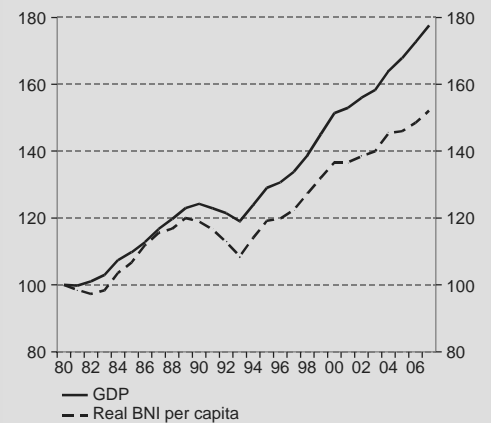


Real GNI per Capita Better than GDP as a Measure of Living Standards

In analyses and forecasts on the state of the economy, a natural measure to use is GDP growth, i.e. the change in the volume of output. For example, when the mass media report the economic growth of a country, they normally refer to the increase in GDP. On the other hand, in analyses and comparisons of living standards between countries and over time, it is more relevant to study gross national income (GNI) in relation to the price of final domestic demand, i.e. consumption and investment. Moreover, GNI must be related to the population, that is, measured per inhabitant. Obviously, in comparing living standards between countries, but also growth, it is important to adjust for different rates of population growth. The measure in this case is real GNI per capita, and it is the relevant one to use for analyzing the development of living standards, both over time and between countries. On average, GDP increased by 2.1 percent per year, whereas real GNI per capita increased by 1.6 percent per year during the period 1981–2004 (see Diagram 106).

Diagram 106 GDP and GNI per Capita Index 1980 = 100



Sources: Statistics Sweden and NIER.

Calculation of Real GNI

Gross national income (GNI) is defined as follows:

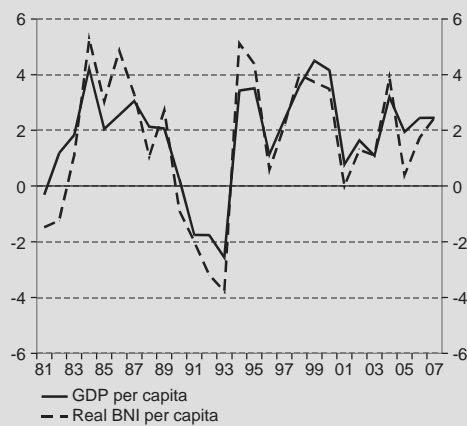
$$\text{GNI} = \text{GDP} + \text{net primary income from abroad}$$

Primary income consists of interest, dividends on shares, the return on direct investment abroad, wages and salaries and certain taxes and subsidies. GDP measures the output (equal to the income) within a country, whereas GNI measures the income received by residents of the country (Sweden in this case). Since net primary income is a relatively small item in Sweden, the development of GNI and GDP in current prices is similar.

When GDP is adjusted for the development of prices, i.e. calculated in constant prices, each individual product included in output, as well as each individual product included in use, is deflated by its own separate price index so as to reflect the development of output by volume as accurately as possible. For measures of income such as GNI and household disposable income, there is no unambiguous underlying measure of volume.¹⁹ The “volume” of income is dependent, of course, on the use to which the income is put. Since it is assumed that household disposable income is used for consumption, real disposable income is calculated by deflating for the change in

¹⁹ See also *Sveriges ekonomi statistiskt perspektiv – första kvartalet 2005 (Sweden's Economy, a Statistical Perspective – Quarter 1, 2005)*, Statistics Sweden.

Diagram 107 GDP per Capita and Real GNI per capita
Annual percentage change



Sources: Statistics Sweden and NIER.

prices of household consumption. When real GNI is calculated, it is natural to deflate by the change in prices of final domestic use, i.e. the total of household consumption and general government consumption, gross fixed capital formation and stockbuilding.²⁰

One of the main reasons why real GNI per capita has been growing more slowly than GDP is the change in the population, which has increased by an annual average of 0.3 percent since 1981. Another important difference arises from changes in the terms of trade. Deterioration in the terms of trade, when prices of imports rise faster than prices of exports, means that real purchasing power increases more slowly than GDP. For example, if oil prices rise, Swedish households are affected through the higher price of oil as well as the possible impact on GDP growth. The margin for consumption and real GNI per capita have thus been increasing more slowly than GDP. Sweden's terms of trade have been deteriorating since 1981 (see Diagram 101). This tendency is the main reason why real GNI per capita has not increased as strongly as GDP per capita (see Diagram 107).

Strong Increase in Real GNI per Capita Last Year

Table 20 GDP and GNI
Annual percentage change

	2003	2004	2005	2006	2007
GDP, current prices	3.6	4.4	3.1	4.4	5.0
Deflator, GDP	2.1	0.8	0.7	1.5	2.0
GDP, constant prices	1.5	3.6	2.4	2.9	2.9
Population	0.4	0.4	0.4	0.4	0.4
GDP per capita, constant prices	1.1	3.2	1.9	2.4	2.4
GNI, current prices	3.9	5.6	2.3	4.1	5.1
Deflator, domestic use ¹	2.4	1.3	1.5	1.9	2.1
Real GNI	1.5	4.3	0.8	2.1	2.9
Population	0.4	0.4	0.4	0.4	0.4
Real GNI per capita	1.1	3.9	0.4	1.7	2.5

¹ Implicit development of prices for household and general government consumption expenditure and for gross fixed capital formation and stockbuilding.

Sources: Statistics Sweden and NIER.

Last year GDP rose by 3.6 percent, whereas real GNI per capita – a more relevant measure for development of living standards – increased by 3.9 percent (see Table 20). That year the population grew by 0.4 percent, as it also will throughout the forecast period. The stronger increase in real GNI per capita, despite population growth, was due to substantial improvement in net

²⁰ In a measure of living standards, it is actually better to deflate only by the change in prices of consumption, but then depreciation must also be considered.

primary income to and from other countries. Incomes in this category fluctuate considerably, as profits and dividends on shares of major Swedish companies, for example, vary from year to year. A factor working in the opposite direction was that the terms of trade deteriorated last year as well. This year, by contrast, growth in GNI per capita will be much less than in GDP. Aside from population growth, the difference will be due to sharply worsening terms of trade for reasons that include rising oil prices. In addition, net primary income is expected to decrease substantially (see the section "Gross National Income Higher Than GDP"). Next year as well, real GNI per capita will increase more slowly than GDP, but the difference will be smaller than this year since the terms of trade will not be deteriorating as much. In 2007, the difference between the increase in real GNI per capita and in GDP will be 0.4 percentage point and explainable entirely by population growth. At that time, decreasing oil prices will offset other factors like the continued deterioration in the terms of trade for manufactured products.

Living Standards Increasing as Rapidly in Sweden as in the United States

Table 21 GNI and GDP in Sweden, the US and the EU15
Annual percentage change, average 1995–2004

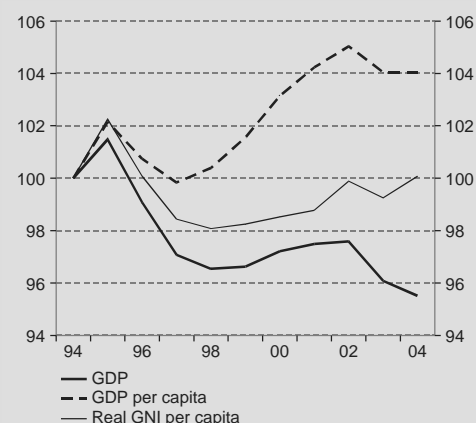
	Sweden	US	EU15 ¹
GDP, constant prices	2.8	3.3	2.3
GDP per capita, constant prices	2.6	2.2	2.0
Real GNI	2.7	3.6	2.4
Real GNI per capita	2.5	2.5	2.0

¹ Data on real GNI are lacking for Spain, Portugal and Luxembourg. In the aggregate for the EU15, where these countries are assigned a total weight of 11 percent, real GNI growth is approximated by GDP growth

Sources: OECD, Statistics Sweden and NIER.

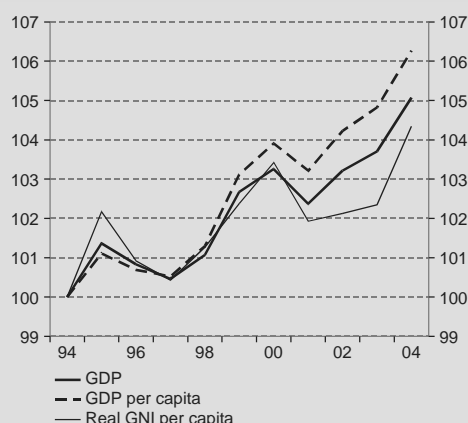
GDP growth was lower in Sweden than in the US during the period 1995–2004 (see Table 21). From 1994 to 2004, GDP increased over 4 percent more slowly in Sweden than in the US (see Diagram 108.) However, since population growth has been higher in the US, GDP per capita has increased faster in Sweden (see Table 21 and Diagram 108). At the same time, however, Sweden's terms of trade have deteriorated, largely eliminating the difference between Sweden and the United States in the average increase of real GNI over the past 10 years (see Table 21 and Diagram 108). This comparison with the US illustrates the importance of measuring the development of living standards in different countries using real GNI per capita rather than GDP. Compared with the EU15, on the other hand, Sweden has shown higher average growth in both GDP and real GNI per capita. In the past 10 years, GDP has increased 5 percent faster

Diagram 108 GDP and GNI, Sweden in Relation to US
Index 1994=100



Sources: OECD, Statistics Sweden and NIER.

Diagram 109 GDP and GNI Sweden in Relation to EU15
Index 1994=100



Note: Data unavailable for Spain, Portugal and Luxembourg. In the aggregate for the EU15, where these countries have a combined weight of 11 percent, real growth in GNI is approximated by growth in GDP.

Sources: OECD, Statistics Sweden and NIER.

in Sweden than in the EU15, and real GNI per capita has risen 4 percent faster (see Diagram 109).

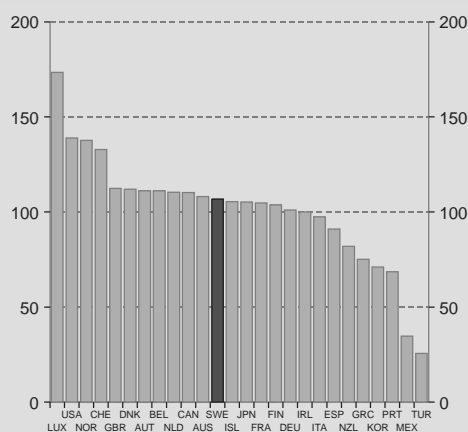
Living Standards Roughly the Same in Sweden as in Other EU Countries

It is also interesting to compare living standards in different countries. This is normally done by comparison of GDP per capita adjusted for differences in purchasing power; these data are published by the OECD in the form of statistics on the so-called “Prosperity League”. In GDP adjusted for purchasing power, consideration is given to changes in the terms of trade. Mainly for this reason, Sweden, despite comparatively high GDP growth, is not substantially wealthier than the rest of the OECD in terms of GDP adjusted for purchasing power. To simplify somewhat, adjustment for purchasing power can be described as using relative prices instead of actual exchange rates when nominal GDP is compared between countries.²¹

Since GNI per capita is a better measure of consumption potential than GDP per capita, GNI per capita, adjusted for purchasing power, is reported in Diagram 110 GNI per capita adjusted for purchasing power. For most OECD countries, the difference between GNI and GDP is relatively minor. In the case of Ireland and Luxembourg, however, GNI is much lower than GDP. Ireland’s GNI is limited by extensive foreign ownership of large portions of its business sector, which are included instead in the GNI of the country’s of ownership. In Luxembourg, many foreign nationals are employed; their earnings are reported in their home countries.

Comparisons of levels between countries are difficult since the OECD calculations of purchasing power are surrounded by considerable uncertainty. Moreover, the National Accounts data are not precise, either for nominal GDP or for population. This means that only large differences between countries in terms of purchasing-power-adjusted GNI per capita are statistically significant. The OECD indicate that the interval of uncertainty is about 5 percent. In 2003 the index for Sweden was 107 (see Diagram 110); in other words, living standards are roughly 7 percent higher in Sweden than in the OECD on average. Within an interval of plus/minus 5 percentage points, there are 11 other countries. The UK tops the list with an index of 112; Finland is lowest with 104. Most countries in the EU15 are at roughly the

Diagram 110 GNI Per Capita, OECD, 2003,
Adjusted for Purchasing Power
Index OECD=100



Sources: OECD and NIER.

²¹ Start, for example, with Sweden’s GDP in current prices and in Swedish currency. Convert final domestic demand (consumption and investment) into a common currency by dividing the relative prices of these products in Sweden and the OECD. Foreign trade, like net primary income in GNI, is converted into a common currency through dividing it by the actual exchange rate. Deterioration in the terms of trade, due for example to rising oil prices, reduces GDP in current prices, whereas price ratios and exchange rates are affected only to a lesser degree. Purchasing-power-adjusted GDP thus decreases.

same level. Only Luxembourg, the US, Norway and Switzerland have substantially higher living standards. Within the EU15, Spain, Portugal and Greece have living standards below the OECD average.

Living Standards Have Not Kept Pace With GDP

In summary, GDP shows output, whereas the relevant measure of living standards is real GNI per capita. This measure indicates the development of real purchasing power per inhabitant. Since 1981, real GNI per capita has been increasing 0.5 percentage point more slowly per year than GDP. The weaker tendency in recent years is due to an increasing population in combination with a declining trend in the terms of trade. A force in the opposite direction is the strengthening of net income from abroad.