to the conditions between companies and not countries. When some companies in a market become more competitive, it leads other companies in the same market to lose income opportunities and ultimately go bankrupt.

What applies to companies is, however, not applicable to countries. If two companies in the same market compete for a large order, the short-term outcome will be that the company that wins the order will receive increased revenues, while the other company will have lower revenues. In the short term, competition between companies is a zero-sum game, since demand is given. In contrast to what applies to companies active in the same market, one country's revenues increasing does not necessarily mean that the revenues of other countries will decrease. Since all expenditures are also revenues, and vice versa, demand in the world economy will increase if the revenues of a country increase. Consequently, the competition between countries is not a zero-sum game.

The determinants of growth, including effective institutions, functioning markets, the level of education and R&D investment, are still largely controlled at the national level.

On the part of Sweden, for instance, Asia's rapid growth of the last 15 years has also coincided with an unusually prosperous growth of revenues in Sweden. This is also in full agreement with traditional economic theory, as the economic outcome of Asia's rapid growth for individual countries is determined by the capacity of these countries' economies to readjust to new market conditions (Holmlund & Bigsten 2006). In an historic perspective, all industrialised countries have experienced very strong economic growth (Maddison 1997).

National competitiveness as a relative concept

Although the concept of national competitiveness may be misleading and there are many good arguments to avoid using it, there are, however, also reasons to use and develop the concept.

The primary reason is that the discussion concerning competitiveness is in many regards still based on the nation-state, where the objective of national economic policy is to ensure a high level of competitiveness for the national economy in particular. The determinants of growth (Erixon 2002), i.e. effective institutions, functioning markets, level of education and research and development investment, are still largely controlled at the national level (Barro & Sala I Martin 1994). Overall macroeconomic policy also appears to have a strong impact on the conditions of production (Productivity Delegation 1991). The major differences in the development of productivity between the 1980s and 1990s are attributed to the extensive reorganisation of economic policy at the beginning of the 1990s.

From a political perspective, it is therefore relevant to speak of a nation's competitiveness on condition that national policy is attributed some significance for the production conditions of companies.

A measure of national competitiveness should fulfil the following criteria:

1. Unambiguously relate to the objective of national competitiveness, i.e. increased supply of benefits.

2. Relate performance to competitors, i.e. be a relative measure.

3. Relate to a relevantly defined population of competing countries, e.g. take economic convergence into account.

4. Adequately define the population of possible producers in each country, i.e. observe demographic effects.

Positive and negative competitiveness

In the economics debate, major institutions such as the Swedish Central Bank use the concept of competitiveness to determine if Swedish production is properly priced. If the balance of trade, the total of the country's transactions with foreign countries, is negative, it may indicate that Swedish goods are too expensive in relation to other countries and must drop in price to achieve balanced trade. This in turn has implications to the wage trend in Sweden, which must be adjusted to maintain Swedish competitiveness.

From an economics perspective, a country is always competitive on the long term, as imbalances in the economy sooner or later will be brought into balance. Given this, national competitiveness is about factor prices (wages and capital) being correctly priced to balance the economy. National competitiveness is consequently also a neutral concept in relation to what is desired.

For Sweden, the 1970s and 1980s were in many respects characterised by Sweden being forced to reduce incomes to be competitive. This was done by inflation undermining real incomes and forcing a weakening of the nominal exchange rate to balance international trade. However, the last ten years have been characterised by the opposite. Strong productivity growth has provided the conditions for rising incomes. Consequently, strengthening competitiveness is not something inherently positive, but is rather a necessity in certain situations that involves a country lowering its prices and incomes to regain balance in the economy.

In official policy documents from the Swedish government, strengthened competitiveness is nonetheless described as something positive[1]. By distinguishing the two types of changed competitiveness, i.e. increased competitiveness that creates conditions for rising incomes (positive competitiveness) and increased competitiveness that presumes decreased incomes (negative competitiveness), it is possible to achieve a concept that is in line with the positive value often assigned to increased competitiveness. If this differentiation is not made, the concept is meaningless as a measure of economic growth, since a strengthening of competitiveness could just as well mean that the economy is doing poorly as it could mean that the economy is doing well.

The definition discussed here is based on positive competitiveness, i.e. that a strengthening of competitiveness would entail rising incomes from a relative perspective. This way, the measure is made unambiguous and normative in the sense that strengthened competitiveness is de facto something positive.

National competitiveness and traditional macroeconomic measurements

Many of the measures of competitiveness used today, including terms of trade, return on capital, relative unit labour cost and real exchange rate, all have the deficiency that they do not unambiguously capture what has been referred to here as positive competitiveness, i.e. that the citizens' benefit from activity in the economic system increases more than in comparable countries.

A competitive economy can be understood as an economy that generates benefits in a manner that the citizens perceive as satisfactory. It can be assumed that most perceive high unemployment, lower GDP growth than the outside world, a weak real wage trend, etc. as indications that the economy is not competitive. However, if competitiveness is interpreted as negative competitiveness, a weak real wage trend due to high unemployment may just be the prerequisite for increased competitiveness.

One explanation of the fact that traditional macroeconomic measurements do not co-vary with a concept that aims to measure positive competitiveness is that these measurements primarily aim to analyse prices and flows in the economy and not the economic exchange of the players from these prices and flows. Individually, none of them therefore provides information as to whether positive competitiveness has increased.

With regard to both return on capital (share of profit) and terms of trade, for instance, both have instead appeared to have a negative correlation with positive competitiveness during several periods.

During the second half of the 1980s, when Swedish competitiveness was rapidly weakened, the terms of trade rose due to the fixed exchange rate and the rapid price growth of Swedish products. The fact that these products decreasingly found customers abroad, which resulted in a negative balance of trade, was not captured by the measurement.

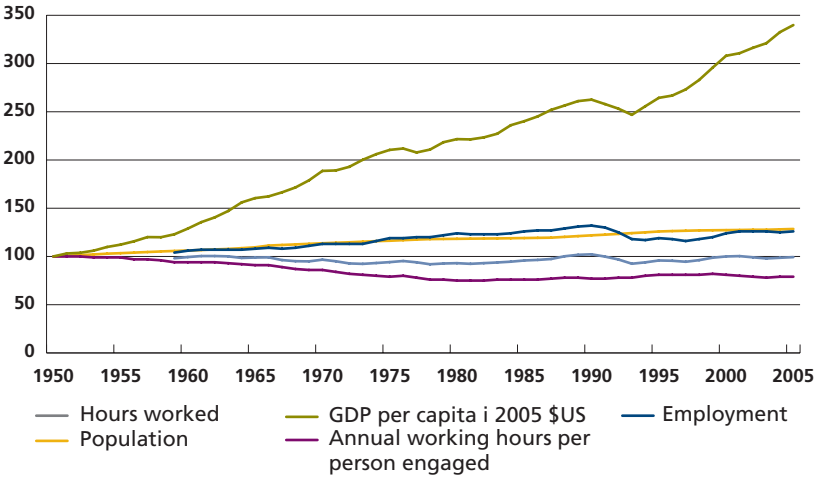
Similarly, the share of profits rose sharply in the economy during the early years of the 1990s at the same time that Sweden, relative to other comparable countries, experienced markedly worse and de facto negative growth.

Demographic development should be taken into account when national competitiveness is measured

In the last ten years, demography has increasingly come into focus both nationally and internationally. The reason for this is that the populations in the developed world are not only shrinking, but are also becoming incre-

1. For example, see: A National strategy for regional competitiveness, entrepreneurialism and employment (Rk 2007).

Figure 1. Sweden 1950 - 2005.



Source: The Conference Board and Groningen Growth and Development Centre, Total Economy Database, January 2007, http://www.ggdc.net

Consequently, strengthening competitiveness in a traditional sense is not inherently positive, but is rather a necessity in certain situations that involves a country lowering its incomes.

Future population changes will make a negative contribution, which the OECD estimates at between 0.2 and 0.8 per cent per year until 2050.

asingly older. This has many serious implications to economic growth.

Given an unchanged employment rate and unchanged annual working hours, the increase in the number of hours worked is equal to the increase of the population in an economically active age. In Sweden, approximately 4.5 million people are employed. This means that if the net increase from one year to another is approximately 45,000 people, the number of hours worked will increase by 1 per cent and lead to a corresponding increase of GDP[2]. To calculate total growth in the economy, increased production per hour (productivity) is then added to this increase.

The fact that the number of those in an economically active age has increased has contributed positively to Sweden's growth in the post-war era. However, due to decreased annual working hours, the growth effect of the growing workforce has not materialised. This can be expressed such that the potential increase in the number of hours worked that the large number of baby boomers and the entry of women into the labour market should have entailed contributed to lowering the average annual working hours instead of increasing growth.

As indicated by the diagram 1, the total number of hours worked has in principle remained constant, while both the employment rate and the population have increased. This is because average annual working hours have dropped to a corresponding degree. Economic growth, GDP, has solely come about due to increasing productivity. This does not prevent GDP from being more than three times as high today as in the 1950s.

However, population growth will not be as positive in the future (Martins et al. 2005). According to the latest population forecasts, the populations of most EU countries will decrease, but from an economic perspective it is even more serious that the population in all industrialised countries will be older on average.

A growing proportion of the population will consequently be outside the workforce. The OECD assesses that the growth of GDP per capita in almost all OECD countries will decline because of this (Martins et al. 2005). Changes in population have previously contributed positively to growth, but will make a negative contribution in future, which the OECD estimates at between 0.2 and 0.8 per cent per year until 2050.

The estimates made today show that the gap that already exists between the GDP per capita of the US and EU will further expand by approximately 20 per cent due to future population changes (Martins et al. 2005).

The primary reason behind this is that the US has had a higher level of immigration than the EU, which has resulted in a younger population. Although this

2. Given that capital intensity is kept constant.

is certainly significant, the increase in GDP per capita that the US will probably achieve cannot be interpreted as increased national competitiveness of the American economy – since it only reflects a more favourable population structure.

Annual working hours a question of preferences and not competitiveness

There are those that believe that Europe has lost speed in the process of "catching up" just for a time and that the converging trend towards the US GDP should continue in future, i.e. that Europe should have higher GDP growth than the US (O'Mahony & van Ark 2003).

The background of the debate regarding the "catch-up" effect is that the EU has lost strength relative to the US in the last 10-15 years, which can be seen in the diagram below.

The "catch-up" theory means that increased capital intensity provides a relatively greater effect when capital intensity is low. This means that countries with different figures for GDP per hour should converge. GDP per capita differences, the primary cause of which is differences in employment rate, demography and annual working hours, cannot be expected to decrease over time due to convergence.

In terms of GDP per hour, there is no major difference that could motivate that the EU 15 would today grow substantially faster than the US for reasons of convergence. Several EU countries even have a higher GDP per hour than the US.

However, there is also nothing that would motivate that Europe would grow more slowly, which has been the case in recent years. Large countries like Italy and Germany, as well as small countries like the Netherlands and Belgium, have had significantly weaker growth of GDP per hour than the US.

The differences between Europe and the US become clearer if the comparison is not only made in reference to GDP per capita, but also in relation to GDP per person engaged and GDP per hour.

The US has a GDP per capita that is 25-30 per cent higher than the majority of the European countries and has also successfully defended its leading position since the 1950s, although the gap to other countries has become smaller.

However, the major differences are not primarily due to the US economy being more competitive, but rather to an employee in the US working significantly more hours per year on average. The differences in annual working hours make it difficult to evaluate the relatively larger US incomes in terms of success.

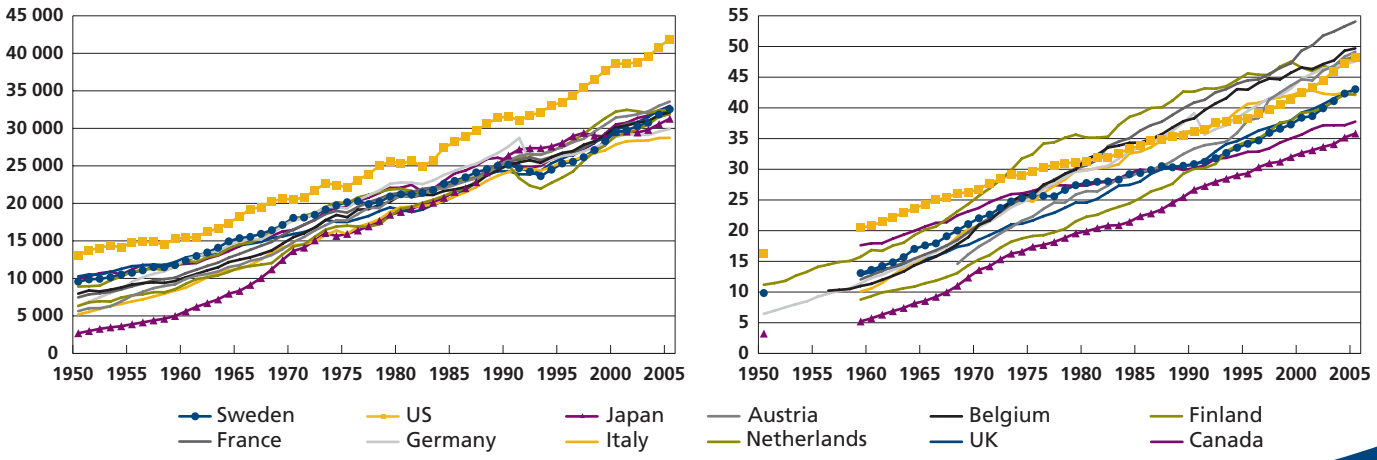
What is known as the income and substitution effect in economic theory can simply look differently for different countries. If one's salary rises, leisure time admittedly becomes more expensive – the substitution effect – but on the other hand one becomes wealthier and can afford more leisure time. Depending on the individual's preferences with regard to leisure time and work, increased income can both lead to increased or decreased working hours.

However, since the 1950s, it has been clear that increased incomes have led to decreased working hours. In this context, the US constitutes an exception in that high incomes have had an unusually limited impact in shorter working hours. If this accurately reflects preferences with regard to leisure time and work in the US and Europe, this part of the difference in the GDP per capita between the US and Europe actually does not constitute a problem, but rather only reflects that Americans value income significantly higher than leisure time compared with a European.

It could, however, be viewed as a problem if average annual working hours in the US or Europe do not give an accurate picture of preferences with regard to leisure time and work.

An economy can be seen to be more competitive if GDP per hour is higher relative to comparable countries with all else equal. It is also reasonable, given the average working hours, to view a country as more competitive if a larger proportion of the economically active population participates in pro-

Figure 2. GDP per capita OECD11, 1950-2005. GDP per hour (USD PPP)

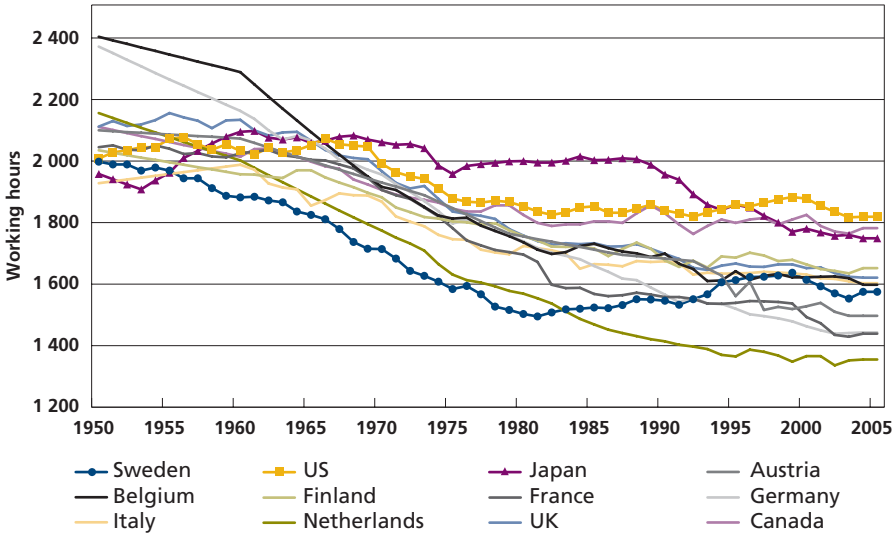


Source: The Conference Board and Groningen Growth and Development Centre, Total Economy Database, January 2007, http://www.ggdc.net

In a competitiveness context, it is therefore more relevant to use real GNI instead of GDP so that changes in terms of trade are also taken into account.

The ITPS competitiveness measure turns downward as early as 1987 and indicates that Sweden was losing competitiveness, despite positive GDP growth.

Figure 3. Average annual working hours, hours per person engaged



Source: The Conference Board and Groningen Growth and Development Centre, Total Economy Database, January 2007, http://www.ggdc.net

duction, i.e. that the country has a high employment rate. However, it is more doubtful how income differences as a result of differences in annual working hours should be assessed.

The major impact of annual working hours on the level of GDP per capita, in short, means that GDP per capita is not a suitable measurement in a comparison of competitiveness. Different welfare or income leagues based on level differences are consequently difficult to interpret from this perspective. Because changes are relatively limited during individual years, it would therefore be more suitable to compare the growth rate, i.e. to measure the change and not the level.

Terms of Trade changes are no measure of competitiveness but influence income growth

It is intuitive to assume, like Jakobsson & Håkansson, that, when the price of export goods rises relative to the price of import goods, it reflects stronger competitiveness and vice versa.

However, a clear example that this is not the case is that the Terms of Trade have fallen in Sweden in the last 50 years, except for the period 1980-1990 when they rose (SOU 2004:11) or were unchanged. This was a period during which Sweden's competitiveness was strongly diminished due to excessively rapid cost growth combined with a fixed exchange rate. This meant that the Swedish export industry's prices in other currencies rose because the higher Swedish inflation rate could not be neutralised with a weaker currency.

Sweden's Terms of Trade have continued to fall without interruption since the beginning of the 1990s and, according to the latest forecasts, will continue to fall, at the same time that Sweden's GDP per capita in fixed prices for the period 1995-2004 has risen faster (2.6%) than that of both the US (2.2%) and the EU15 (2.0%) (Konjunkturläget 2005).

Work productivity growth in the Swedish private sector rose from a growth rate of an average 1.7 per cent per year in the 1980s to approximately 3 per cent at the beginning of the 1990s (Andersson & Ådahl 2005). Regardless of which measure is used, Sweden has had very strong economic growth since the middle of the 1990s, compared with both the 1980s and 1970s, but the Terms of Trade have nonetheless continued to fall.

The fact that Terms of Trade and competitiveness do not coincide is because there may be several reasons for the price of a product falling on the world market. It may be due to new producers that have different costs,

most often lower salary costs, entering the market. This happened in connection with previous major structural transitions in Sweden, where newly industrialised countries competed with lower prices in the textile and clothing, steel and shipbuilding industries or, more recently, within mobile telephone manufacturing.

Falling Terms of Trade may also be due to productivity increasing faster in Sweden than abroad – i.e. that the costs of producing a unit drop faster in Sweden. If the market in which this product is sold is characterised by functioning competition, falling unit costs on the margin must also lead to reductions in price.

However, the reduction of the quality-neutral price within e.g. the information and communication sector (ICT) and the engineering industry is nothing that harms the producer, because these sectors have also had rapid product development and the fundamental cause of falling prices is therefore lower costs. This means that these sectors can continue to maintain high value added per hour worked and good profit margins in spite of falling prices.

It should be obvious that this does not mean that companies such as Intel, Microsoft, Ericsson and Nokia necessarily do poorly. On the contrary, the ICT sector has represented a disproportionately large share of growth in recent decades and been behind a large part of the trend of increased growth that has been seen in the same period in both the US and Sweden (Jorgensson, Ho & Stiroh 2005).

Falling Terms of Trade that are due to Sweden's extensive export in sectors with strong productivity growth, i.e. most often within ICT, consequently need not be something negative. Given that high value added per hour can be maintained in these sectors, it should rather be seen as an asset.

It becomes clear how sensitive Terms of Trade are to the development of individual product categories in that the negative trend Sweden has had the last 25 years vanishes entirely if imported oil, telecommunications and vehicles are removed (Lönebildningsrapporten 2005). The case of Sweden's Terms of Trade can in other words be entirely attributed to one imported commodity and two product categories that have had strong productivity growth.

Although Terms of Trade in itself says nothing about national competitiveness, changes in Terms of Trade should be taken into account since they either increase or decrease the income effect of growth. In a competitiveness context, it is therefore more relevant to use real GNI instead of GDP so that changes in Terms of Trade are also taken into account.

A new measure of competitiveness

As confirmed, there are a number of considerations that should be taken into account when formulating a measure of national competitiveness. Firstly, such a measure must be framed in relation to what can be defined as competitor countries. Secondly, national competitiveness must be defined so that changes in the measure provide meaningful information. For this reason, differentiation needs to be made as to how increased competitiveness arises, i.e. between positive competitiveness (that creates the conditions for increasing incomes) and negative competitiveness (that presupposes decreased incomes). The measure introduced here measures positive competitiveness. Thirdly, the impact of factors that do not genuinely reflect a change in positive competitiveness, such as demography, annual working hours and Terms of Trade, is so large that their effects should be neutralised.

Based on these points of departure, the ITPS competitiveness measure has been defined as the change in the total income of the economically active population in relation to the equivalent of a group of eleven comparable OECD countries[3], which are also our most important trading partners.

The measure of Swedish competitiveness subsequently becomes the change in the earnings value of the economically active population's production relative to a corresponding change in countries with similar production conditions, i.e. real gross national income (real GNI) for the age group 15-64 years relative to comparable countries (OECD11). If the value rises faster for Sweden than the comparison group, Swedish competitiveness has strengthened.

IITPS competitiveness measure and Swedish growth since 1980

During the period 1980-2004, the growth of real GNI for the OECD11 was on average approximately 2.5 per cent and for Sweden approximately 2 per cent per year, i.e. a difference of half of a percentage point per year. This is a large gap in this context. However, the economically active population in the OECD11 has grown by 0.8 per cent per year, while it has only grown by 0.4 per cent per year in Sweden. This means that, relative to the OECD11 and with all else equal, Sweden should have had a growth that was approximately 0.4 percentage points lower per year during this period[4]. The demographic change alone could also suffice as an explanation of why Sweden has fallen behind in the so-called welfare league without the Swedish economy necessarily losing competitiveness.

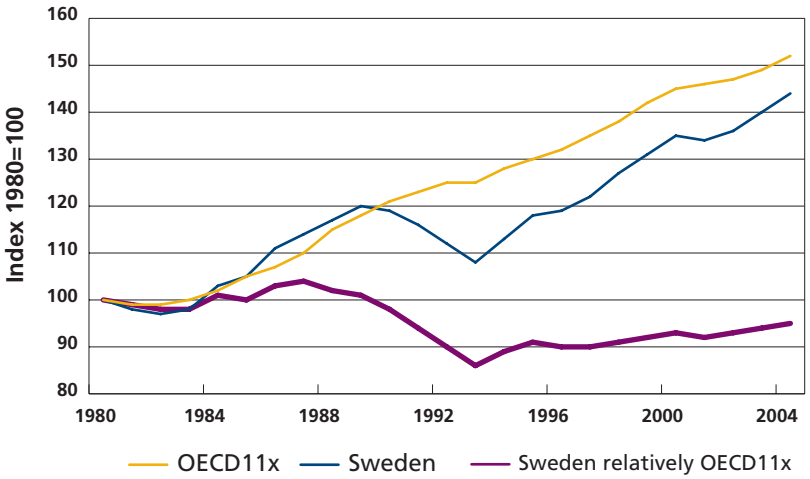
If the difference in the economically active population is taken into account, the OECD11 have consequently expe-

3. Australia, Belgium, Finland, France, Italy, Japan, Canada, Netherlands, UK, Germany and US.

4. This applies given the assumption that capital intensity and total factor productivity are kept constant for the OECD11 and Sweden.

Swedish competitiveness

Figure 4. GNI per capita (16-64), development since 1980



rienced a growth of real GNI per capita (15-64) of 1.8 per cent[5], while the corresponding figure for Sweden is 1.6 per cent. The difference then becomes a more modest 0.2 percentage points, but this more moderate difference also produces significant effects over longer periods of time. The size of the difference within the period is also striking. During the period 1988-1993, Sweden's competitiveness was weakened by 17 per cent, to increase compared to the OECD11 during almost the entire period after 1993. Furthermore, it can be established that the gap that arose in real GNI per capita (15-64) has not yet been closed, despite Sweden's relatively good growth since 1993. Also interesting is the fact that the ITPS competitiveness measure turns downward as early as 1987 and indicates that Sweden was losing competitiveness, despite positive GDP growth. This reinforces the point that a measure of competitiveness in accordance with the ITPS definition can provide valuable information. It reduces the risk that relatively good times obscure the fact that the economy is nevertheless underperforming relative to comparable countries.

5. It not totalling 1.7 per cent with a difference of only 0.1 per centage point is due to rounding to one decimal place. With two decimal places it is 2.53-0.77=1.76. On the other hand, the value with two decimal places is 1.96-0.39=1.56 for Sweden, which means that the difference of 0.2 per centage points is correct.

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