

# The Swedish economy

## Statistical perspective

The logo of the Swedish Central Statistical Bureau (SCB), consisting of the letters 'SCB' in a stylized white font inside a dark grey circle.

Statistics Sweden

Statistiska centralbyrån



### *From the contents:*

#### **Weak exports held back GDP growth... page 3**

During the third quarter GDP was 2.5 percent higher than the same period the year before, or quite lower than expectations. This slower growth rate was mainly due to weak exports. Household consumption was the primary factor which pulled up GDP growth. Productivity in industry continued to develop unfavourably, among other things as an effect of a sharp increase in the number of hours worked, primarily in the service industries.

#### **Better possibilities to follow service industries ..... page 17**

A monthly index for service industries will be produced in 2008. This index will function as a current indicator of the change in value added within the service industries. The Service Production Index will among other things be used together with the Industrial Production Index and the Construction Production Index to calculate a production index for the whole business sector.

#### **GDP from the income side – another way of calculation ..... page 19**

In the national accounts of Sweden and most other countries, gross domestic product (GDP) is calculated as the total production and/or usage. A third alternative to calculate GDP is from the income side of the economy.

## Number 4•2007

# Table of contents

Summary .....	3
International perspectives .....	4
Exports and imports .....	5
Household consumption.....	7
General government consumption .....	8
Gross fixed capital formation .....	10
Developments in the business sector.....	13
Labour market.....	15
New index for service production .....	17
GDP from the income side.....	19

# Summary

## Weak exports held back GDP growth

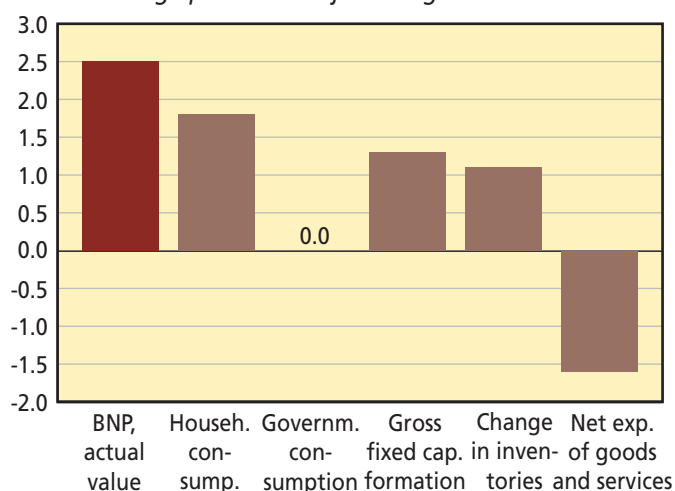
*So far, GDP growth in 2007 has been weaker than in 2006. GDP for the third quarter was 2.5 percent higher than the same period last year, which was well below expectations. The slow growth rate was mainly due to weak exports of goods, while imports continued at a high level. Household consumption was the primary driving force behind GDP growth, but gross capital formation and change in inventories also contributed significantly. Productivity growth in the business sector continued to develop unfavourably, partly as an effect from a strong increase in the number of hours worked in the service sector.*

Gross domestic product rose by 0.6 percent in the third quarter of 2007, compared to the second quarter. The increase in the third quarter of 2006 was 2.5 percent. GDP growth for the first two quarters has been revised downwards, which emphasises the fact that the economy has slowed down so far this year.

### Contribution to GDP growth, incl. imports

*Change third quarter 2007 compared to the same quarter previous year.*

*Percentage points. Unadjusted figures*



Source: National accounts

The main reason behind the weaker growth this year is a considerably slower export growth than previously, while imports have continued to grow at a fast rate. Export to United States and to Asia has been weak, while export to European countries has performed better. There are signs that the weak export is partly due to the fact that Sweden loses market shares – Swedish exports seem to increase more slowly than global exports. The exports of services still did well during the third quarter, in spite of a slower growth of merchanting and net travel payments that has been the case during the previous quarters. Net exports held back GDP growth by 1.6 percentage points.

Household consumption expenditure contributed 1.8 percentage points to GDP growth. This meant that household consumption during the third quarter took over the role as the main driving force for GDP growth. It should be noted that household consumption, like investments, has a high percentage of imported goods which reduces the contribution to GDP growth. The consumption of most goods and services increased, but recreation and culture contributed the most. The consumption of foreign visitors to Sweden did not increase at the same high rate as in the previous quarters.

Household disposable income grew at a rather fast rate, but not quite as fast as in the first two quarters. The strong consumption growth brought about a lower savings ratio than in the first two quarters, seasonal effects taken into consideration. The savings rate of 7.4 percent of disposable income was somewhat lower than for the third quarter 2006, and it was also slightly lower than the average for the third quarter of each year during the last five year period.

Public consumption expenditure made almost no contribution to GDP growth. The new methods for calculating production of government services for individual consumption at constant prices has, for the time being, made it somewhat more difficult than previously to analyse the development of the government sector.

Gross capital formation also continued upwards at a fast rate during the third quarter and contributed to GDP growth by 1.3 percentage points. A pronounced slowdown could however be seen for gross capital formation both in the business sector and the local government sector, while central government gross capital formation rose faster. The growth rate for investments in machinery and transport equipment was moderate, even though investments in machinery were at a very high level to begin with. A slight slowdown was also seen in the housing sector. Total investments have increased at a faster rate than GDP for some time, which has caused the investment ratio – i.e. the ratio of gross capital formation to GDP – to rise to 19.4 percent for the third quarter, the highest ratio since 1990. Change in inventories contributed substantially to GDP growth by 1.1 percentage points.

At the same time as the number of hours worked has increased at a fast rate, labour productivity growth in the business sector has come to an end. The lower productivity growth in the goods-producing parts of the business sector is largely explained by a strong downturn in the chemical industry, while it is less obvious in other industries. The unfavourable development in the service sector has mainly been caused by the low productivity growth in real estate, renting and business activities as well as in trade.

# International perspectives

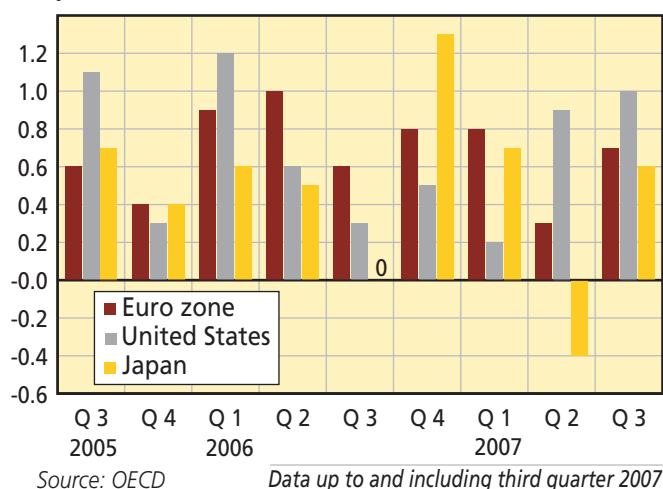
## Uncertain world economy

*The global economic situation for the third quarter looks somewhat divided. GDP for the OECD area grew by 0.9 percent for the third quarter. This was a somewhat better growth than for the previous quarter and a rather good development compared to recent years. However, there is some uncertainty due to the financial turbulence that appeared during the second quarter as a result of the shaky American housing market. The effects on the non-financial economy are a factor of uncertainty with the future at hand.*

Rising prices for oil and other raw materials also fuel uncertainty. The price of crude oil has risen by 58 percent during the last year. A third factor that affects the world economy is the gradually weakening US dollar, which tends to restore previous imbalances by decreasing the large deficits of the American trade balance due to cheaper American export products on the world market. At the same time, imports to the US are fewer and more expensive. The weaker dollar also affects Swedish exports by making Swedish goods comparatively more expensive compared to American goods or goods from other countries that have attached their currencies to the US dollar.

### GDP growth in the Euro zone, United States and Japan

*Percent change from corresponding quarter previous year*



## Very strong third quarter in United States

The outcome for the third quarter showed a GDP growth of 1.2 percent compared to the preceding quarter, which

is an annual rate of 4.9 percent (3.8 percent for the second quarter). This was the largest growth among the G7 countries. Housing construction developed poorly during the third quarter and will, according to present calculations, hold back GDP growth by 1 percentage point. Household consumption grew at a good rate, seemingly without any large negative effects from the housing sector. Household consumption was favoured by both higher employment and income. The global demand in combination with a weaker dollar strengthened American foreign trade, which contributed more than 1 percentage point to growth for the third quarter.

## Comparatively stable upswing in the European economy

Growth in Europe during the third quarter was quite good by European standards. In the euro zone GDP grew by 0.7 percent compared to the preceding quarter. This is considerably higher than growth for the second quarter that was 0.3 percent and it means that growth was 2.6 percent for the last four quarters (2.5 percent for the second quarter). Among the largest countries in Europe the annual growth rate varied from 3.3 percent in United Kingdom to 1.9 percent in Italy. A result of the traditional pattern, United States acting as a driving force for the increasingly intertwined world economy, is that there is an inherent uncertainty about possible infectious effects from the turbulence on the American housing market and higher risk premiums in the financial sector.

## Continued rapid growth in Asia

GDP growth in China and India continued at very high levels, in China at two-digit growth rates and India not far behind. These two countries have, together with Russia, contributed to half of the global growth in recent years. These countries have also experienced a gradually stronger pressure on inflation, caused by rising prices on energy and food products. The effects of globalisation have otherwise contributed to withhold an overheating of the world economy and have allowed a long period of favourable economic development. Growth in Japan recovered during the third quarter after a very weak second quarter.

Contact person: Martin Daniels, 08-506 942 64

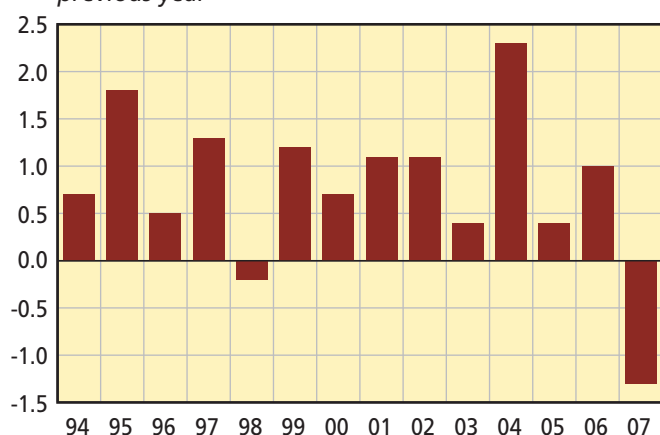
# Exports and imports

## Foreign trade dampens GDP growth

Foreign trade is still dampening the Swedish GDP growth and in the third quarter, like in the two previous quarters, it contributed negatively to GDP growth. One explanation was the weak development of exports of goods, especially to the United States and Asia. A second explanation was a continued high rate of imports of goods and services from abroad. Sweden still has a large positive net trade of goods and services during the third quarter.

Exports increased in the third quarter by 5.2 percent compared to the third quarter 2006. Exports of services went up by 10.5 percent and exports of goods by 3.2 percent. At the same time imports increased by 9.7 percent – by 9.2 percent for services and by 9.9 percent for goods. The total contribution to GDP growth from net exports was –1.6 percentage points. The contribution to GDP growth from foreign trade for 2007 will probably be the lowest since at least 1994.

### Contributions from net exports to GDP growth Including imports. Percentage points, compared to previous year<sup>1</sup>

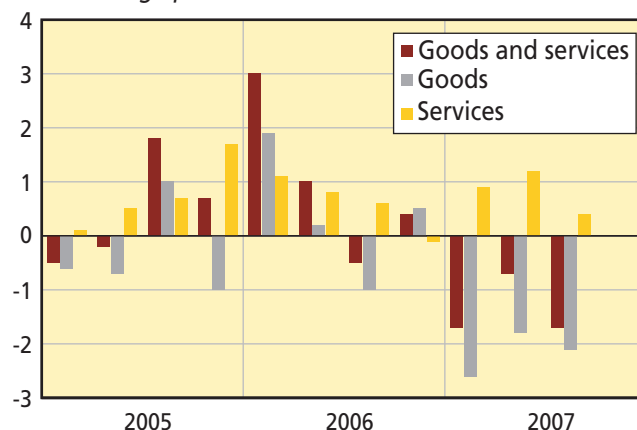


Source: National accounts

Data up to and including third quarter 2007

Development for the different parts of foreign trade has been quite similar for the first three quarters of 2007. The growth rate for services was about 10 percent for both exports and imports. In addition, imports of goods rose at approximately the same rate, compared to the third quarter previous year. However, exports of goods increased at a comparatively moderate rate of 3 percent. Consequently, trade of goods holds back GDP growth while trade of services still contributes to GDP growth by creating an export surplus.

### Contributions from net exports to GDP growth Compared to corresponding quarter previous year. Percentage points



Source: National accounts

Data up to and including third quarter 2007

It should be noted that the growth of net travel payments was somewhat smaller this quarter than the previous quarters and also that the contribution to GDP growth from merchanting was smaller than previously.

## Higher levels for both exports and imports

The large review of the national accounts that took place during the autumn of 2007 has resulted in a considerable rise of the levels of exports and imports, while the growth rates have been affected to a rather limited extent. The new levels that have been implemented for exports and imports of services, for final correction of the break in time series between 2002 and 2003, have increased exports by SEK14 billion in current prices and imports by SEK 9 billion for 2006. The new principles for evaluation of exports and imports of goods, where the invoiced value is now used to get better consistency in the NA system, have resulted in higher exports of goods by SEK 13 billion and a decrease of imports by SEK 10 billion. New calculations regarding transport services have raised exports by SEK 6 billion and imports by 35 billion. The revision upwards of total exports of goods and services has for 2006 resulted in a level that is SEK 39 billion higher (15 billion for goods and 25 billion for services) and for imports SEK 28 billion higher (2 billion for goods and 27 billion for services). Included in these figures are also other kinds of revisions and reconciliations.

## Smaller market shares for Sweden

According to the latest estimates made by the International Monetary Fund (IMF) on the total foreign trade in the world economy, world trade will grow by 6.6 percent 2007. Exports for "advanced economies" will grow by 5.4 percent and imports by 4.3 percent. Sweden, which is a small and open economy and has many trading partners within short

<sup>1</sup> Figure for 2007 refers to three quarters.



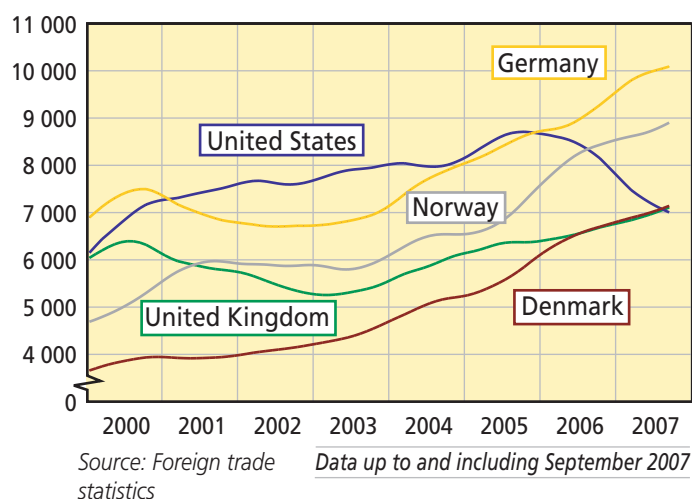
distance, has a higher share of GDP originating from foreign trade than larger countries. However, this does not necessarily mean that trade will increase or decrease faster than in these countries. Based on an assessment of the development so far for 2007 Swedish imports will grow at more than double the rate compared to the average for the more advanced countries. At the same time the exports growth will be slower than the average, which means that Sweden will lose market shares.

## United States causes lower exports

North America and Asia are markets that keep down the Swedish exports. Exports to Europe continue to grow at a steady rate. If exports to United States had developed as favourably as exports to Europe the exports growth should have been 6.5 percent rather than 5.2 percent for the third quarter. One explanation is the gradually decreasing exchange rate for the US dollar. Otherwise there is a clear trend that we over time export more goods and services to countries that are situated geographically close and less to more distant countries.

### Exports of goods by countries

SEK millions, current prices. Trend cycle estimation

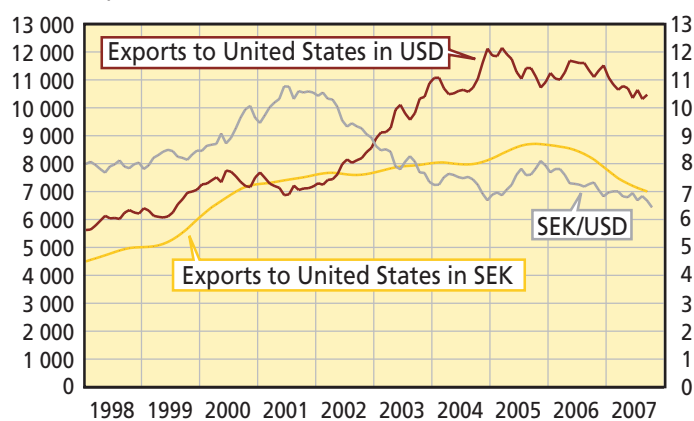


## The value of Swedish exports to United States decreases with the dollar

The value of the Swedish exports to the United States has been going down as a consequence of a weaker dollar. The volume growth is not deductible from the foreign trade by country, but only the value (current prices). The total value is affected by volume, prices and exchange rates. A stronger Swedish krona compared to the US dollar thus decreases the value of exports to the United States, measured in SEK, and this is partly an explanation of the decreasing figures for exports of goods to the United States. A somewhat closer look at the export value to the US, as well as of the exchange rate, give some indication that the exports, measured in dollars, stagnated as early as in the beginning of 2005 but that this was to some degree hidden by the rising exchange rate for the dollar during 2005.

## Exports to United States and exchange rates

Exports in SEK 1 000 and USD 100



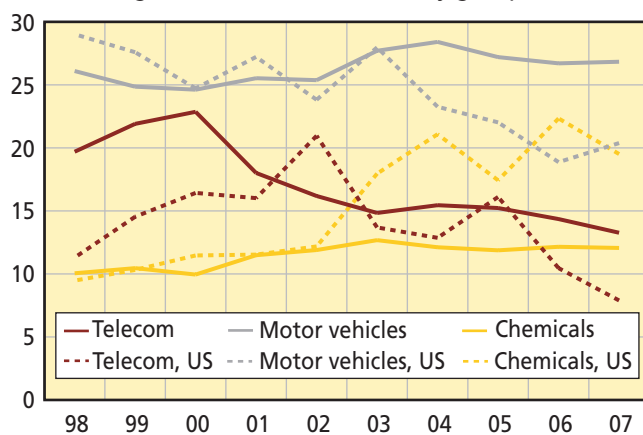
A lower exchange rate for the American currency compared to the SEK will result in less competitive Swedish exporters, compared to American companies. A result of this is lower profit for Swedish firms when goods are sold in dollars at the same time as production costs are in other and more expensive currencies, e.g. the Swedish krona. If the companies that are selling in dollars want to get compensated for the lower profit margins that were caused by the more unfavourable exchange rates, they must raise their prices which will result in lower sales volume.

## Smaller market shares for telecommunication equipment and pharmaceuticals in the US

The results we have reached so far in the analysis are that the exports of goods have grown at a slower rate than exports of services and imports of goods and services. Exports of goods has also had a negative development for the last two years. This is one explanation of the weakening total exports of goods. Which commodity groups have lost market shares in the US? The graph below shows total Swedish exports by commodity groups, and also exports to the US by commodity group.

### Total exports and exports to United States

Percentages for different commodity groups



For the total Swedish exports of goods, expressed as market shares, there was a marked decline for telecommunication and other electronic equipment from 2001 to 2002. The development has been weak also for 2006 and 2007 and these commodity groups have become less important, measured as share of total Swedish export. For other commodity groups there have not been any large changes in export shares for 2007. The best performance can be seen for machinery and equipment and for iron and steel.

For Swedish export to the United States, expressed as export shares, telecommunication and electronics have performed badly 2006 and 2007 and lost large shares compared to

other commodity groups. Motor vehicles performed badly from 2004 to 2006, but the situation looks better for 2007. Motor vehicles have become less important during the last ten years. The exports of chemicals and pharmaceuticals were however quite weak during 2007. The weak export of goods to the United States in 2007 can primarily be explained by bad development for telecommunication equipment, electronics, chemicals and pharmaceuticals.

Contact persons: Martin Daniels, 08-506 942 64 and Leif Munters, 08-506 945 09

## Household consumption

### Consumption grew strongly in the third quarter

Household consumption growth for the third quarter was the highest since 2002, in constant prices. Consumption rose by 3.5 percent compared to the third quarter of 2006. Household disposable income increased during the same period by 4.4 percent in current prices and by 2.8 percent in constant prices, which was a slower growth rate than for the first two quarters of 2007. The savings ratio was 7.4 percent, which is a relatively low figure for this quarter.

Total household consumption expenditure increased during the third quarter by as much as 3.5 percent in constant prices. All product groups showed a higher growth rate than the last quarter with the exception of alcohol and tobacco. In particular, the demand for so called "luxury goods" rose sharply.

The largest contribution to consumption growth came from recreation and culture with 1.1 percentage points. TV, Audio-DVD and computers contributed the most. TV and Audio-DVD grew by 31 percent and computers by 47 percent. Miscellaneous goods and services was the second largest contributor, with 0.7 percentage points. Within this group, financial services gave the largest contribution of 0.3 percentage points, but a large contribution also came from barbers and hairstyling salons, 0.2 percentage points. The strong growth in consumption was confirmed by the results from National Institute of Economic Research's Confidence indicator (CCI) for households. The indicator showed that consumers experienced that both their own economy as well as the Swedish economy was strong.

The growth rate in purchases made by non-residents living in Sweden during the third quarter was lower than what has been normal in previous quarters. The second quarter was revised upwards as new information became available.

### Household consumption third quarter 2007

	Household consumption, %	Change in volume compared to Q 3/06, %	Contribution to growth in household consumption, % points
Housing	25.1	1.1	0.3
Transport	14.2	2.3	0.3
Food and non-alcoholic beverages	12.7	2.0	0.3
Recreation and culture	12.5	9.7	1.1
Miscellaneous goods and services	10.0	7.4	0.7
Restaurants, hotels	6.5	4.0	0.3
Clothing and footwear	5.4	4.9	0.3
Furnishings etc.	5.3	7.5	0.4
Alcoholic beverages and tobacco	3.5	-1.3	0.0
Communications	3.4	2.2	0.1
Health	2.7	1.3	0.0
Education	0.2	1.2	0.0
Direct purchases abroad by residents	5.1	10.3	0.5
Purchases by non-residents in Sweden	-6.7	8.8	-0.6
Total final consumption expenditures	100.0	3.6	
Non-profit institutions serving households		0.5	
Total consumption		3.5	

Source: National accounts

Energy consumption was higher this quarter compared to the same quarter last year. As a result, the item for housing also contributed to the increase of total household consumption.

### Banking services raised consumption

Household consumption of financial services increased during third quarter by 11 percent in volume and thus contributed to the raise of household consumption by 0.3 percent. Financial services consist of commissions and fees that are paid to banks and other financial institutions. Further-

more interest paid by households to financial institutions is included. This addition to household consumption is called FISIM and comprises almost half the amount of financial services. FISIM was the part of the financial services that rose the most.

### Consumption stagnated

Household disposable income increased by 4.4 percent compared to the same quarter last year. This is a slower growth rate than the two previous quarters, but still higher than the last four years growth. During the two first quarters this year households saved more than half the increase in disposable income (compared with the same quarter last year). The raise in consumption during the third quarter turned out to be greater than the income raise, which made savings fall. The savings ratio was 7.4 percent for third quarter, which is much lower than second quarter's 11.7 percent. The fall in the savings ratio from the second to the third quarter is normal due to seasonal variation. However, seasonal variation does not explain it all. The savings ratio during first two quarters of 2007 was high while it was low during third quarter compared to the same period during the last five-year period.

Contact persons: Caroline Ahlstrand, 08-506 943 33 and Bo Bergman, 08-506 945 42

### What is FISIM?

- FISIM<sup>1</sup> is the value of the interest on deposits and lending services that "banks"<sup>2</sup> provide their customers. It is included in the interest rate of deposits and loans.
- FISIM is calculated on banks' interest on deposits and loans and is distributed among the customer categories Business, Households, Public Sector and Abroad by the sectors share of interest.
- Interbank interest is used as a reference interest in the calculations. The difference between the actual interest and the reference interest is the interest rate on the service being produced. This interest rate is applied to the deposits and loans stocks that are received per sector from the financial accounts.
- Household consumption of FISIM consists of three parts: FISIM on loans for consumption, housing loans, and FISIM on deposits, where consumption loans are loans excluding loans for homes and households with entrepreneurial income.
- FISIM increases the value of consumption of households and the public sector. The level of GDP has risen by roughly one percent after the introduction of FISIM in the national accounts.

*1 Financial Intermediation Services Indirectly Measured.*

*2 Monetary financial institutes, i.e. banks, housing finance institution, finance company and so on.*

## General government consumption

### Sharp drop in consumption for central government sector

*Public consumption stagnated during the third quarter of 2007 compared to the same period the year before. The municipalities increased their consumption expenditures by 0.2 percent in constant prices, county councils by 2.7 percent, while central government expenditures (including the social insurance sector) decreased by 2.9 percent. Public consumption made no contribution to the 2.5 percent GDP growth for the third quarter. The results are based on the new method to calculate production of public services for individuals in constant prices.*

### New method to calculate constant prices for production in the public sector

A new method for calculating public production for individuals and consumption in constant prices has been introduced in connection with the publishing of new time series after the general revision. Activities related to COFOG groups<sup>1</sup> 7–10 (health and medical care, leisure activities, culture and religion, education and social protection).

The change is an adaptation to EU requirements and applies to the annual accounts. Parts of production and thereby even consumption expenditures in constant prices are now calculated based on the services provided<sup>2</sup>.

However, production and consumption statistics in constant prices are not affected by the method change. In connection with the introduction of the new methods, revisions of the statistics have occurred from 2002 onwards (2003 for health and medical care).

According to the new method, production of the above individual services is calculated in constant prices by using volume indicators. Examples of such are the number of pupil hours or the number of hospital treatments. The information to calculate volume indicators are only available as

*1 Public consumption is grouped according to an international classification called Classification of Functions of Government, abbreviated to COFOG.*

*2 In the old method, the quarterly breakdown was based on volume development of the number of hours worked. This is regarded as a reliable basis of information by the government agencies.*



yearly data, and are available after a certain delay. Previously, calculations were largely based on the number of hours worked in the various activities.

In several areas the statistical information is not satisfactory and there are many difficult problems that require solutions. The change in method only affects the individual production and consumption in constant prices<sup>1</sup> but of course affect the time series for total public consumption and production for government agencies. The effects of the method change are shown in the table, where volume change figures according to each method are presented.

#### **Total general government consumption expenditure<sup>2</sup> 2002–2006**

*Effects of method change. Volume development in percent according to new and old method*

	Method	2002	2003	2004	2005	2006
Public sector	new	2.2	0.4	−0.2	0.4	1.5
	old	2.1	0.7	0.3	0.1	2.4
Primary municipalities	new	1.4	1.3	0.6	0.4	1.5
	old	1.5	−0.1	1.0	0.6	3.0
County councils	new	3.6	−3.1	−0.8	3.5	2.2
	old	2.8	0.9	0.4	2.2	2.2
Central government + AP funds	new	2.3	2.0	−0.9	−2.5	0.9
	old	2.3	1.8	−1.1	−2.8	1.5

Source: National accounts

At this time there is no COFOG breakdown of current information for 2006. The weights are based on the breakdown from 2005. Since the new volume indicators only apply to annual production, the quarterly breakdowns are based on estimates and forecasts. For example, it is assumed that no changes have taken place for health and medical care between 2006 and 2007.

To calculate a volume index per quarter for 2007, a forecast of the annual index for 2007 is needed first. In order to use the method for calculation of a quarterly index within the quarterly accounts during an ongoing year, when the final annual index is not yet known, a forecast of volume development for the quarterly indicated is needed for the whole year. A forecast of the annual volume measurement is also needed. Volume indicators are different within the subsectors as well as within the different individual services.

#### **Total general government consumption expenditures, Q 3 2006, Q 1–3 2007**

*Volume development in percent according to new and old method*

	Method	Q 3 2006	Q 1 2007	Q 2 2007	Q 3 2007
General government	new	2.4	1.1	0.5	0.0
	old	2.9	1.2	1.6	0.5
Municipalities	new	1.5	0.8	1.2	0.2
	old	3.2	1.7	3.0	1.2
County councils	new	2.5	3.2	2.2	2.7
	old	2.8	1.3	2.0	2.1
Central gov. + AP funds	new	3.7	−0.4	−2.0	−2.9
	old	2.6	0.2	−1.0	−2.2

Source: National accounts

It should be noted that not all production of individual services in COFOG 7–10 can be calculated in constant prices by using volume indicators, since the statistics are not sufficient at this time. Furthermore, collective services are included in the COFOG 7–10 groups that will still be calculated according to the old method even in the future.

#### **New method to calculate constant prices of labour costs of government agencies**

Now a new method has been introduced to calculate constant prices of labour costs of government agencies<sup>3</sup>. Today the national accounts use calendar-adjusted hours to calculate labour costs of government agencies. These costs include pay, collective fees and production taxes per quarter. From this publication onwards, these variables will be published instead to calculate constant prices with the help of actual hours worked. This change in methods will be done because the current method using calendar-adjusted hours gives an inconsistent treatment of quarterly productivity in the public sector. The switch to calculating constant prices for labour costs with actual hours instead of calendar-adjusted hours is not to be mixed up with the method change for calculation of constant prices of public production for individuals and consumption.

Other revisions include reclassification of certain government agencies to other COFOG groups, downward calculations of fixed capital due to previous double registration of VAT for the central government capital stock (since 1993), downward adjustment of government agencies' investments in their own software (also affects fixed capital downwards), and reclassification from purchase and sales to transfers among different public sectors. The last mentioned affects consumption expenses for central government, county councils and primary municipalities but not the total consumption expenses.

Contact person: Vera Norrman, 08-506 943 04

<sup>1</sup> Information on the method change is available on Statistics Sweden's website: [http://www.scb.se/statistik/NR/NR0102/\\_dokument/Rapport\\_Volume\\_20060915.pdf](http://www.scb.se/statistik/NR/NR0102/_dokument/Rapport_Volume_20060915.pdf).

<sup>2</sup> Including social benefits in kind.

<sup>3</sup> Production consists of about 90 percent labour costs and 10 percent consumption of fixed capital. The assumption of an unchanged productivity only refers to that part consisting of labour costs.

# Gross capital formation

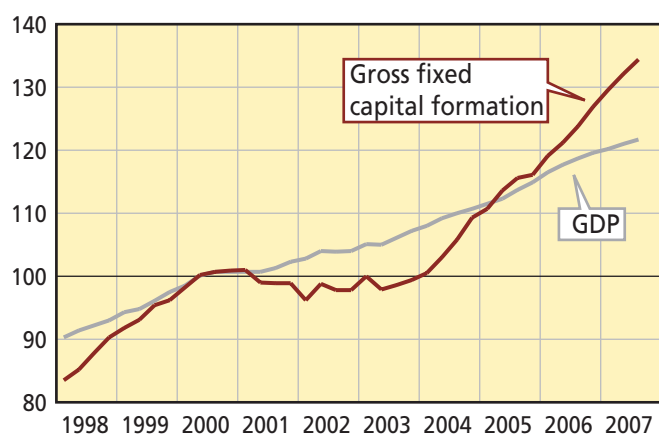
## Investments continued to rise

*Gross fixed capital formation continues to increase at a rapid pace. The rate of increase has been revised downwards for the first six months of the year, but during the third quarter it was still high. However, a weakening was seen in investments from business and municipalities during the third quarter. Investments for housing and machinery also showed a clear weakening. However, machinery investments fell from a very high rate of increase, and these investments still continue to rise sharply.*

The strong development for fixed capital formation has continued during the third quarter. As a result of the revised information from the national accounts of the first quarter, the investment picture is nevertheless not as bright as before. Compared to the previous quarter, the rise in gross fixed capital formation during the first and second quarters according to the latest calculations amounted to 2.1 and 1.9 percent respectively. This involved downward calculations from previous calculations of 0.9 and 0.3 percent respectively. In the third quarter the rate of increase was slightly lower but still amounted to a strong 1.8 percent. This corresponds to a 7.4 percent increase at an annual rate. Investments have now increased continuously since the third quarter of 2003 and have thus been increasing for five years in a row.

### Gross fixed capital formation

*Volume index 2000=100. Quarterly figures, seasonally adjusted*



Source: National accounts

Data up to and including third quarter 2007

During the third quarter, gross fixed capital formation was 7.3 percent above the level during quarter three of 2006, which implies a continued weakening rate of increase this year measured over four quarters. Nevertheless, investments are still one of the fastest growing items on the expenditure side of GDP. The increase in the third quarter corresponded to 1.3 percentage points of the GDP increase of 2.5 percent, which is still some tenths lower compared to the three

previous quarters. With consideration to the import content, the contribution to GDP growth – according to a standard calculation – is estimated at 0.2 percentage points. During the first three quarters of 2007, gross fixed capital formation was 8.8 percent higher in comparison to the corresponding period last year. This is a few percentage points higher than for the corresponding comparison period in 2006.

## Investment ratio increasingly higher

As a result of investments continuing to increase much quicker than GDP on the whole, the investment ratio in the economy – i.e. the share of gross fixed capital formation of GDP – has risen even more. For each of the last three quarters, the investment ratio has been higher than the corresponding quarter in 2006, the year which had the highest investment ratio since 1991. After the extensive revisions of the national accounts that have now been done from 1993 onwards, the investment ratio in the economy has been somewhat more positive in recent years.

The investment ratio for the quarter was 19.4 percent, seasonally adjusted in constant prices. This is an increase of about three percentage points compared to 2003, before the current upswing in investments began, and nearly two percentage points higher than in 2000, the most recent previous investment peak. Calculated on an annual basis, the investment ratio has since 1980 amounted to 20 percent in only two years, 1989 and 1990. Even when adjusted for housing investments, which have clearly been the most rapidly growing type of investments during the current upward phase, the investment ratio is now the highest since the beginning of the 1990s.

## Weakening in business and municipalities

The downturn in investments is evident in both business and the government sector. Within the government sector increase in municipality investments weakened. But at a rate of increase of 8.1 percent for the third quarter, this sector exhibited the most rapid increase of investments during the third quarter. However, investments in central government went against the trend of a sharp decrease in the second quarter to an increase of 5.1 percent in the third quarter. Both the negative development during the second quarter and the turn to an increase in the third quarter are due to road investments.

The downturn in investments in business is largely centred on the manufacturing industry. After a rapid and sharp rise during the second quarter, investments in the manufacturing industry increased at a more moderate rate during the third quarter. The rate of increase also slowed down for business services in the third quarter, following a strong second

quarter. The picture has changed considerably for investments in energy has in connection with publishing in the third quarter. The industry still invested significantly in the first quarter, but the rate of increase in the second quarter has been revised downwards significantly, and is now at the same level as industry on the whole. However, no slowdown is seen in the third quarter and the rate of increase is largely unchanged. Furthermore, no slowdown has been seen for investments in the transport industry, where instead the rate of increase has risen several quarters in a row. Here we can see the largest rate of increase for the two most recent quarters. However, the increase of the third quarter can partly be explained by a very weak development during the third quarter of last year.

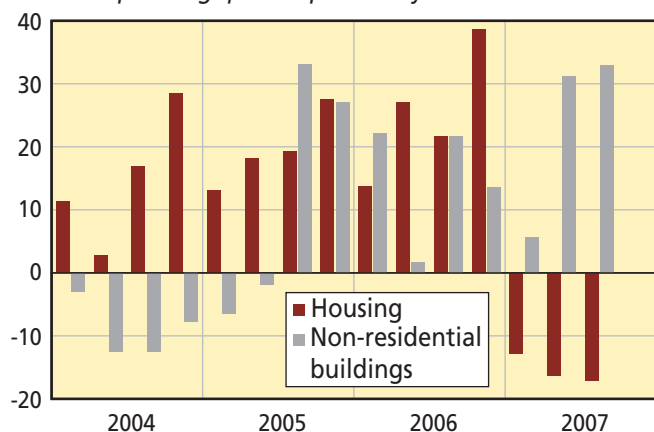
### Sharp decline of leasing investments

The drop in the rate of increase up until now this year is apparent for means of transport and dwellings where the rate of increase was considerably lower than above all the first quarter but also the second. Investments in machinery slowed down also during the third quarter, but this drop occurred after a very strong second quarter and the rate of increase is still strong. A large part of this slowdown in machinery investments can also be due to a sharp fall in leasing investments. Up until now this year, machinery investments have dominated investment growth; more than half the increase in the third quarter could be attributed to these investments.

Even though housing investments on the whole have dropped, the picture is still divided. On the one hand, new construction is growing more slowly, while on the other rebuilding and additions have accelerated after the downturn that occurred during the last quarter of the previous year. In addition, investments in other buildings and plants increased more quickly during the third quarter than the second, and have thus offset the slowdown in gross fixed capital formation.

### Authorised building permits

Gross floor area. Percentage change from corresponding quarter previous year



Source: Statistics on building permits

Data up to and including third quarter 2007

Trends for all building permits, an early indicator for building, changed from a sharp increase and a clear decrease

between the fourth quarter last year and the first quarter this year, compared to the same quarters the year before. Since then the downturn has slowed down, and in the third quarter building permits were by and large unchanged. However, the trend for building permits for housing is quite gloomy, with building permits decreasing by around 15 percent for each of the last three quarters. The Business Tendency Survey also supports a calmer period for housing construction, indicating expectations of a worsening order stock for housing construction in the coming months. In contrast, building permits for premises provide a brighter picture and have halted the decrease during the year. During the first quarter, building permits for premises increased by 6 percent, but since then the rate of increase has risen sharply; during the second and third quarters, the rate of increase was over 30 percent.

### Gross capital formation

SEK billions, current prices and percentage change from corresponding period the previous year, constant prices

	2006	2007			
	Year	Q 1-4	Q 1	Q 2	Q 3
Industry	443	7.8	10.5	10.3	7.4
Manufacturing industry	81	0.9	3.2	17.7	6.5
Energy sector	35	10.9	32.3	10.0	10.5
Service producers <sup>1</sup>	162	5.6	7.9	11.1	9.2
Business services	35	6.7	13.7	20.2	7.1
Government agencies	82	7.1	6.9	2.5	6.7
Central government	42	2.8	-1.8	-7.6	5.1
Municipalities	40	11.8	17.5	14.8	8.1
<b>Total</b>	<b>525</b>	<b>7.7</b>	<b>10.1</b>	<b>9.1</b>	<b>7.3</b>
Machinery	166	4.8	15.1	18.0	11.0
Transport equipment	50	9.1	15.5	12.5	2.6
Housing	91	13.8	11.7	8.8	6.8
Other construction	130	7.3	3.5	0.6	5.5
Software etc.	87	7.1	3.5	5.3	6.1

Source: National accounts

### Investment plans for manufacturing industry revised downwards

The latest investment survey from the end of November still maintains the positive impression of companies' investment plans for 2007 from the May survey. Investment plans of most of the important industries for the current year still point clearly upwards. However, there is a clear difference for the manufacturing industry compared to previously. Plans have been revised downwards by several percentage points to an increase of about 11 percent, compared to 2006.

Investment plans for 2008 of companies in the goods producing sector show a continued upturn in total, but the upturn is not as broad as before; the industries most affected are the mining, steel and metal industries plus the energy sector. Other industries are only slightly affected by changes compared to the investment level of the year. Plans for housing investments for next year indicate a weak increase while plans for the service sector point to a nearly unchanged level of investment in 2008.

<sup>1</sup> Excluding property management.

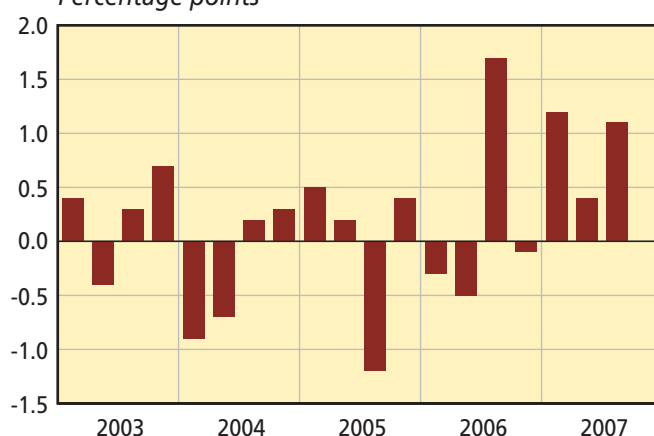
## Large increase of inventory of intermediate goods

Inventory investments from industry contributed 1.1 percentage points to GDP in the third quarter. However, the contribution for the previous year was still somewhat greater. In both cases, industry was the prime factor behind the positive effect on GDP growth. One difference from last year is that intermediate goods were the main items which raised GDP growth in the third quarter this year, while last year work in progress and finished goods were behind the growth. Like last year, trade inventories also made a rather large contribution. Contributions from other inventory items have been small.

During the third quarter, an increased build-up of inventory was behind the positive GDP effect on inventories. In contrast, the positive effect last year was due to a switch from a sharp decrease in inventories to a moderate increase in inventories. The clearest increase in inventories during the third quarter occurred for intermediate goods followed by commercial goods. However, the positive contribution from inventory of products in process and finished goods was mainly due to a halt in decreasing inventories from last year.

## Contribution to GDP growth from change in inventories

*Compared to corresponding quarter previous year.  
Percentage points*



Source: National accounts

Data up to and including third quarter 2007

Contact persons: Bo Sandén, 08-506 946 94 and  
Tomas Thorén, 08-506 941 46

## Revised national accounts – time series of better quality

At the end of November the revised national accounts were published. Most of the calculation areas have now undergone a review with the aim to further increase quality and timeliness of the Swedish national accounts. Annual and quarterly calculations of GDP as well as sector calculations have been reviewed. The revision increased GDP as much as SEK 65 billion in current prices in 2005. Growth was also adjusted upwards in the entire time series.

An in-depth report concerning the revisions is available on Statistics Sweden's website: [http://www.scb.se/statistik/NR/NR0102/NRPM\\_Genrev\\_2007.pdf](http://www.scb.se/statistik/NR/NR0102/NRPM_Genrev_2007.pdf)

### Revision of GDP 1993–2005

*New and previous volume development, revision of volume development, percentage points*

Year	Rev. SEK millions	Volume development %		Revision volume % points
		New	Old	
1993	16			
1994	18	3.9	3.9	0.0
1995	22	4.0	3.9	0.1
1996	23	1.5	1.3	0.2
1997	22	2.5	2.3	0.2
1998	25	3.8	3.7	0.1
1999	28	4.6	4.5	0.1
2000	33	4.4	4.3	0.1
2001	38	1.1	1.1	0.0
2002	49	2.4	2.0	0.4
2003	56	1.9	1.7	0.2
2004	60	4.1	4.1	0.0
2005	65	3.3	2.9	0.4

## Revision of GDP

The GDP level has risen between SEK 16 and SEK 65 billion in current prices for the years 1993–2005. In 2005 GDP in current prices amounted to SEK 2 735 billion. Households' consumption expenditures account for about half of the level of increase, and the remaining contribution is from net exports and gross fixed capital formation.

GDP growth has been adjusted upwards by up to 0.4 percentage points compared to previous publications. The revision of the growth rate by 0.4 percentage points in 2005 is in part due to the revisions that were included in the time series. It was also due to a detailed annual calculation with access to annual statistics that were incorporated to the calculations for the first time. Growth for 2002 was also adjusted upwards by 0.4 percentage points, largely because of revised household consumption.

## All areas affected

The revisions were made because the national accounts have been adapted to new levels due to new business statistics and statistics on foreign trade of services. A new evaluation of foreign trade of goods and certain services will be also made. In addition, calculations of black market activities have been reviewed, and the concept of GDP has expanded to include certain illegal activities. Further, a new method has been introduced to calculate constant prices for certain parts of public production and thereby consumption. Other areas of calculation have also been looked over.

Contact persons: Katarina Andersson, 08-506 940 57 and  
Ann-Marie Bråthén, 08-506 945 25



### New time series from 1980

The time series that are calculated according to the international regulations in SNA93/ESA95 and which are published by the national accounts start in 1993. Many statistics users find this is not satisfactory – the time series are too short to satisfy all user needs.

To meet the needs, backcasting has been done to 1980 on an aggregate level for a limited number of NA time series. These series were released on the Statistics Sweden website ([http://www.scb.se/templates/Product\\_22908.asp](http://www.scb.se/templates/Product_22908.asp)) at the same time as the results from the large revision of the national accounts on 29 November 2007. The tables released were:

GDP expenditure approach, quarterly

GDP expenditure approach, annual

GDP production approach (value added), quarterly

Hours worked, quarterly

Gross capital formation, quarterly (released on 20 December 2007)

Household consumption expenditure, quarterly (released on 20 December 2007)

Only series with actual values in constant prices were backcasted.

### Principles for backcasting

Methods have been used to make sure that the growth rates for different aggregates, as well as the additivity in time (sum of quarters equals the annual totals) and the additivity of series (sum of subseries equals the aggregates, for hours worked) have been maintained as much as possible. Additional information about the methods used is available at Statistics Sweden's website.

### Further work in the area

During 2008 a larger number of time series on a more detailed level will be released during the spring. This applies to more series with quarterly figures from 1980 and the GDP expenditure approach with annual figures from 1950. Later on backcasted series from 1980 will be released on a more detailed level in a coherent and consistent system for institutional sectors as well.

## Developments in the business sector

### Stagnating productivity growth

*Development during 2007 so far indicates that productivity growth has come to an temporary end<sup>1</sup>. Productivity declined slightly compared to the previous quarter for the first as well as for the third quarter while it remained unchanged during the second quarter. This has occurred only once before during the period from 1993 to 2007, namely during the IT crisis 2000 to 2001 in particular. However, at that time a vital difference compared to current development was that the number of hours worked were declining while they are now increasing rapidly.*

The current employment growth is the result of a need to increase employment that has developed during a long period of time. All this need has only been satisfied during a very short period of time. This means that a lower productivity growth can be seen as a natural phenomenon, because it takes time for newly hired employees to learn the work, at the same time as the more experienced staff need to use some time to teach them. It is also probable that new employees often are less productive compared to existing staff also after the introduction. These factors also taken into account, the fall in productivity is surprisingly large.

Seen as the actual development over four quarters from the third quarter 2006 to the corresponding quarter 2007, productivity in the business sector declined by slightly more than 0.5 percent. If the seasonally adjusted growth for these four quarters is added, the result will be quite near 1 percent. The difference between the results obtained by these two methods appears to be quite marginal. The conclusion

is that productivity growth has been very poor over the last year regardless of which calculation method is used.

### Productivity growth for producers of goods

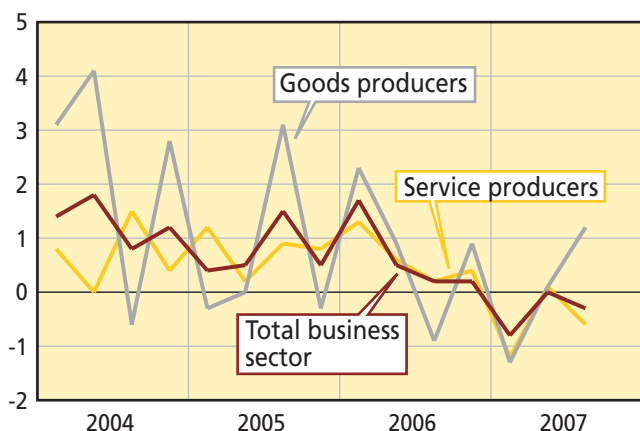
Productivity growth in the goods-producing part of the business sector seems to have recovered during the third quarter of 2007. Growth was not rapid but rather took on a growth rate at the same level as the long-run average. It is not possible to determine whether this is a temporary upturn or if it is the beginning of a trend that should be more in line with what has been normal during the last decade. Productivity growth is a result of growth of value added by about 0.5 percent, at the same time as the number of worked hours declined by about 1 percent.

The manufacturing industry is the only goods-producing industry for which the hours worked have been seasonally adjusted. The development is not so positive, since weak production growth should be compared to a constant level of employment. This poor production growth is to a large extent caused by the sharp downturn in the chemical industry, while the large engineering industry has grown at a very

<sup>1</sup> An important reservation must be made regarding the conclusions that can be made with reference to the productivity growth. Generally speaking quarterly productivity data should be treated with great care, since they are composed by a difference between time series that have been seasonally adjusted independently of each other. Seasonal adjustment of the actual, not calendar adjusted figures, should give much more reliable figures. Until this is implemented in the statistical production process the analysis will be based on available but less reliable data.

stable rate of about 2 percent during the last 6 quarters. The forestry industry has also grown rather steadily, but at about half this growth rate.

**Labour productivity in the business sector**  
Percent change compared to previous quarter.  
Seasonally adjusted



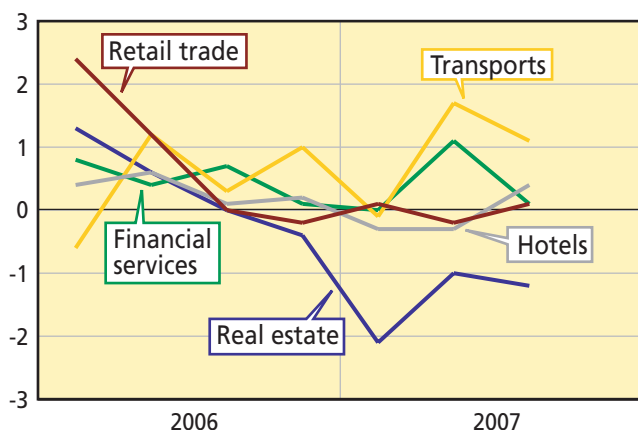
Source: National accounts

Data up to and including third quarter 2007

Studies of the actual development between the third quarter 2007 and the corresponding quarter 2006 show that the goods producers have had an unchanged productivity. If the effect of the chemical industry is excluded the growth of labour productivity would be slightly less than 2 percent for the goods producers and for the total manufacturing industry a little more than 2 percent. These growth rates can still be considered as rather low compared to the average, which has been more than double and triple that level, respectively. However, it is not a total stagnation which might be indicated by the aggregate development.

## Unchanged productivity for service producers

**Labour productivity in service industries**  
Percent change compared to previous quarter.  
Seasonally adjusted



Source: National accounts

Data up to and including third quarter 2007

As seen from the graph on productivity growth for some of the service industries during the last two years, development for this part of the business sector has not been especially favourable. However, the transport and communication industries have had rather good development, as well as the financial services. The main problem is development of the

trade and business services. The growth rate for trade has fallen towards zero and real estate and business services have almost ended up in a free fall.

An analysis of the actual growth between the third quarter 2007 and the third quarter one year earlier shows that trade and real estate and business services have accounted for three fourths of the growth of hours worked in the service industries, but only half of the growth of value added. Thus productivity in the rest of the service industries has increased by about 2 percent, more than average. The large decline for business services cannot be explained by the uncertainty in measuring development of prices and wages and salaries. Both total wages and salaries and value added in current prices have increased by slightly more than SEK 6 billion. This results in a percentage growth of the total wages and salaries that is almost three times as large as the increase of value added. Consequently, the relative profitability in the industry has deteriorated considerably. In addition, trade has not succeeded in increasing the value added more than total wages and salaries in absolute figures.

## The fall in productivity is rather concentrated

All in all a general weakening of productivity growth in the goods-producing parts of the business sector and a sharp fall for the chemical industry can be noted. Meanwhile productivity decline for the service enterprises can be explained by the downturn for real estate and business services as well as stagnation in trade. There are other possible explanations for the productivity drop. Because the input share in the quarterly calculations is assumed to be constant an actual decreasing input share should result in underestimating the growth of value added and thus of the growth of labour productivity. One factor that could create such a decrease in the short run is the boom for raw materials, which may have led to an attempt to reduce usage. The change of the age groups in the Labour Force Survey may also have contributed slightly to stronger growth of the number of hours worked than previously used methods. This effect is due to a sharp increase of employment among persons aged 65 to 74 years.

The business sector has during the last year increased its employment, and especially the number of hours worked, very sharply and invested a lot in machinery and equipment. A considerably larger production capacity has been created. If demand does not rise employment will not increase – it will rather be reduced and thus productivity will rise. The Swedish business sector has, during more than a decade since the crisis in 1991, shown that productivity can be maintained either by increasing production or by decreasing employment. Nothing indicates that the Swedish business sector has lost this ability even though the contribution from the electronics industry will be smaller than previously and the weight of the goods producing industries will be reduced in the long run.

Contact person: Hans-Olof Hagén, 08-506 944 66

## Contributions to GDP growth

Actual GDP growth in the third quarter 2007 was 2.5 percent. The volume growth from the third quarter 2006 to the third quarter 2007 for the different components on the expenditure side of GDP and their respective contributions to GDP growth are:

	Volume growth, percent	Contribution, percentage points
Household consumption expenditure	3.5	1.8
Government consumption expenditure	0.0	0.0
Gross fixed capital formation		
machinery & equipment	8.2	0.9
construction	6.1	0.5
Change in inventories		1.1
Net exports		-1.6
Exports	5.2	2.7
Imports	9.7	-4.4

Final demand within each component consists partly of imported goods. Using input/output tables for 2000<sup>1</sup> and their import relationships, it is possible to adjust for imports in final demand and to calculate adjusted contributions to GDP growth<sup>2</sup>.

Contribution,  
percentage points

Household consumption expenditure	0.7
Government consumption expenditure	-0.1
Gross fixed capital formation	
machinery & equipment	0.1
construction	0.3
Change in inventories	0.5
Exports	1.0

The modified calculation clearly shows that exports, in spite of the comparatively weak performance during the third quarter, account for a larger part of GDP growth than any other component on the expenditure side of GDP. The contribution from investments in machinery and equipment shows a very sharp decrease due to the large import content, while the difference is smaller for construction investments and for household consumption.

1 The weights that are used are not very timely and the results have to be examined with some care.

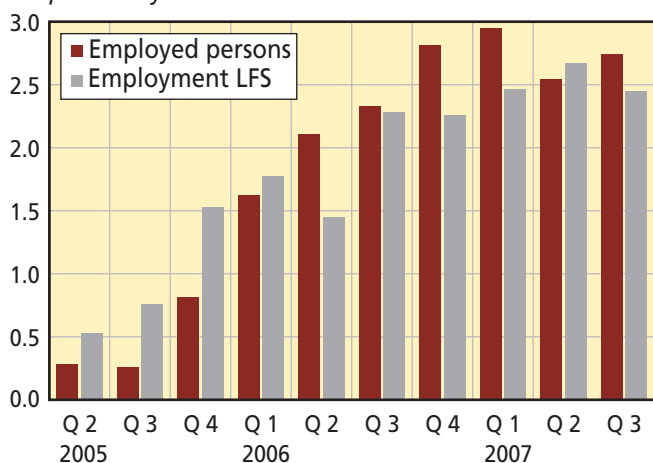
2 For more information on these calculation methods, see *Swedish economy – a statistical perspective* nr 1 2007.

# Labour market

## Employment up but at a more moderate rate

Employment continued upwards also during the third quarter, but the growth rate slowed down a little, and therefore the peak has probably been reached. The rate of increase for vacancies seems to have been reduced. According to the Labour Force Survey (LFS) the number of employees increased by 2.4 percent compared to the third quarter 2006. Unemployment was, according to the new international definitions that are applicable for the LFS, 5.5 percent compared to 6.3 percent one year ago.

**Employment and employed persons**  
Percent change from corresponding quarter  
previous year



Source: LFS and enterprise-based employment statistics  
Data up to and including third quarter 2007

## Continued employment growth, especially for younger people

According to the LFS the number of employees rose by 108 000 persons, or 2.4 percent compared to corresponding quarter the previous year. Total employment was 4 639 000 persons, which probably is the highest number ever recorded. However, the enlarged age group in LFS makes it difficult to prove this for the years before 2001. The increase applied to all age groups, but it was most apparent for people aged 15–24 years, where the increase was 7.0 percent or 37 000 persons. During the last five quarters employment growth for young people has been very strong with 30 000 to 50 000 more people employed for every quarter, which probably is a result of the large groups of young people that have emerged on the labour market, at the same time as there has been a strong increase in the number of vacant jobs.

Employment growth during the third quarter was somewhat stronger for men than for women. Among men the whole increase referred to permanent jobs. Only slightly more than half of the women received contracts of unlimited duration. The short-term enterprise-based employment statistics (KS) showed an increase of the number of employed persons by 2.7 percent, which corresponds to 110 000 persons. Both the LFS and KS showed that the increase related to the private sector. According to the LFS the increase was statistically significant for the construction industry but also

for business services (including financial services). KS also showed upturns in wholesale and retail trade as well as for hotels and restaurants.

According to the national accounts (NA) employment growth was 2.0 percent. NA uses data from LFS, but the statistics are adapted to the definitions that are applicable for national accounts. In NA those who live in Sweden but work abroad are excluded (this category is included in LFS from April 2005) and includes those who are doing their military service, who are not considered as employed in LFS. The number of people who worked abroad increased very strongly during the third quarter, while the number of those doing their military service declined. Both factors contribute about the same to the difference between LFS and NA.

The number of hours worked was, according to LFS, 124.5 million per week which is among the highest numbers recorded (for a quarter that includes holiday season). During the third quarter many people take time for holidays, and as a result the number of hours worked normally is at its lowest point during the year. The increase compared to the third quarter 2006 was 3.0 percent and it was slightly higher for women than for men. A somewhat higher average working time than before was also noted for women.

### Continuous decline of unemployment

Unemployment continued to decline and amounted to 5.5 percent of the labour force. The figure for men was 5.2 percent and for women 5.8 percent. During the third quarter of 2006 unemployment was 6.3 percent. The number of unemployed persons was 269 000 persons, of which 43 500 persons were full-time students looking for jobs. These are considered to be unemployed according to the new international definition. The full-time students are however rather few during the third quarter, when many of them are on their summer holiday. During 2006 the average number of full-time students looking for jobs was 85 000 persons.

### Continued increase of vacancies

According to the vacancy statistics the increase of vacant jobs continued. The total rise was 18.3 percent compared to the third quarter of 2006. In the private sector the increase was 17.9 percent which was somewhat less than the growth in the public sector which was 20.7 percent. The number of vacant jobs was in total 52 100, of which 7 250 were in the

public sector. The number of vacancies that could be filled immediately increased by 32.9 percent in the private sector. In total there were 18 100 vacancies and the vacancy rate was 0.6 percent<sup>1</sup>.

### New international definitions in LFS

The most important change when international definitions have been applied to LFS is the fact that full-time students looking for jobs are classified as unemployed. Previously they were assigned to the group not in the labour force. These full-time students were, as mentioned above, 43 500 persons during the third quarter of 2007. This means that the unemployment rate was 0.8 percent higher than according to the previous definition. During the other quarters, when the number of students is considerably higher, the difference can reach two percentage points. The enlargement of the age group from 16–24 years to 15–74 years only affects unemployment marginally.

#### Employment, hours worked and unemployment third quarter 2007

*Percent change of employment and hours worked from third quarter 2006. Unemployment level. Old and new definitions.*



Source: LFS

According to the new definition participation in the labour force increases by 143 000 persons to 4 907 000 persons. This is partly due to the 43 500 full-time students who have looked for jobs and partly to the enlarged age-group. The share of the population that is a part of the labour force decreases from 81 to 72 percent. This is mainly because those who are over 65 years are active on the labour market to a limited extent.

Contact person: Torkel Brinkenfeldt, 08-506 940 96

<sup>1</sup> The vacancy rate is equal to the number of vacancies in relation to the number of employed people and is a measure of the relative lack of labour force.



# New index for service production

## Better possibilities to follow service industries

*A monthly index for service industries, called the Service Production Index (SPI) will be produced in 2008. This index will function as a current indicator of the change in value added within the service industries in constant prices. Among other things, the SPI will be used as a basis for the quarterly calculations of service production within the National Accounts (NA). It can also be used in the monthly calculations of the activity index. The SPI will be used together with the Industrial Production Index and the Construction Production Index to calculate a production index for the whole business sector. The purpose of this article is to explain the method behind the calculations of the SPI.*

## Strong demand from users

The study of the review of the economic statistics revealed that the users lacked statistics that reflected the development of the expanding service sector. The growing private service sector, today accounting for nearly half of the GDP, needs to be described in more detail than previously. Among other things, many users wanted to have access to short-term indicators similar to what is available for the production of goods. The statistics need to include a service production index, statistics on new orders, complete monthly coverage of turnover statistics and statistics on capacity utilisation.

Statistics Sweden's unit for statistics on the structure of the business sector has produced a trial quarterly index for service production during 2006 and 2007. Additional resources have been set aside in 2008 for ongoing production and publishing of a monthly service production index.

## Turnover as an indicator for value added

To calculate the Service Production Index, a model identical to the one used for GDP is used. The index is intended to be a reliable indicator for short-term changes in value added within the private sector.

The SPI is calculated in constant prices. Above all, it is necessary to decide a base year that prices shall relate to. Then the value added for each industry is estimated in constant prices by converting production and consumption to constant prices, where the latter is deducted from the former. In practice, more information is available for production than for consumption, so production is often used as an indicator for value added. The SPI uses production as a proxy for value added, and turnover is in turn used as a proxy for production.

Even if the relationship between production and consumption is not always stable in separate industries, stability in aggregates of all industries will be higher. If for instance a product or a service from an industry is used as input in another, it is not certain that instability is seen on the total of value added for both industries. If a production indicator overestimates the change in value added in the one industry, the error will go in the opposite direction via an underestimate of value added in the other.

Information on turnover in current prices is gathered from the turnover statistics for the service sector. These statistics will be monthly starting in 2008.

## Monthly turnover statistics for the service sector

For some time now turnover statistics in the service sector have been studied quarterly, but will be studied on a monthly basis from the reference year 2008 onwards. The survey has previously used administrative VAT material to a great extent, but the turnover statistics will be collected via a questionnaire in the future. The reason that the VAT material cannot be used is due to a government decision concerning companies submitting VAT information. This decision implies that companies with a turnover less than SEK 40 million per year only need to report VAT quarterly, in contrast to the current monthly requirement.

The survey will be similar to the statistics on turnover of retail trade, and will thus consist of a preliminary calculation followed by a slower but more reliable definitive calculation. The preliminary calculations will include about 3 800 companies which will receive a questionnaire every month. The results will be completely processed about 35 days after the end of the month.

The definitive calculations will be supplemented by another collection from questionnaires. This questionnaire is tied to quarterly turnover, but companies will report monthly information. The reason for both a monthly and quarterly collection is to strive for a low level of burden on respondents. In addition, there is a lack of resources to make a complete monthly collection. The quarterly questionnaire goes out to about 5 400 companies. The definitive calculations will be ready for month 1 (M1) after T+85, M2 after T+58 and for M3 after T+35. This means that the release of turnover statistics will be speeded up from the current approximate 45 days to about 35 days after the final date of the reference period.

## Deflators

The biggest problem is the availability of acceptable deflators. The lack of a price index for the service sector has also been recognized by the review of the economic statistics. Since the start of the development of the service price index, many new price indices have been developed. However, no relevant price index is available for a number of industries, and thus other indices such as the Consumer Price Index, the Producer Price Index, the Factor Price Index or statistics on wages and salaries are used as deflators. The more recent price indices are monthly, and information from these sources is used in producing the SPI. The Service Price Index is only available quarterly. In order to obtain a monthly index, calculations are for example made for April, which only has information on price development for the first quarter. These calculations are projected with the aid of a regression model called exponential smoothing with a multiplicative seasonal component (Winter's method). An estimation of April's price information is then made based on historical service price information.

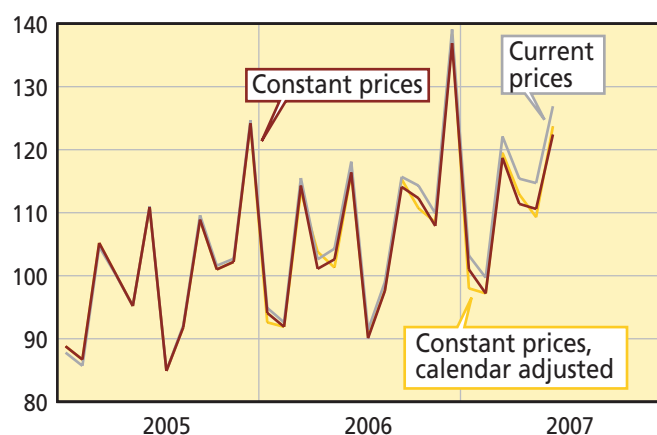
Between two quarters, the values for the most recent quarter are used to interpolate the in-between months. For example, information for quarter 2 is available. Information on price development for an industry in April, May and June will then be average values of quarter 2's information. Price development for the separate months of April, May and June will be interpolated with the help of estimated information from the exponential smoothing regression model.

Because the turnover is deflated, it will then be weighed together with the different industry aggregates. The industry indicators are weighed together with the help of industries' relative share of GDP for the service sector, based on value added of the industries. The weights are collected on a broad industrial level from the National Accounts (NA) and on a more detailed level from the Structural Business Statistics survey.

## Results

Statistics Sweden has made test calculations of the SPI for 2005, 2006 and 2007 on a monthly basis where the turnover is based on monthly VAT statistics.

### Turnover for services industries according to Service Production Index Index 2005=100



Source: Service Production Index

Data up to and including June 2007

The calculations have also been produced on a detailed industrial level. The following table illustrates information about Swedish industrial classification on a two-digit level (NACE), the intended level for publication of the statistics.

### Turnover according to the Service Production Index June 2007

#### Change from June 2006, percent

Industry (NACE)	Current prices	Constant prices
Sales of motor vehicles (50)	5.2	3.5
Wholesale trade (51)	10.4	7.2
Retail trade (52)	7.4	5.9
Hotels and restaurants (55)	11.2	7.5
Land transport (60)	8.9	7.6
Sea transport (61)	4.6	4.9
Other supporting transport services (63)	13.4	10.7
Post and telecommunications (64)	1.9	3.2
Real estate services (70)	2.7	-0.7
Renting (71)	6.4	3.4
Computer consultants (72)	6.3	5.0
Research and development (73)	17.6	16.3
Business services (74)	8.3	4.8
Education (80)	6.5	6.3
Health and medical care (85)	18.6	18.8
Sewage and refuse disposal, sanitation (90)	4.0	4.0
Organisations (91)	-6.8	-8.4
Culture, recreation (92)	7.7	5.7
Other service companies (93)	7.9	6.8
<b>Total</b>	<b>7.5</b>	<b>5.1</b>

### Other indicators for the service sector

The study of the review of the economic statistics revealed that the users lacked statistics that reflected the development of the service sector. To obtain a set of indicators for the service industry similar to those of other industries, the statistics need to be expanded with order statistics and statistics on capacity utilisation. Statistics Sweden will develop such statistics in 2008.

Contact persons: Daniel Lennartsson, 019-17 64 29 and Markus Thorsteinsen, 019-17 60 82

# GDP from the income side

## GDP from the income side – another way of calculation

*In the national accounts of Sweden and most other countries, gross domestic product (GDP) is calculated as the total production and/or usage. A third alternative to calculate GDP is from the income side of the economy. This approach means that compensation for the production factors labour (wages and salaries) and capital (operational surplus) is calculated. To obtain market prices for GDP, net production taxes are added.*

This article describes the correlation between the different calculations of GDP. To analyse GDP from the income side, it is important to distribute income and expenditure to the sectors in society. This is done in sector accounts. That is why a description is given of how the different GDP calculations conceptually relate to the sector accounts. In conclusion, a short description is given of some of the results of the newly published sector accounts for the EU countries.

## Three ways to calculate GDP

Gross domestic product, GDP is the total value of all goods and services that are produced in a territory (usually a country) during a certain period of time (usually a year or a quarter). In the national accounts (NA) GDP is calculated in three different ways with the starting points as those relationships which build the economic cycle. This can be described in different ways, depending on the perspective – about whether the demand, the supply or generation of income account are determining factors.

GDP from the production side is the most direct measurement. GDP is measured as the total production, or more precisely as value added of the different production units in the country. The production factors of labour and capital generate primary income to the different actors in the economy in the form of wages and salaries etc. and operational surplus together with production taxes (mainly VAT) minus production subsidies. These are called factor incomes for the sake of simplicity.

GDP from the income side is measured as the total value of all factor incomes. These are actual wages and salaries, collective fees, untaxed wages and salaries, net production taxes, operational surplus before deductions for depreciation in non-financial and financial companies as well as the government sector and the household sector. The most important parts of the household sector are the model-calculated value in owner-occupied dwellings (dwellings item) and the combined earned income. This consists firstly of taxed income from business for self-employed persons and secondly of untaxed income.

The total income can be used for consumption and investments. However, a considerable part of income goes to purchase of imported products at the same time as some of the domestically produced goods and services are exported. GDP from the usage side is therefore measured as consumption plus investments plus exports minus imports.

Calculation of GDP in different countries is usually done by at least of two of the above methods. GDP is usually calculated from the production side. In Sweden GDP is mainly calculated from the usage side with support from the production side. However, no calculations or supporting calculations are made based on the information of factor income development. Some countries including Ireland the UK also calculate GDP from the income side, i.e. by summing wages and salaries, production taxes (net) and operational surplus (gross) in business.

In Sweden, GDP is calculated from both the user side and the production side. However, this does not mean that information on wages and salaries and operational surplus is missing in the NA. The table below illustrates that the total income from domestic production (GDP) can be derived from the other two calculation methods without needing access to primary information on factor incomes. The income totals thus fall into a residual in the system of national accounts.

## Three ways to determine GDP and the connection with sector accounts

SEK billions

	Companies	Gov.sector	House-holds	Foreign	Total
<b>GDP production =</b>	1 527	405	283		2 215
market products	3 199	55	506		3 760
+ non market		609	43		652
– consumption	1 672	259	266		2 197
<b>GDP income =</b>	386	369	1 455	5	2 215
Wages etc.			1 222	5	1 227
+ ind. tax, net	0	273			273
+ operational surplus	386	96	233		715
<i>Income transfers</i>	–130	383	–309	56	0
<i>Disposable = GDP incl.</i>					
+ income transfer	256	752	1 146	61	2 215
<b>GDP use =</b>	304	641	1 122	148	2 215
consumption		583	1 078		1 661
+ investments	304	58	44		406
+ net exports				148	148
<i>Net lending/borrowing =</i>					
<i>Disposable – GDP use</i>	–48	111	24	–87	0

*The figures are based on an older version of NA concerning the year 2000.*

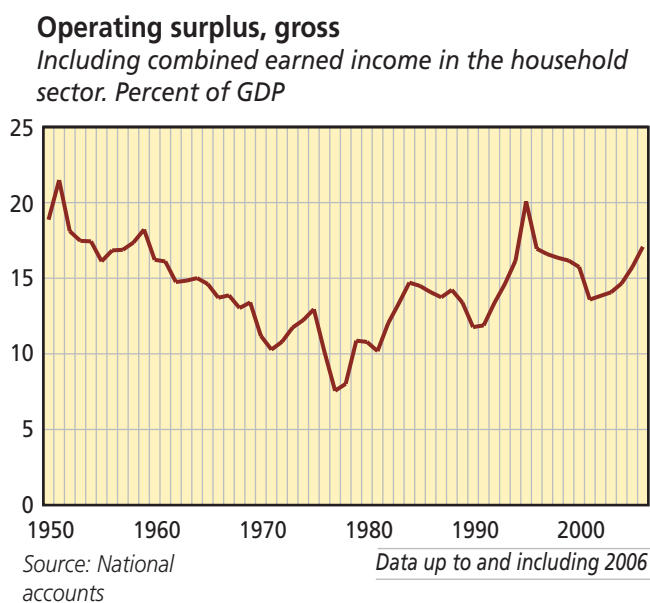
The purpose of the table is to firstly illustrate the connection between the different GDP approaches and to see how view



income and expenditure in the economic sectors of society. Secondly, we receive an approximate picture of the size of the most important variables.

### Operational surplus 1950–2006

Since labour costs and net production taxes are relatively well-covered in the statistics over time, operational surplus can be estimated residually. GDP is calculated for the entire period 1950–2006. The results are according to the graph below. It should be noted that operational surplus refers to the entire economy, i.e. also that which occurs in the household sector. Further, it should also be mentioned that the most recent revisions in the NA could not be taken into account.



As illustrated in the graph, factor income shares vary considerably over time, even if a long-term pattern can be seen. Operational surplus was at its highest in the beginning of the 1950s and then fell continuously up until the end of the 1970s. The structural crises in business combined with large salary increases and high employer charges then led to a cost crisis which highly affected profitability. Since then there has been a trend of uneven increase of operational surplus at the same time that the salary part of GDP has decreased correspondingly by the same degree. By the end of the second large crisis in the beginning of the 1990s, the operational surplus part of GDP increased at the expense of salaries. Employment fell drastically, unemployment figures multiplied, and household consumption fell for several years in a row.

### Residuals create uncertainty

Residually calculated items have important shortfalls. They are often uncertain because other uncertain items influence the outcome. These items lack stability and cannot be disaggregated successfully. Thus they are less suitable for analysis than other statistically positioned items.

The most recent revisions of the national accounts are an example of this. Among other things, revision involves an increase in total production (and GDP). The upwards revision

of production for the economy as a whole reflects higher net lending/borrowing in the non-financial business sector. Higher production results in increased value added and operational surplus which then results in higher net lending/borrowing. The upwards revision of operational surplus and savings amount to between SEK 20 and 40 billion per year (1999–2006).

At the same time, a considerable downwards revision of households' net lending/borrowing has occurred. The total figure is around SEK 170 billion for the years referred to. Consequently, the difference between the real calculations and the financial calculations of savings drops significantly. This could imply that the interpretation of the residual item between the national accounts and the financial accounts needs to be looked over.

To calculate GDP from the income side, it is therefore important to distribute operational surplus on non-financial and financial enterprises as well as on self-employed persons and the item for housing, preferably with an industrial breakdown.

### GDP from the income side

GDP from the income side sheds light on the total income with primary classification of "wages, profits and production taxes". This GDP perspective places the economic behaviour of the actors in centre focus. One of the basic foundations of NA is the grouping of so-called institutional units in the sectors of society. An institutional unit is the smallest "decision-making unit" in its own economy. Usually, legal criteria are used (e.g. different types of enterprise forms) or the existence of income statements and balance sheets to define an institutional unit. Households, enterprises, organisations, government agencies are examples of institutional units.

The units are grouped into institutional sectors so that they are as homogenous as possible with regard to economic behaviour. Economic incentive is expected to steer behaviour of the institutional units. In this connection, it is vital to differentiate between market products and non-market products.

Market products are goods and services that are purchased on a market with buyers and sellers, while non-market products are services provided for by the government sector through financing via taxes and fees. In other words, industry consists of market producers while the government sector and the non-profit institutions are non-market producers.

If a transaction for a product occurs with so-called economically significant prices, the product is then a market product. Such a price has a clear influence on the supply and demand of a product or a service. Normally, such prices only exist firstly if the producer/seller intends the income (in the long-term) to result in profit, or at least to cover expenses for labour and capital, and secondly when the consumer/customer can freely choose whether to buy or not to buy.



With the market criteria in place, sector classification is illustrated as follows:

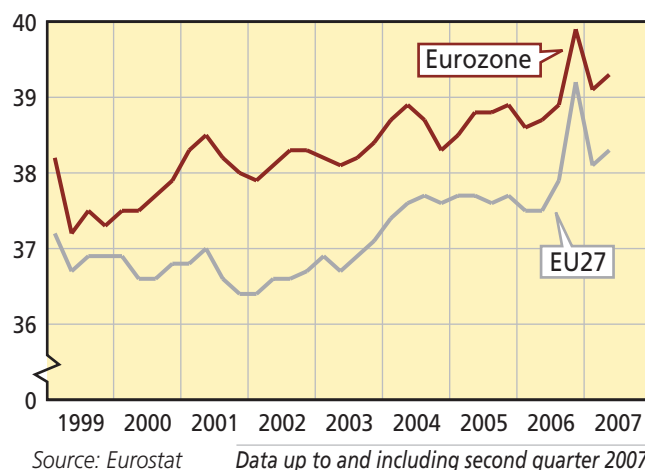
Main sector	Characteristics
Non-financial corporations	Market producers of goods and non-financial services
Financial corporations	Market producers of financial services
Government sector (central government, local government and social insurance)	Producers of government-financed non-market services Distribution of resources after political decisions
Households including personal enterprises	Consumers as well as certain production of market products
Households non-profit institutions	Producers of private non-market products
Rest of the world	Fictive sector consisting of the other party of Swedish sectors transactions and position in the foreign country

### Sector accounts

The sector accounts show the income, expenditure and net lending/borrowing of the sectors of society. In the national accounts, net lending and borrowing is calculated as the difference between financial investments and borrowing for the different sectors. The table above can be described as a rough outline of the real sector accounts for the entire economy. Institutional sector accounts for the main sectors of the economy are compiled and published by the national accounts. The most recent publication was 6 December 2007 concerning the period 1993–2006.

There has been a growing demand for sector accounts from analysts within the EU. Among other things, sector accounts are considered to provide important information for monetary policy within the euro area. The EU statistical office Eurostat has worked together with the European Central Bank (ECB) to compile and publish quarterly sector accounts. It is worthy to note that the focus is somewhat different than that which is regarded as important for Swedish analysts. Among other things, operational surplus and profit shares in the business sector play a central role.

**"Profit share" in non-financial corporations**  
Operating surplus as a percentage of value added



### Situation for statistics

To make an independent calculation of GDP from the income side, i.e. the position from where operational surplus is not determined residually, information on the surplus is needed firstly from financial and non-financial enterprises, and secondly from the so-called mixed income in the household sector. Concerning the operational surplus in the enterprise sectors, possibilities have improved by the increased coordination between business statistics and the national accounts that has occurred in recent years. This has among other things been expressed in the general revision. However, today there is a lack of quarterly information on income statements of non-financial enterprises. However, the difficulty in estimating the mixed income is an obstacle in making independent calculations from the income side of GDP. In addition to taxed income of self-employed persons, income also includes untaxed wages and business income in the hidden economy.

Contact person: Bo Bergman, 08-506 945 42

**Publisher:**

---

Gunnel Bengtsson

**For more information on this publication, please contact:**

---

Leif Munters, editor	08-506 945 09
Monica Nelson Edberg	08-506 945 66
Caroline Ahlstrand	08-506 943 33
Bo Bergman	08-506 945 42
Martin Daniels	08-506 942 64
Hans-Olof Hagén	08-506 944 66
Vera Norrman	08-506 943 04
Bo Sandén	08-506 946 94
Tomas Thorén	08-506 941 46

**Co-authors:**

---

Katarina Andersson, National accounts

Torkel Brinkenfeldt, Labour market

Ann-Marie Bråthén, National accounts

Daniel Lennartsson, Business activities

Markus Thorsteinsen, Business activities

**Graphic format and web publishing:**

---

Monica Andersson	08-506 943 62
Arne Orrgård	08-506 950 73

Inquiries also by e-mail: [first name.surname@scb.se](mailto:first name.surname@scb.se).

*The Swedish economy – Statistical perspective*

ISSN 1653–3828

URN:NBN:SE:SCB-2007-TI28ST0704ENG\_pdf (pdf)