Statistiska centralbyrån Statistics Sweden

Quarterly National Accounts Inventory

Sources and methods in the Swedish National Accounts

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Chapter 1 Overview of the system of quarterly accounts 3

1.1 Organisation and institutional arrangements..... 3
1.2 Publication timetable, revisions policy and dissemination of QNA 3
1.3 QNA compilation approach..... 4
1.4 Balancing, benchmarking and other reconciliation procedures 4
1.5 Volume estimates..... 5
1.6 Seasonal and calendar adjustment..... 6
1.7 Additional information 7

Chapter 2 Publication timetable, revisions policy and dissemination of QNA 8
2.1 Release policy 8
2.2 Contents published..... 9
2.3 Special transmissions..... 10
2.4 Policy for metadata..... 11

Chapter 3 Overall QNA compilation approach 12
3.1 Overall compilation approach 12
3.1.1 General architecture of the QNA system 12
3.2 Balancing, benchmarking and other reconciliation..... 13
3.3 Volume estimates..... 20
3.4 Seasonal and calendar adjustment..... 21

Chapter 4 GDP and components: the production approach..... 23
4.1 Gross value added, including industry breakdowns 23
4.2 FISIM..... 28
4.3 Taxes less subsidies on products..... 29

Chapter 5 GDP components: the expenditure approach..... 31
5.1 Household final consumption..... 31
5.2 Government final consumption 32
5.3 NPISH final consumption..... 33
5.4 Gross fixed capital formation 34
5.5 Imports and exports..... 36

Chapter 6 GDP components: the income approach 38
6.1 Compensation of employees 38
6.2 Taxes less subsidies on production..... 39
6.3 Gross operating surplus and mixed income..... 39

Chapter 7 Population and employment 40
7.1 Population 40
7.2 Employment: persons..... 40
7.3 Employment: hours worked 41

Chapter 8 Flash estimates 43
8.1 Flash GDP estimate 43
8.2 Flash employment estimate..... 44

Chapter 9 Main data sources used..... 45
The production approach..... 45
The expenditure approach..... 49
The income approach..... 52
Prices 55

Chapter 1 Overview of the system of quarterly accounts

1.1 Organisation and institutional arrangements

Statistics Sweden has overall responsibility for the coordination and supervision of official statistics and for the development of statistical nomenclature and classifications. In addition, Statistics Sweden is responsible for coordinating international statistical reporting and is an active participant in the international cooperation that occurs in the field.

Statistics Sweden has direct responsibility for official statistics pertaining to certain general areas of society. This applies, for example, to the labour market, the economy, industry and prices, the population and welfare as well as to housing and construction. For other areas, the formal responsibility rests with specialized agencies but in many cases Statistics Sweden is nonetheless involved in the production process.

Sweden's National Accounts are compiled by the National Accounts Department at Statistics Sweden. The National Accounts Department consists of four units:

- Product Accounts
- Public Finance & Economic Micro-simulations
- Financial and Sector Accounts
- Coordination of Economic Statistics

Both the quarterly and the annual GDP calculations are primarily produced by the Product Accounts and Public Finance units. A separate unit is responsible for the financial and sector accounts, including the sector accounts that are part of the QNA delivery according to the ESA2010 Transmission Programme, i.e. the net lending/borrowing as well as household disposal income.[1]

1.2 Publication timetable, revisions policy and dissemination of QNA

The quarterly accounts are published five times per calendar year and within 60 days after the end of the reference quarter. For the second quarter, a flash estimate, with basically the same content as an ordinary release, is published 30 days after the end of the quarter. A complete, ordinary release of the second quarter takes place after approximately 75 days. Most requirements of the ESA2010 Transmission Programme are fulfilled. The domestic release is generally on a more detailed level than the ESA2010 transmission. The press release, a collection of in-depth articles and updated figures in the database are available on Statistics Sweden's website at 09.30 CET on the day of publication. The non-financial sector accounts are published at the same time as GDP.

Every new publication of the quarterly figures contains revisions according to a set revision policy. The policy states that when publishing the second, third and fourth

[1] For a description of the sources and methods used in the sector accounts, please consult the QSA documentation onhttps://www.scb.se/contentassets/c89bb85e14184e92a4d5e4eec5ce4b98/sweden-qsa-inventory-esa2010-nov-2016.pdf

quarter, all previous quarters of the reference year are open for revision. Upon publication of the first quarter, all quarters of the previous year may be revised. In addition, the ordinary release of the second quarter in September coincides with the compilation of the annual accounts for the year t-2 and consequently the quarters of that year as well as all following quarters (year t-1 and the first quarter of year t) are revised. Furthermore, in cases when warranted, even periods not covered by the ordinary policy may be revised. Such revisions are however exceptional and users of the accounts need to be properly notified and informed. The flash estimate of the second quarter, published in July, contains no revisions of previous quarters.

The detailed annual accounts of year t-2 are, as mentioned, released at the same time as the ordinary second quarter QNA publication in mid-September. Prior to this release, the quarterly figures are benchmarked to the annual accounts. The benchmarking process involves QNA revisions for the quarters of t-4 and onwards. The QNA are also affected by major revisions of the ANA which typically take place every five years.

As will be described in section 3.4.3, the seasonally adjusted time series is subject to revision with each new compilation of the QNA.

1.3 QNA compilation approach

Sweden's quarterly GDP estimate is calculated according to both the production approach and the expenditure approach. As to date, no complete calculation is performed of the income side. The most common method used in the calculations is to extrapolate the national accounts value from the corresponding quarter the previous year with the growth rate according to an indicator, e.g. value added in a certain manufacturing industry is extrapolated with the growth rate estimated in the Production Value Index (source 4) for that industry. For some components of the expenditure approach values from the sources enter the QNA directly. This is possible when the same source is used in the quarterly accounts as in the annual accounts and it is a method most notably used for changes in inventories and for exports and imports. The QNA calculations are based on non-adjusted values. GNI is calculated by adjusting GDP for primary income to and from the rest of the world.

1.4 Balancing, benchmarking and other reconciliation procedures

1.4.1 Quarterly GDP balancing procedure

Typically, the first compilations of GDP from the production side and from the expenditure side differ and balancing is required to arrive at a single GDP outcome. The average absolute difference over the past ten years is 0,9 percentage points.

The first reconciliation step is to scrutinize each GDP component in order to identify problems, inconsistencies and uncertainties. This work is performed both by the experts responsible for the calculations and by the group responsible for the overall compilation. Once all identified issues have been addressed and necessary adjustments have been made, the balancing requirements that still persist are dealt with according to a set of objective guidelines coupled with knowledge and expertise (for a description see section 3.2.1).

1.4.2 Benchmarking of QNA and ANA

The quarterly accounts are benchmarked to the final annual accounts when the latter are released in September two years following the end of the reference year. The benchmarked quarters are published at the same time as the annual accounts to keep consistency between annual and quarterly figures at every release.

1.4.3 Other reconciliation procedures

The calculation process also involves confronting the value added outcomes with the outcomes of hours worked, i.e. analysing the industry's labour productivity. This analysis is made to detect apparent problems in the source data. However, adjustments based on labour productivity are done with great caution since there is no separate estimate to confront the national accounts estimate against and since the relation between hours worked and value added is weak in many industries. In a similar fashion, hourly wages are analysed and confronted with information on hourly wages from the statistics on wages and salaries in the private and the public sectors.

1.5 Volume estimates

The QNA calculations are done in both current and constant prices. The series expressed in constant prices use the latest full year, i.e. year t-1, as reference implying that the reference year is updated each time a year's first quarter is compiled. The volume changes are calculated through Laspeyres indices and price changes are consequently calculated as Paasche indices.

1.5.1 General volume policy

Most data used in the National Accounts are collected in current prices and then deflated into constant prices using relevant price indices such as producer price indices, service price indices and consumer price indices. However for a few series quantities are used for calculating constant prices directly, and price indices are subsequently used to reflate into current prices. This is the case for example for parts of the calculation on production and consumption of energy. A third method, mainly used for non-market production, is to calculate constant prices and current prices separately, making price changes a residual. For many parts of the calculations, deflation into constant prices is carried out by the source statistics. This is for example the case for the foreign trade statistics, for changes in inventories, and for the production value indices. For other parts of the calculations, deflation takes place at the National Accounts unit, e.g. for household consumption, foreign trade in services and gross fixed capital formation. In each case however, the calculations are carried out at a detailed level and subsequently aggregated to the levels of publication. The calculations are based on chain indices and the constant prices are thereby based on the price level the previous year (t-1). In both the National Accounts and in the price statistics, Paasche price indices are calculated and thereby the volume changes in National Accounts and in source data are Laspeyres indices.

1.5.2 Chain-linking and benchmarking

In order to enable comparability over time, the constant prices need to be chain-linked into a time series expressed in a price level for a certain year, the so-called reference year. The reference year for the QNA is the previous year and the method used for chain-linking is annual overlap (for more details see section 3.3.2).

Current prices and constant-priced, chain-linked series are benchmarked. The resulting benchmarked, chain-linked series in reference year prices are then recalculated into constant (t-1) prices. After the benchmarking the accounts will

once again be unbalanced. Therefore a new reconciliation/balancing has to be carried out for all price levels i.e. current prices, constant prices (t-1) and average prices.

1.5.3 Chain-linking and seasonal adjustment

Seasonal adjustment of the volume measures is performed after chain-linking and benchmarking.

1.6 Seasonal and calendar adjustment

1.6.1 Policy for seasonal adjustment

Roughly 600 series are adjusted in the QNA, including all constant and current price series on the production side, a number of constant and current price series on the expenditure side and series covering hours worked and persons employed. The seasonal adjustment is carried out in the DOS-programs TRAMO/SEATS with a SAS interface.

Adjustments for seasonal variations are done using a direct approach, i.e. each series is individually modelled in accordance with the recommendations given by Eurostat, but subsequently modified to ensure additive properties. The method involves adjusting each series separately as a first step and then reconciling the subseries so that they can be summed into larger aggregates and ultimately to total GDP.

Another desirable property from a user's point of view is that the seasonally adjusted annual totals are equal to the non-adjusted annual totals, i.e. time consistency, even though this requirement could possibly deteriorate the quality of the seasonally adjustment. The aim is to fulfil the requirement of time consistency for all series for which it is technically possible to do so.

1.6.2 Policy for calendar adjustment

Adjustments for differing number of working days are also arrived at using TRAMO/SEATS. Working-day adjustments are made for value added in constant prices as well as for the number of hours worked.

With each new calculation of a quarter, the seasonally adjusted and working-day corrected figures for the entire quarterly series beginning in 1993 are revised.

1.7 Additional information

Home page Statistics Sweden and the page for the National Accounts

Home page Statistics Sweden:

https://www.scb.se/en/

Home page National Accounts:

https://www.scb.se/en/finding-statistics/statistics-by-subject-area/national-accounts/national-accounts/national-accounts-quarterly-and-annual-estimates/

QNA press releases

Full press releases (available in Swedish only):

https://www.scb.se/hitta-statistik/statistik-efter-amne/nationalrakenskaper/nationalrakenskaper/nationalrakenskaper-kvartals-och-arsberakningar/produktrelaterat/aktuellt/statistiknyheter-fordjupningstexterkommentarer-och-tabeller/

Press releases in English:

https://www.scb.se/en/finding-statistics/statistics-by-subject-area/national-accounts/national-accounts/national-accounts-quarterly-and-annual-estimates/pong/statistical-news/national-accounts-first-quarter-2018/

Statistical database

https://www.scb.se/hitta-statistik/statistik-efter-amne/nationalrakenskaper/nationalrakenskaper/nationalrakenskaper-kvartals-och-arsberakningar/#_TabelleriStatistikdatabasen

Descriptions of the annual and quarterly calculations (available in Swedish only)

QNA Quality Declaration, updated annually:

https://www.scb.se/contentassets/66e9dae3a5d94bf8b4c299ce25294348/nr0103_kd_2018_mh_180529.pdf

Description of methods in the ANA and QNA:

http://www.scb.se/statistik/NR/NR0103/_dokument/SOU2002.pdf

Chapter 2 Publication timetable, revisions policy and dissemination of QNA

2.1 Release policy

The Swedish QNA are published five times per calendar year. For the first, third and fourth quarter, estimates are released within 60 days of the reference period following the targets of the Action Plan on EMU statistical requirements and of the Principal European Economic Indicators. For the second quarter, a flash estimate is released 30 days following the end of the reference period and a second release, based on more complete information, is published after approximately 70 days. The press release, updated figures in the database and a collection of analysing and descriptive texts are available on the National Account's website at 09.30 on the day of publication. The release dates for a given calendar year are set in September of the previous year and communicated on the SCB website https://www.scb.se/en/finding-statistics/publishing-calendar/.

The same day as the release on the website, data is sent to Eurostat according to the ESA2010 transmission programme.

In order to incorporate revised sources and other new information, the QNA are subject to systematic revisions. The periods open for revision in a given release follow the stipulations of a set revision policy (see table 2.1). The policy states that when releasing the second, third and fourth quarter, the earlier quarters of that year can be revised while the figures for the previous years are fixed. Upon release of the first quarter, all quarters of the previous year are open for revision. In addition, the ordinary release of the second quarter in September coincides with the compilation of the annual accounts for the year t-2 and consequently the quarters of that year as well as all following quarters (year t-1 and the first quarter of year t) are revised. In addition to this, the policy allows for other revisions as well when such are strongly warranted. When the flash estimate of the second quarter is published, no revisions are made to earlier quarters.

The detailed annual accounts of year t-2 are released at the same time as the ordinary second quarter QNA publication in mid-September. At that time, the quarterly estimates for year t-2 are benchmarked to the new ANA using the MinD4 method. The benchmarking process involves QNA revisions for the quarters of t-4 and onwards. The QNA are also affected by major (benchmark) revisions of the ANA that typically take place every five years.

As will be described in section 3.4.3, the seasonally adjusted time series is subject to revision with each new compilation of the QNA.

Table 2.1 Revision policy of the Swedish QNA (GDP calculations)

Year	Publication	Q1 year t	Q2 year t	Q3 year t	Q4 year t	Year t
t	End of May	First				
t	Mid-September	Revised	First			
t	End of November	Revised	Revised	First		
t	End of February	Revised	Revised	Revised	First	First sum of quarters
t+1	End of May	Revised	Revised	Revised	Revised	Revised sum of quarters
t+1	Mid-September	Revised	Revised	Revised	Revised	Preliminary ANA
t+2	Mid-September	Final	Final	Final	Final	Final ANA

2.2 Contents published

The release of the regular QNA as well as the flash estimate include GDP according to the expenditure approach and GDP according to the production approach. No complete compilation of the income approach is made and the operating surplus is derived residually.

Most time series disseminated in the online QNA publication stretch back to 1980 while a few are available only from 1993 onwards. The latter group includes series on labour costs, household consumption by durability, and a number of fixed capital formation series, both by type of asset and by industrial allocation. With the aforementioned exceptions, the seasonally adjusted and calendar corrected series are also available from 1980.

For many of the components, the accounts are published on a more detailed level than that delivered in accordance with the ESA2010 transmission programme.

The full set of Non-financial Quarterly Institutional Sector Accounts (QSA) is released along with the QNA.

Production approach

Value added for market producers and producers for own final use are published in both current and constant prices. The series are presented in the national release with a break-down of 33 industries and producers for own final use. Relevant industrial aggregates are also published. Non-market production is presented for the central government, local governments, municipalities, county councils and for Non-Profit Institutions Serving Households (NPISH).

Working-day adjusted and seasonally adjusted figures for value added are presented for a break-down of 14 industries, for aggregates of these and for central government, local government and NPISH.

Expenditure approach

The components of the expenditure side are presented at the same levels in both current prices and constant prices. Growth rates are also shown for constant prices.

Final consumption expenditure of households (including NPISH) is published with a break-down by purpose, 14 subgroups, and durability, 9 subgroups. Final

consumption expenditure of general government is split into central government and local authorities. Gross fixed capital formation is published by industry, 33 subgroups, and by type of investment, 12 subgroups. Inventories are only published as an aggregate. For exports and imports a division is made between goods and services.

Seasonally adjusted figures are published for the main variables, with a break-down into 15 series. Furthermore, additional details are published for household consumption (by durability 5 subgroups and by purpose 14 subgroups) and for fixed capital formation (by type of investment 7 subgroups). Seasonally adjusted figures are published in both current and constant prices.

Income approach and employment
Compensation of employees, number of employed persons and hours worked are published with the same breakdown as value added, i.e. 33 industries for market producers and producers for own final use. For non-market producers the presentation is made for the central government, local government, municipalities, county councils and NPISH. Labour costs are split into three components - wages and salaries, and employers´ social contributions and payroll taxes.

Working-day corrected and seasonally adjusted figures for hours worked and persons employed are presented at the same level as value added.

2.3 Special transmissions

2.3.1 ESA2010 transmission programme

Tables according to the ESA 2010 transmission programme for QNA are delivered to Eurostat the same day as the domestic release of the results, i.e. for most releases, within 60 days of the end of the reference quarter. The requirements of ESA 2010 transmissions are fulfilled to a large extent but some components are still not compiled. All time series are available from the first quarter of 1993 and the following content is delivered:

- Table 0101: Gross value added at basic prices and gross domestic product at market prices
  - Complete tables
- Table 0102: GDP identity from the expenditure side.
  - Complete table
- Table 0103: GDP identity from the income side
  - Complete table
- Table 0110: Population and employment
  - Complete table
- Table 0111: Employment by industry. The allocation by industry for hours worked and persons employed differs from T0303. The differences are due to non-market producers in S.13 that are currently not allocated by industry in the quarterly accounts. T0303, based on the annual accounts, has the correct allocation while in the quarterly accounts non-market producers in S.13 are included in the aggregate OTQ.
- Table 0117: Final consumption expenditure of households by durability
  - Complete tables

- Table 0120: Exports of goods and services by member states of the EU/third countries
  - Complete tables with the omission of certain voluntary data
- Table 0121: Imports of goods and services by member states of the EU/third countries
  - Complete tables with the omission of certain voluntary data

2.3.2 Other transmissions

The National Institute of Economic Research gets a special transmission on a more detailed level than that published; a delivery that the Ministry of Finance also has access to. A separate transmission is also delivered to the Central Bank. A number of other special transmissions are also made on a subscription basis.

2.4 Policy for metadata

A Quality Declaration, outlining the methodologies and sources used in the QNA, is published in Swedish on the website and updated annually. The aim of the document is to provide an up-to-date assessment of the overall quality in the quarterly accounts, including a discussion of possible weaknesses in both sources and methods.

Together with the release of new quarterly figures, a collection of explanatory and analysing texts are published. One of these texts concerns the balancing procedure of the quarter in question, with details on the size of the initial discrepancy between the two GDP estimates as well as information on exactly how reconciliation was achieved. Another text lists and comments the revisions made to previous quarters.

The website also contains brief descriptions of the methods and sources used in both the ANA and QNA as well as a glossary of National Accounts terms and concepts.

Metadata are also available according to the SDDS Special Data Dissemination Standard (SDDS) at the IMF website: **https://dsbb.imf.org/sdds.**

Chapter 3 Overall QNA compilation approach

3.1 Overall compilation approach

3.1.1 General architecture of the QNA system

In terms of organisation, the annual and quarterly accounts are managed by the same organisational unit and more often than not, the responsibility for a certain area applies to both the QNA and ANA.

Two independent GDP estimates are calculated; from the production side and from the expenditure side. The calculations are carried out at a detailed level and GDP is arrived at as a sum of these details. As mentioned, no complete calculation according to the income approach is in place, rather operating surplus and mixed income are derived residually. However, detailed calculations for compensation of employees and taxes less subsidies are made.

In general, the source statistics available in the quarterly accounts are not as comprehensive as those used in the annual accounts. In the QNA, the sources are to a large extent based on surveys. The most significant difference between the QNA and the ANA is that the former lacks data covering the intermediate consumption of market producers. Consequently, the value added is in most cases extrapolated with the aid of a production indicator.

The methods used in the quarterly accounts can be classified into one of the following three categories:

- The value in the National Accounts is extrapolated using an indicator
- Source data are used directly in the National Accounts
- Model-based estimations

For most areas of the quarterly accounts the short-term statistics used in the calculation will be replaced by other sources once the annual accounts are compiled. The estimates in the short-term statistics and the annual statistics are rarely totally comparable. In some cases the variables studied differ in definition, but even when this is not the case, the estimates are bound to differ due to the often better coverage of the annual statistics. For these reasons, level estimates in the short-term statistics are rarely used directly in the QNA but rather used to calculate a rate of change between the reference quarter and the corresponding quarter of the previous year. This information is then used to extrapolate the underlying level values set in the annual accounts.

For certain indicators, source data is delivered in both current and constant prices while for others the deflation into constant prices (or reflation into current prices) is done at the National Accounts department. Either way the price indices used are scrutinized by the expert responsible in order to ensure a correct relation between current and constant prices.

For a number of variables, the source used in the quarterly accounts is the same as that later used in the annual accounts and the source data can therefore enter the QNA directly and not via extrapolation. This is the case for inventories as well as for exports and imports.

The opposite is the case for a few other areas, with no information at all available on a quarterly basis. An example is gross fixed capital formation in the agricultural industry. In these cases the QNA relies on model-based estimates instead.

The calculations are done with non-adjusted figures. The detailed, industry-level calculations on the production side are done at basic prices and estimates on taxes and subsidies are later added at an aggregate level. The details of the expenditure side are calculated at market prices. Seasonal and calendar adjustments are carried out in a subsequent, separate process and the release contains both non-adjusted and adjusted figures.

Below is an approximate timeline of the compilation process, commencing at the end of the reference quarter:

– 51 days	Acquisition of source data from surveys and administrative sources
45 – 51 days	Validation of source data and calculation of initial QNA estimates
51 days	Deadline for initial estimates
54 – 55 days	Reconciliation meetings, analysis and scrutiny of source statistics
55 days	Preliminary adjusted data available for analysis
55 – 57 days	Analysis and balancing
57 – 59 days	Writing of articles and press release
57 days	GDP, non-adjusted, determined
58 days	Chain-linking, seasonal and calendar adjustment
58 days	GDP, seasonally adjusted and calendar adjusted, determined
59 days	Publishing preparations, press release finalized
60 days	Release at 09.30

3.2 Balancing, benchmarking and other reconciliation procedures

3.2.1 Quarterly GDP balancing procedure

It is very unusual that the first compilations of GDP from the production side and from the expenditure side give a unanimous estimate of the GDP growth. The average absolute difference over the past ten years is 0,9 percentage points.

The balancing procedure contains many steps and permeates the majority of the QNA compilation process. Once the initial estimates have been calculated, the results are scrutinized in briefings between the group responsible for the overall compilation process and the experts responsible for the separate calculations. In these meetings, the initial results are presented and any remaining questions, doubts or inconsistencies are raised. Typically, a number of areas are identified as in need of further investigation. In practice this often implies referring the question back to the source statistics. To ease communication and improve cooperation, representatives from the various source statistics are invited to the meetings. This is the case also for members of the Large Case Unit, who tend to participate in all of the briefings and occasionally also in some of the following balancing meetings.

The group responsible for the overall compilation process keeps an inventory of the areas in need of looking into and progress is noted as work proceeds. Along with

this process the balancing procedure starts. The initial steps towards reconciliation include scrutinizing each GDP component, investigating expected correlations between certain variables (between for example production in a certain industry with exports of those products, between hours worked and production and so forth) and analysing the initial outcomes from a macroeconomic perspective. To organize and secure these efforts, a check-list of items to address is employed.

The aim of the QNA is to predict the subsequent ANA as well as possible and this is also the guiding beacon in the balancing process. The reconciliation should as much as possible emulate the balancing done in the following ANA and balancing adjustments should primarily be done to components with data sources that tend to be revised substantially between the QNA and the ANA.

Once all identified issues have been addressed and the necessary adjustments have been made, the balancing requirements that still persist are dealt with according to a set of predetermined, objective guidelines coupled with any relevant, quarter-specific considerations. The principles, summarized in table 3.1, depend on an evaluation of where in the business cycle the quarter falls. They serve as a general framework for balancing but deviations may occur due to reasons particular to the compilation in question.

Table 3.1 QNA Balancing guidelines

Business cycle phase	GDP development	Unbalance in initial estimates	Balancing guidelines
Growth	>3,5 %	Exp > Prod	Expenditure side estimate
Trend growth	1,5-3,5%	Exp > Prod	¾ of expenditure side estimate
Deceleration	<1,5%	Exp > Prod	Average of the estimates
Growth	>3,5 %	Prod > Exp	Average of the estimates
Trend growth	1,5-3,5%	Prod > Exp	Average of the estimates
Deceleration	<1,5%	Prod > Exp	Average of the estimates

The guidelines are the result of an in-depth analysis of the revisions of the QNA that follow from a compilation of new ANA. The primary aim of the QNA is of course to minimize these revisions and the purpose of the guidelines is to ensure a balancing procedure in line with this aim. As can be seen in the table above, the typical approach is to balance GDP by using an average of the two estimates. The exceptions to this are in periods of economic growth coupled with an initial expenditure side estimate greater than the initial production side estimate. In these cases, the expenditure side estimate is considered more reliable and hence balancing is done more towards it. As previously mentioned, the single most significant difference between the QNA and the ANA is that the former to a large extent lacks data covering intermediate consumption and instead rely heavily on a correspondence between production indicators and value added. It is this weakness in the QNA that forms the rationale behind the balancing guidelines. Put simply, the relationship between intermediate consumption and production, the input coefficient, decreases in periods of economic growth and particularly in periods of accelerating growth as industries are able to exploit their capacity more efficiently. The opposite is true in periods of deceleration. Periods when the economy is growing on trend are bound to have more stable coefficients.

The above outlines how the two separate GDP estimates are reconciled into a single outcome. The allocation of the balancing adjustments within each side is also aided by a set of guidelines. As mentioned, an overriding principle is that balancing should be concentrated to those components that tend to undergo revisions in the following ANA, either due to differing data sources or due to data sources that are revised substantially between the compilations. It is primarily this consideration that led to the guidelines in table 3.2.

Table 3.2 Allocation of QNA balancing adjustments

Expenditure side		Production side	
Gross fixed capital formation	40%	NACE B-C	50%
Household consumption	10%	NACE A, D-F	10%
Inventories	20%	NACE G-T	40%
Net trade in goods	15%	Government production	0%
Net trade in services	15%		
Government consumption	0%		

The recommendation is to allocate the bulk of the expenditure side adjustments to gross fixed capital formation since the short-term indicator used in the QNA calculation is replaced with a different data source in the ANA compilation. As for the production side, a larger share of alterations should be done to the value added of the manufacturing industries since it is for these that the lack of QNA data on intermediate consumption is of most significance. As already mentioned, however, deviations due to specificities of the quarter at hand are not uncommon and every QNA compilation contains an analysis of the reliability of the various sources and conclusions as to how the balancing procedure ought best be carried out.

Balancing needs to be done in both current and constant prices. The preferred approach is to begin by balancing the estimates in current prices, the reason being that these estimates tend to reflect the underlying data sources to a greater extent since the majority of these are collected in current prices. Once this is done, the estimates are balanced in constant prices. Cases where the balancing adjustments required in constant prices and in current prices differ, are settled by altering the production side adjustments and in particular, the adjustments made to the value added of the manufacturing industries. The reason for this is once again the lack of information concerning quarterly intermediate consumption, both in current and constant prices, causing the estimates of in particular the manufacturing industries to be less reliable.

The entire balancing process, starting with the briefings of the various GDP components and ending with the determination of a non-adjusted GDP outcome, takes about three days. This entails that the time available for probing is scarce and in cases where questions remain unresolved, the final decisions on the adjustments made are based on expertise and on knowledge of the data source and in particular on how the preliminary statistics tend to relate to the final statistics used in the ANA.

The GDP estimate according to the income approach is balanced through a residual calculation of the item operating surplus and mixed income. Before balancing, checks and validation of the source data are carried out in conjunction with the calculations. Relationships like labour productivity and hourly wages are also analysed in the reconciliation process.

Table 3.3 outlines the balancing procedure that took place in the September calculation of GDP for the second quarter 2017. The first column consists of

estimations of the various components prior to the final step of reconciliation and the second column shows the outcome of the balancing procedure.

Table 3.3 Balancing of GDP for the second quarter 2017

	Initial estimate	Published estimate	Change in volume due to balancing	Balancing constant prices, BnSEK	Balancing current prices, BnSEK
Household consumption	2,0	2,2	0,2	1,0	1,0
Government consumption	-2,0	-2,0	0,0	0,0	0,0
Gross fixed capital formation	6,1	6,4	-0,3	0,9	0,9
Inventories (contribution to GDP)	-0,6	-0,4	0,2	2,5	2,6
Export of goods	3,7	3,7	0,0	0,0	0,0
Export of services	0,4	0,4	0,0	0,0	0,0
Import of goods	2,7	2,2	-0,5	-1,5	-1,5
Import of services	6,0	5,3	-0,7	-1,0	-1,0
GDP expenditure approach	1,0	1,6	0,6	-7,0	-7,0
Value added NACE B-C	2,2	1,2	-1,0	-1,4	-2,7
Value added NACE A,D-F	8,6	7,8	-0,8	-0,9	-1,4
Value added NACE G-T	2,5	1,7	-0,8	-4,3	-5,3
Value added government sector production	-1,8	-1,8	0,0	0,0	0,0
Product taxes & subsidies	2,7	2,4	-0,3	-0,3	-0,3
GDP production approach	2,3	1,6	-0,7	7,0	9,7

3.2.2 Benchmarking of QNA and ANA

Upon completion of the annual accounts, the QNA series needs to be aligned to the new levels set in the ANA. The benchmarking is done prior to the balancing of GDP.

For value added data, benchmarking is done using the least square method, MinD4. Throughout the years, SCB has used different methods of benchmarking. Up until 1985, the so-called Bassie method was used. This was later replaced with the MinQ method which in turn was substituted for the MinD4 method currently used. Regardless of method, however, the objective is to benchmark the QNA to the final ANA in such a way that secures consistency in every time series while at the same time minimizing the revisions made to the quarterly time series.

A study in 2006 aimed at optimizing the benchmarking, assessed the various methods based on their respective theoretical, practical, numerical and technical merits[2]. The study found in favour of the Denton's MinD4 method as given by minimizing the measure D4 in the equation

$$D4 = \sum_{q=1}^{q=n} (Z_q / X_q - Z_{q-1} / X_{q-1})^2 ,$$

where n is the number of quarters used.

The findings in Öhlén (2006) show that MinD4 (Denton's method) is quite robust in terms of different structures of bias. MinD4 is also a linear procedure. The linear property is of great practical significance since it implies that benchmarking can be carried out at the lowest level of detail. Put differently, the aggregates of MinD4

[2] See Öhlén (2006), 'Benchmarking and Seasonal Adjustment – A Study of Swedish GDP'. http://epp.eurostat.ec.europa.eu/pls/portal/docs/PAGE/PGP_DS_EUROIND/PGE_DS_EUROIND_WSA/TAB58876947/OHLEN%20AB.PDF

benchmarked series are equal to the sum of lower level benchmarked series. This means for example, that if total exports of goods and total exports of services are separately benchmarked, there is no need to benchmark total exports, it is simply the sum of its two components. The benchmarked sum retains the optimality properties of its components.

The MinD4 method, programmed in SAS-software, was introduced in 2007 and has been used to benchmark the quarterly time series that stretches back to 1993. Since the seasonal pattern of the initial estimates on the production side are considered to be more reliable, the benchmarking is initially carried out for the production side and a balancing procedure needs to follow. Most other GDP components are benchmarked to their ANA values using a simple pro rata method, i.e. applying the old quarterly distribution to a new annual total. The benchmarking is carried out for both chain-linked, constant price values and current price values and covers the quarters of the year for the final annual accounts (year t-2) and the quarters for the two preceding years (t-3, t-4). A restriction for the benchmarking process is that the fourth quarter of year t-5 should be unchanged.

3.2.3 Other reconciliations of QNA

The expert responsible for a specific calculation is also responsible for analysing the data used in the calculations. When necessary, adjustments of source data to meet the definitions and coverage of the National Accounts are made. Explanations are sought when data significantly deviates from the ordinary. Contact with those responsible for compiling the source statistics may result in a confirmation of the data, to corrections in the data or, as can be the case, to no proper resolution. In case of the latter, adjustments can be made within the National Accounts if the source data is deemed unreasonable, for example if complementary information points in a different direction. However, the guiding principle is that such adjustments should be done rarely and only when properly substantiated.

The calculation process also comprises confronting the value added outcomes with the outcomes of hours worked, i.e. analysing the industry's labour productivity. This analysis is made to detect apparent problems in source data. However, adjustments on basis of labour productivity is done with great caution since there is no separate estimate to confront the national accounts estimate against and since the relation between hours worked and value added is weak in many industries. Also hourly wages are analysed and confronted with information on hourly wages from the statistics on wages and salaries in the private and the public sectors.

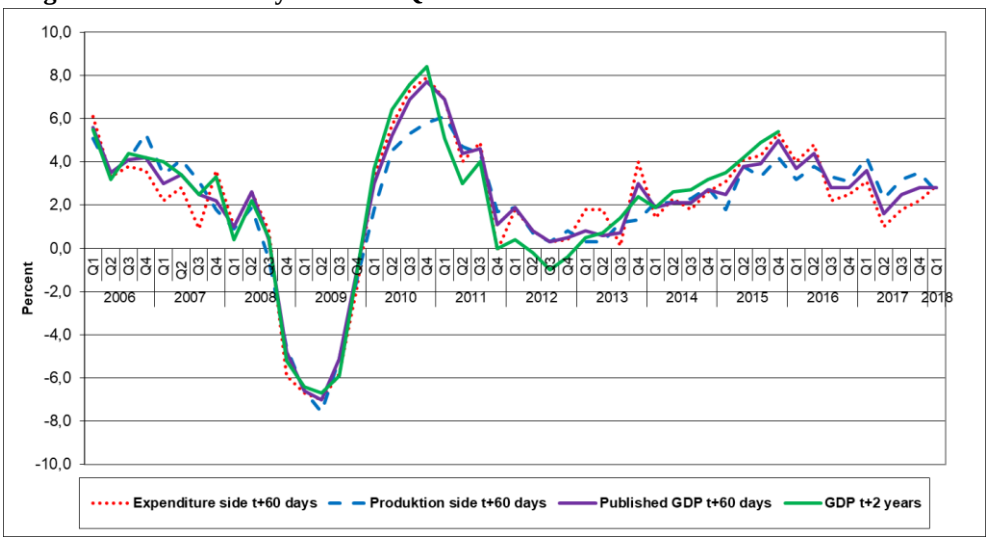
3.2.4 Amount of estimation in various releases

The quarterly national accounts are published once a quarter, with the exception of the second quarter for which both a flash estimate and a regular release are compiled. Between the releases, most source statistics are revised to some extent, primarily as a result of complementing reporting. New sources are typically not introduced directly into the QNA but rather in the detailed annual calculations compiled about 20 months after the end of the reference year (September t+2). As already mentioned, the most significant difference between the QNA and the ANA is that the latter can utilize data on intermediate consumption which is lacking at the time the quarterly accounts are compiled.

With each publication, new calculations are made for those quarters that are open for revision. The amount of revision naturally varies with each release. In the graph below, diagram 3.1, the initial GDP estimates are plotted against both the balanced estimate and against the revised estimates following the benchmarking to a new ANA approximately two years later. The graph details both the balancing process as well as the revisions between the initial published estimates and the final

estimates. The dotted red line and the dotted blue line show the initial estimates from the expenditure side and from the production side respectively. The purple line is the balanced and published GDP outcome and the green line is the subsequent published results following a new compilation of the annual accounts.

Diagram 3.1 Preliminary and final QNA estimates



While diagram 3.1 shows revisions to total GDP, table 3.4 shows the changes to the individual GDP components. The table contains the differences between the first calculation of a quarter and the calculation in May of the following year, in which all quarters of year t-1 are open for revision. The table also includes the revisions between the first calculation and the subsequent release in September t+2 in order to show the effects of the ANA. The period covered are the years 2012 to 2016. The results are presented both as a normal average for the period as well as the average in absolute values. The table shows that revisions mainly take place when the final annual accounts are compiled for the reference period in September t+2. Worth noting is that the absolute averages, although informative, may somewhat misrepresent the revisions in the sense that the calculation of the sum of four quarters (May t+1) as well as the reconciliation of the quarterly figures to the ANA (September t+2) commonly involve some redistribution among the quarters of a year.

Not unexpectedly, the table confirms that although the revisions to the GDP growth are often moderate, the revisions to certain, individual components can be substantial.

Table 3.4 Revision of quarters in May year t+1 and September year t+2

	May t+1 average	May t+1 absolute	September t+2 average	September t+2 absolute
GDP	0,1	0,3	-0,2	0,7
Houeshold consumption	0,1	0,2	0,0	0,5
Government consumption	0,0	0,3	0,0	0,4
Gross fixed capital formation	0,1	1,0	-0,9	2,1
Inventories (GDP contribution)	0,0	0,2	0,0	0,3
Exports	0,6	0,7	0,9	1,1
Imports	0,7	0,7	0,9	1,0

3.3 Volume estimates

3.3.1 General volume policy

Data used in the National Accounts are usually collected in current prices and then deflated into constant prices using relevant price indices such as producer price indices, service price indices or consumer price indices. However for a few series, data on quantities are available and price indices are instead used to reflate constant prices into current prices. This is the case, for example, for the bulk of the calculations covering energy production and consumption. A third method, mainly used for non-market production, is to calculate constant prices and current prices separately, thus arriving at price changes residually.

For an increasing number of sources, the deflation of current prices into constant prices takes place within the unit responsible for collecting the data. Such is the case for both the foreign trade in goods statistics (source 17) and the production value index (source 4). For other calculations, most notably for the calculations of household consumption, gross fixed capital formation and foreign trade in services, the deflation is done at the National Accounts unit. Regardless of whether the data arrives already deflated or not, the National Accounts unit is instrumental in determining the choice of price index and also responsible for scrutinizing the outcome of a given quarter, both in nominal and volume terms.

The QNA calculations are carried out at a detailed level and subsequently aggregated to the levels that are published. The calculations are based on chain indices and the constant prices are thereby based on the price level the previous year (t-1). In the national accounts, as well as in the price statistics, Paasche price indices are calculated and thereby the volume changes in the national accounts and in the source data are Laspeyres indices.

3.3.2 Chain-linking and benchmarking

For comparability reasons, values in constant prices need to be chain-linked into a time series expressed in a price level for a certain year, the so called reference year. In general, chaining is used to enable time comparisons despite structural changes in the economy. For the quarterly accounts the reference year is set to the previous calendar year, year t-1. Chain-linking was first introduced in the QNA in 1999. All three methods of linking were then considered, ‘Annual Overlap’ (AO), ‘Over-the-Year’ (OY), and ‘Quarterly Overlap’ (QO). The choice fell on the OY method, which was used up until 2010. In May 2010, however, the decision was taken to abandon the OY method in favour of AO chain-linking. The switch was mainly prompted by tests showing that the AO method is more compatible with the methods chosen for benchmarking and seasonal adjustment.

The method[3] is used on transactions and aggregates with constant positive or negative signs. For items that alternate sign over time, other methods need to be used. A prominent example is the change in inventories. The solution chosen in the Swedish QNA is to present the changes in inventories, expressed in reference year prices, as having the same share of GDP as they do in t-1 prices.

The benchmarking is done for the chain-linked series and for the series in current prices. The benchmarked, chain-linked series in reference prices are then

[3] For a mathematical description see section 6.4 in Eurostat’s Handbook on Quarterly National Accounts (2013). https://ec.europa.eu/eurostat/documents/3859598/5936013/KS-GQ-13-004-EN.PDF/3544793c-0bde-4381-a7ad-a5cfe5d8c8d0

recalculated to constant prices (t-1). After conducting this benchmarking procedure, the accounts will no longer be balanced. Therefore a new reconciliation has to be carried out for all price levels i.e. current prices, constant prices (t-1) and average prices.

Below is an outline of the steps that lead up to the final result of chain-linked, benchmarked and seasonally adjusted quarterly time series following a new compilation of the ANA.

1) Chain-linking

2) Benchmarking of three years *t-4*, *t-3* and *t-2*

    a) Benchmarking,

    b) Recalculation to current prices and constant prices (t-1 prices)

3) Reconciliation in current prices and constant prices (t-1 prices) for the whole period, year *t-4, t-3* and *t-2.*

4) Chain-linking

5) Seasonal adjustment

3.3.3 Chain-linking and seasonal adjustment

As described in 3.3.2, seasonal adjustment of volume measures is performed after chain-linking and benchmarking.

3.4 Seasonal and calendar adjustment

3.4.1 Policy for seasonal adjustment

In the past, the Swedish QNA employed a strictly direct method of seasonal adjustment, meaning that each series was adjusted separately with a series-specific optimal model and no balancing or consideration was made as to how the series related to each other. Consequently, the series were non-additive implying that the sum of two subordinate series did not necessarily equal their total and that by extension, the seasonally adjusted GDP estimate was not equal to the sum of its parts.

Based on user demand, the direct approach was modified in 2010 to produce additive series. Adjustments for seasonal variations are still done using a direct approach, i.e. each series is individually modelled in accordance with the recommendations given by Eurostat, but subsequently modified to ensure additive properties. The method involves adjusting each series separately as a first step and then reconciling the subseries so that they can be summed into larger aggregates and ultimately to total GDP. The residual that arises is distributed among the subseries according both to the relative size of the series and to the level of uncertainty of the seasonally adjusted estimate as measured by the variance in the irregular component. Since only the chain-linked figures for the reference year and the following year are additive anyway, the reconciliation of the seasonally adjusted figures is limited to these periods.

Roughly 600 series are adjusted in the QNA, including all constant and current price series on the production side, a number of constant and current price series on the expenditure side and the series covering hours worked and persons employed.

The seasonal adjustment is carried out in the DOS-programs TRAMO/SEATS with a SAS-interface. Each series is individually modelled in accordance with the recommendations given by Eurostat. More details can be found in the Öhlén's (2006)[4] study.

A number of ARIMA-models, including but not limited to the model in place, the model automatically selected by the program, and the Airline model (if not included already), are investigated for each series before settling on the best choice. The decision criteria rely heavily on the statistical diagnostics. Possible revisions, different output of outliers, forecasts, and graphical checks are also considered. The models are revised and, if needed, altered once a year.

Another desirable property from a user point of view is that seasonally adjusted annual totals are equal to the non-adjusted annual totals, i.e. that they are time consistent even though this could potentially deteriorate the quality of the seasonal adjustment. The aim is to fulfil the requirement of time consistency for those series for which it is technically possible to do so.

3.4.2 Policy for calendar adjustment

All production series and the number of hours worked are working-day adjusted based on the Swedish calendar. The number of working days in a quarter (normalized) is used as an external variable in the regression model in TRAMO.

3.4.3 Revision policy for seasonally adjusted data

The seasonally adjusted series is revised with each release of a new quarter. As mentioned, the adjusted series currently stretches back to the first quarter of 1993.

[4] See Öhlén (2006) op.cit.

Chapter 4 GDP and components: the production approach[5]

4.1 Gross value added, including industry breakdowns

For most areas, gross value added is estimated using indicators for output to extrapolate the value added from the corresponding quarter of the previous year. For constant prices, the base is the current prices of the previous year converted into average prices. Average prices (t prices) for the quarters are calculated from constant, t-1, prices by using the current prices (CUP) over the year divided by t-1 prices over the year as expressed in the following formula:

$$Q1_t = Q1_{t-1} * SumQn_{CUP} / SumQn_{t-1}$$

No statistical model is used to take into account the relationship between the quarterly indicator and the annual estimate. Rather the expert responsible for a certain industry evaluates how well the used indicator predicts the future annual estimate. Calculations are carried out at the same level of detail for both current prices and constant prices. Value added is usually assumed to follow the production indicator as quarterly information concerning intermediate consumption is not typically available.

For most industries, both constant prices and current prices are delivered from the source statistics. The data is typically gathered in current prices and deflated with appropriate price indices. Although a large number of different types of indices enter the value added calculations, the indices primarily used are Producer price indices (source 23) and Service price indices (source 24). The value added for the great majority of both market producers and producers for own final use is extrapolated using the Production value index (source 4) . However, as will be described in the following sections, there are exceptions where other sources and/or methods are used to arrive at a QNA estimate.

The non-market production in the government sector is not calculated directly by industry but by COFOG[6]. In the domestic releases central and local government sectors are presented separately. However, government activities by industry can be derived through the connection between COFOG and NACE[7] (Statistical Classification of Economic Activities) and are presented by industry in the ESA2010 transmission programme to Eurostat.

4.1.1 Agriculture, forestry and fishing (NACE A)

The data used to calculate value added in the agriculture industry consists of an annual forecast on the crop harvest, or statistics on the output of the crop harvest (source 1) depending on the quarter calculated, together with monthly statistics on

[5]The main sources used in the calculations are described in more detail in chapter 9. The source numbers refer to the number given in chapter 9.

[6] Classification of the functions of the government

[7] In this document NACE always refers to NACE rev. 2

animal production (source 2). All data is delivered from the Swedish Board of Agriculture. The annual figure for the harvest is split in equal shares over the four quarters according to the SNA guidelines. Calculations are made for five subgroups and are based on information about quantities and prices. Animal production is calculated in the same way, quantities multiplied by prices, and is split into seven subgroups. To calculate constant prices, the values expressed in the previous year's prices are extrapolated using the change in quantities.

The calculations of production in the fishing industry are based on monthly statistics on quantities and values from the National Board of Fisheries (source 3). Information is delivered on a very detailed level but in the calculations the developments of the landing of the five main species of fish are used as indicators for the whole industry. Since the statistics only cover salt water fishing, adjustments are made for cultivated fish and fresh water fishing. Constant prices are calculated by extrapolating the value in previous year's prices using the change in quantities.

Output in the forestry industry is regarded as being produced continuously over the entire period of production, not just when the timber is felled. Growing trees are treated as inventories of work in progress. They are transformed into inventories of finished stocks when they are mature. Output is composed of the production of the felling of trees together with the production of standing timber (net increment).

Information about sawmill timber and pulp wood products used in the saw mills and pulp mills are used as indicators for total production for the felling of trees. Adjustments are made for sawmill timber and pulp wood delivered from roadside inventories as well as for imports and exports of these products. For imports and exports, data is available via the foreign trade statistics. Information about sawmill timber data is collected by Statistics Sweden on a monthly basis and wood pulp data is collected by The Swedish Forest Industries Federation. Data on inventories of wood pulp is collected on a quarterly basis by Statistics Sweden. Statistics on inventories of sawmill timber are only available on an annual basis necessitating model-based calculations for the first, second and third quarters of each year. The calculations are first carried out in constant prices using data on quantities in order to extrapolate value added. Current prices are derived through using information on prices on sawmill timber and wood pulp.

Output of standing timber (net increment) in constant prices is derived from the total of cultivated forestry resources grown and felled on forestry land. Gross increment is derived from annual data on the forest stand from the Swedish University of Agricultural Sciences. The annual data divided by four is used as a quarterly estimate. The price used to calculate the gross increment value in current prices is the delivery price of felled timber delivered to forest roadsides. The felling of trees is calculated in the same manner as described above, using information on the use of sawmill timber and wood pulp.

4.1.2 Mining and quarrying (NACE B) and manufacturing (NACE C)

In the manufacturing industries, value added in constant and current prices are calculated by using the Production value index (source 4) to extrapolate the value added for the corresponding quarter of the previous year. The Production value index in current prices is based on data from both the survey on deliveries in the manufacturing industries and on turnover data from the Tax Authority. These data are then deflated using Producer price indices (source 23) in order to estimate the

Production value index in constant prices. The QNA calculations are made for 38 manufacturing industries.

In the QNA, some adjustments are made to the source statistics to enhance coverage and adhere to national accounts concepts. Since the data source estimates deliveries rather than production, adjustments are made for changes in inventories so as to take into account the production that is not delivered during the reference quarter but rather put into inventories as well as the deliveries that are made from inventories that are not produced during the reference quarter. These adjustments are made based on the quarterly survey on Industrial Inventories (source 15) and take into account the changes in inventories of goods in process as well as finished products. The source data cover the production of goods, services and trade activities in the manufacturing industries and are based on net turnover data. However, in exceptional cases, adjustments are made to the QNA in order to reflect substantial sales that are not included in the net turnover of the enterprises and therefore not captured by the Production value index.

4.1.3 Electricity, gas and steam (NACE D)

Calculations of electricity, gas, steam and hot water supply (NACE D) rely mainly on source data on quantities with subsequent reflation into current prices. A variety of price indices are used, e.g. relevant Consumer price indices (source 25) and Producer price indices (source 23). The short-term information is detailed and the bulk of the source data is provided through the Monthly electricity statistics (source 6). Other information used is Monthly fuel, gas and inventory statistics and information on the imports of gas.

4.1.4 Water supply and waste management (NACE E)

In Sweden, waterworks are extensively integrated with sewage functions rendering it difficult to obtain data for the two separately and they are therefore included together as one industry in the QNA. The quarterly estimation is derived using volume indicators from a select number of key industries (within NACE L and NACE C) as proxies. The Consumer Price Index for water is used for deflation.

4.1.5 Service production (NACE G-J, L-S)

General approach:

The main source used to calculate the production of services, NACE G-O, is the Production value index (source 4) that covers both current prices and volume changes. For deflation, a number of different price indices are used, such as the Service price index (source 24) and the Consumer price index (source 25). These source materials are then used in the QNA to extrapolate value added, where calculations are carried out on a detailed level for about 40 industries.

Additional information, such as such as Turnover statistics (source 7) and material such as quarterly financial statements for larger companies are also used for reference in some industries.

The following sections outline the methods and sources used for those industries for which the general approach is not followed.

4.1.6 Construction (NACE F)

The approach to calculating production in the construction industry is to use information about fixed capital formation and repairs. The volume changes for investments and expenditures for purchased repair and maintenance services regarding buildings, structures, and houses are used as an indicator for value added in constant prices. The volume changes for investments is used as an indicator for changes in repairs when no information on repairs is at hand in the quarterly accounts. Current prices are obtained by reflating with a weighted index based on the implicit index for total gross capital formation in buildings, structures and houses as well as a number of construction indices reflecting the price change for repairs.

4.1.7 Financial and insurance activities (NACE K)

The calculations for financial intermediation are based on quarterly surveys on banks and insurance companies respectively (source 8 and 9) issued by Statistics Sweden on behalf of The Swedish Financial Supervisory. Financial services indirectly measured, FISIM, are described in section 4.2.

For financial services directly measured, commissions etc. (NACE 64), the value added in current prices is extrapolated from the development of commissions in banks, credit market enterprises, securities corporations, mutual funds, fund corporations and investment corporations. The price index used for deflation consists of a weighted index between the wage index for the financial industries (NACE 64-66) and an index on funds.

Insurance services (NACE 65) consist of life insurance, pension funding, non-life insurance, and reinsurance. Value added for life insurance is extrapolated based on the development of administrative costs and the wage index for NACE 64-66 is used for deflation. For non-life insurance in current prices, value added is extrapolated using the change in output, where output is measured in accordance with ESA 2010 as premiums, including equalisation provisions, applicable to the period plus premium supplements less claims due. Value added in constant prices is extrapolated with the change in the number of insurances.

The value added for activities auxiliary to financial intermediation (NACE 66) is model-based and calculated as the weighted average of the development in NACE 64 (excluding FISIM) and NACE 65.

4.1.8 Real estate activity (NACE L)

In the Swedish national accounts, NACE L is subdivided into two industries, L68A, Own homes and secondary residences and L68B, Other real estate management. The latter includes apartments in multiple-occupancy buildings and the letting of premises (part of NACE L68.2) as well as buying and selling of own real estate plus real estate intermediation and real estate management on a fee or contract basis.

For industry L68A, the calculation of constant prices is based on a weighted volume indicator for the development of the capital stock of one-to-two dwelling houses and leisure houses. Value added is adjusted for the only two components of intermediate consumption that are available in the quarterly calculations, FISIM

and the ROT deduction[8]. Estimates in current prices for one-to-two dwelling houses are obtained by reflating the constant prices using a weighted consumer price index of both dwelling forms.

For industry L68B, the calculation of constant prices is based on a weighted volume indicator consisting of three parts. Firstly, it includes the volume change for housing in tenancies and tenants-ownership right, BRF, in multiple-occupancy buildings. It is inclusive of garage space but exclusive of heating costs. The second part consists of NACE 68.1, buying and selling of own real estate plus NACE 68.3, real estate intermediation and real estate management on a fee or contract basis. The last component is made up of NACE 68.202-203 and NACE 68.209, commercial letting of shop premises, offices and industrial premises. The value added is also adjusted for changes in FISIM. The estimates in current prices are obtained by reflating the constant price estimates using a weighted index based on the implicit index for rents and service price index for NACE 68.2 and NACE 68.3.

4.1.9 Activities of households as employers (NACE T)

The industry's value added in current prices is calculated using data covering the compensation that disabled persons receive to employ personal assistants. There is no intermediate consumption in the industry, so the output value is equal to value added. Constant prices are arrived at by deflating with an hourly wage index for self-employed persons.

4.1.10 Non-profit institutions serving households (NPISH)

Value added for NPISHs is measured using the cost method which is in accordance with the guidelines set out in ESA2010. Value added is extrapolated in current prices using information on changes in wages and salaries and employers' social contributions according to the Aggregate gross pay, payroll taxes and preliminary tax statistics from employers' monthly tax returns (LAPS, source 19) as well as information on capital consumption and payroll taxes. Consumption of fixed capital is calculated using a model-based approach9. Constant prices are achieved using a wage index.

4.1.11 Government sector production

Value added in current prices is calculated using the cost method. The central government sector accounting data for authorities is collected quarterly by the Swedish Financial Management Authority (ESV) (Basis of central government net lending, source 10). Local government data is attained from quarterly inquiries based on a sample of about 80 (population size over 30 000) of the total 290 municipalities and complete coverage of the 7 county councils and 13 regions (source 11 and 12).

The Swedish National Accounts introduced volume measures for the calculations of the production of individual services in constant prices in 2007. According to the Commission Decision No 2002/990 on the principles for measuring prices and volumes, volume measures are introduced for the part of government production

[8] Repair and maintenance as well as conversions and extensions are counted as ROT work and are therefore tax deductible, provided that such work is carried out in close connection with a dwelling that the client owns and in which he or she lives. The dwelling may also be a second home (weekend home).

[9] For more details concerning the consumption of fixed capital calculations, see Statistics Sweden´s documentation of the Quarterly Sector Accounts.
https://www.scb.se/contentassets/c89bb85e14184e92a4d5e4eec5ce4b98/sweden-qsa-inventory-esa2010-nov-2016.pdf

that constitutes individual services. For collective services at constant prices, the cost method is used.

See further chapter 5.2 Government final consumption.

4.2 FISIM

The main sources for the FISIM calculations are the Riksbank's (the Swedish Central Bank) monthly balance data of Monetary Financial Institutions (MFI) , compiled by Statistics Sweden, and the Swedish Financial Supervisory Authority's quarterly balance and profit and loss data for financial enterprises. Import and export of FISIM is calculated using the Riksbank's Balance of Payments data on inflow and outflow of interest.

FISIM for the domestic sectors is calculated using method 1 as outlined in Council Regulation (EC) No 549/2013 of 21 May 2013 (ESA 2010) and thus uses the following three components:

1. Average stocks of loans and deposits for sub-sector 122 by user sectors
2. Accrued interest for sub-sector 122 by user sectors
3. Internal reference rate FISIM is calculated as follows, (deposit stocks × internal reference rate) - interest payable on deposits + interest receivable on loans - (loan stocks × internal reference rate)

The calculations of the internal reference rate relies on quarterly data from the Swedish Financial Supervisory Authority, where interest receivable and average stocks are used. The internal reference rate is calculated as the ratio of interest receivable on loans to the stocks of loans between sub-sectors 122 and 125. There are no FISIM producers in subsector 125. However the data on stocks and loans and interest received in the data from the Swedish Financial Supervisory, unlike the data from the Riksbank, are aggregated for subsector 122 and 125 with no possibility of disaggregation. Changes in volume reflect the changes in stocks. For sub-sectors Banks and Housing Finance Institutions, the Riksbank's monthly balance data of Monetary Financial Institutions is used for data on stocks of loans and deposits by sector. An average of the opening and closing balance of each month in the quarter is used. The corresponding information for the sub-sector Other monetary credit market corporations is collected from the Swedish Financial Supervisory Authority's quarterly data. This information is also available by sector. An average of opening and closing balance is used.

In the Riksbank's monthly Financial Market Statistics, data on the total deposits of households and NPISH are divided into NPISH, households as owners of unincorporated enterprises and households. The definition of households as owners of unincorporated enterprises used in the Financial Market Statistics is consistent with the ESA definition. Banks and housing credit institutions' stock of loans with dwellings as collateral is used to distinguish households as owners of dwellings.

Interest, payable and receivable, is calculated using the Riksbank's deposit and lending rates upon stock data. There are no available data on interest flows per sector. Interest flows are only provided for credit institutions, i.e. MFI and other financial intermediaries, with the exceptions of insurance corporations and pension funds, and the rest of the economy.

There are sector specific average interest rates for households and non-financial corporations. The average interest rates are weighted by the maturity of the loans/deposits. NPISH are assumed to face the same interest rate as households. Financial corporations and general government are assumed to face lower interest rates on lending and higher interest rates on deposits compared to non-financial

corporations. Quarterly data from the Swedish Financial Supervisory Authority on the ratio interest income and expense to stocks of loans and deposits is used for comparison purposes. Final or chosen interest on loans and deposits for each FISIM producing sub-sector is often adjusted to match the information of the separate sources.

Interest payable on households' total stock of loans is calculated using data on average lending rates on all types of loans. For households as owners of unincorporated enterprises the average lending rate for households as a total is used. For households as owners of dwellings the lending rates of housing credit institutions are applied. Interest payable on households stock of loans for consumer purposes is calculated as the residual of total interest payable less interest payable used for intermediate consumption.

The external reference rate is calculated as defined in paragraph 10 of chapter 14 of ESA 2010. That is as the ratio of interest on loans plus interest on deposits between resident FIs and non-resident FIs, to the stock of loans plus the stock of deposits between resident FIs and non-resident FIs. The stock of loans between resident MFI and non-resident MFI and deposits between resident MFI and non-resident MFI are used as weights for calculating one external reference rate.

The Riksbank's Balance of Payment data on assets and liabilities by sector is the main source for the calculation of imports of FISIM. In the calculation of FISIM the export of Balance of Payment data for the monetary financial institutions is replaced with the Riksbank's monetary financial institutions data on stocks of loans between resident MFI and non-resident non-MFI to ensure that FISIM is not calculated for stocks of loans and deposits for resident MFI vis-à-vis non-resident MFI.

Interest payable receivable is calculated using interest rates on loans and deposits. The balance of payment data on interest is too volatile and is not used in the calculations of imports of FISIM with the exception of the Riksbank interest payable. For exports of FISIM the balance of payment interest data includes interest payable/receivable from/to resident MFI from/to non-resident MFI and is therefore also inappropriate.

4.3 Taxes less subsidies on products

In the production approach GDP calculations, value added is valued at basic prices. Taxes and subsidies on products are added or subtracted, on an aggregate level in order to obtain GDP at market prices.

The calculations for taxes (excluding VAT) and subsidies on products are based mainly on the records from the Financial Management Authority (ESV) of the income of central government departments and agencies under revenue headings. These are updated on a monthly basis. Period reallocations must be undertaken in order to obtain the accrued value, since the ESV records are cash-based and payments entered under the revenue headings are usually made in arrears.

To attain VAT in the production and expenditure side calculations of GDP, theoretical VAT is used. The calculations are made both in current and constant prices.

For current price estimates of taxes on products, the data from the Financial Management Authority is used to extrapolate the national accounts figures for taxes on products for the corresponding quarter of the previous year. For deflation, a price index for taxes on products is calculated implicitly from the estimated national accounts figures on selected household consumption purposes subject to VAT.

For subsidies on products, the current price values from the Financial Management Authority are used directly in the QNA. These are then deflated using CPI for public transport since it is the largest product subject to subsidies.

Chapter 5 GDP components: the expenditure approach

In the quarterly accounts, as well as in the annual accounts, complete calculations are made of the expenditure approach, i.e. on an aggregate level no component is determined as a residual.

5.1 Household final consumption

Household final consumption is compiled on a detailed level, covering 147 consumption purposes (COICOP[10]). The calculations are based primarily on extrapolation and many different sources are used to get indicators for the extrapolation. The main source is Turnover Statistics (source 7) which accounts for about 30 percent of total household consumption. In addition to the Turnover Statistics a large number of other sources are used. For certain consumption purposes with one dominating company, specific inquiries are used, or information is collected through the company's financial statements. For other consumption purposes like energy and cars, information from monthly and quarterly statistics compiled by Statistics Sweden are available. The main methods and sources for the calculations are described below with examples of consumption purposes for which the information pertains. However, the description does not cover in detail every method used the different consumption purposes.

5.1.1 Household consumption matrix

For a number of consumption purposes, mainly within clothing and footwear (COICOP 3) and furnishing, household equipment, and routine maintenance (COICOP 5) a matrix is used to split the turnover figures from the Turnover Statistics into product groups and to determine how much of these products are used by households. Food and non-alcoholic beverages (COICOP 1) are extrapolated using the turnover statistics and the reported VAT.

The Turnover Statistics measure total turnover in each sub-industry. Since the industries sell a large number of different goods and services, and household consumption is calculated and recorded for each good and service individually, the trend figures for the different industries have to be converted to trend figures for the various goods and services. This is done by a matrix where production (turnover) by industry is split into those goods and services that are sold and how much of such is ascribed to household consumption. Information on products by industry is attained from the Retail Trade Survey. By comparing the distributed values between two years for the same quarter, a trend is obtained for the good or service in question. These trend figures are linked to the different purposes in order to calculate the quarterly levels of household consumption. The values calculated through the matrix in current prices are deflated with Consumer Price Indices (CPI, source 25).

5.1.2 Other methods

When domestic production is almost exclusively used for consumption of the resident households, as is the case for some services, the same indicator used for

[10] Classification of Individual Consumption by Purpose

extrapolation of value added is also used for extrapolation of household consumption, assuming that household consumption is a fixed fraction of the production. Some of the purposes are, however, estimated using this method for lack of better alternatives. The Turnover Statistics are used this way for some services, for example for consumption groups within transports (COICOP 7) like taxi, railway transportation and public transportation. This method is also used for electricity, gas and heating (COICOP 045) and for financial services (COICOP 126) where the calculations are based on information from monthly and quarterly statistics compiled by Statistics Sweden and The Financial Supervisory Authority respectively. For the consumption in occupant owned homes (COICOP 042) where household consumption is the only use for production, the output method is used as well. This also applies to other services within housing.

For some consumption purposes where one large company dominates, specific inquiries are used or information is collected through the corporation's financial statements. This for example provides the basis for calculating the consumption of alcoholic beverages and tobacco (COICOP 021, 022), parts of communication (COICOP 08), gaming (COICOP 0943), and newspapers and stationery (COICOP 0952-54). Information regarding prescription medicines (COICOP 06111) was previously received this way, but due to deregulation of that market, information is now attained from the Swedish eHealth agency.

Household consumption of motor vehicles (COICOP 071) is calculated based on the administrative source, Statistics Sweden's vehicle statistics (source 13), and information on average prices.

Most COICOP groups described above are calculated based on extrapolation of current prices and deflation into constant prices using CPI. A few COICOP, however, are extrapolated in constant prices using information on quantities and CPI is then used for reflating to current prices. This method is for example used in the calculations of the consumption of electricity, gas and heating (COICOP 045).

The calculations of household consumption are based on information about sales in Sweden, thus supplements are made for direct purchases by Swedes abroad (COICOP 15) and deductions are made for purchases in Sweden by non-resident households (COICOP 16). These adjustments are made on an aggregate level using information in current prices from exports and imports of services. A weighted consumer price index based on a number of different countries is used for domestic consumption abroad. Consumption expenditure by Swedes abroad is deflated using an average of consumer price indices for top tourist destinations.

5.2 Government final consumption

Government final consumption in current prices is calculated from the cost side. The calculation of total consumption expenditure is broken down into the components intermediate consumption, wages and salaries, social contributions, other taxes on production, other subsidies, consumption of fixed assets, sales, other assets produced for own account, and social benefits in kind. Central government data in current prices is obtained at a detailed level from the Swedish National Financial Management Authority (ESV). The source is called the Basis of central government net lending (source 10) and data is received for the expenditure of departments and agencies of central government by type of expenditure. This source is derived from the central government accounting system and applies to all the expenditures of these bodies, even those financed from sources outside the central government budget. All expenditure is thus treated as consumption, investment or a transfer and is specified by type of expenditure and purpose.

The calculations of the social security funds sector, made up of the national pension insurance funds and the Swedish Pension Agency (SPA), are also partly based on the Basis of central government net lending as well as forecasts made by the SPA, quarterly surveys and annual financial statements.

The main statistical sources for county councils and municipalities are quarterly surveys that collect rather detailed information on costs and incomes. The survey for municipalities is a sample survey conducted by Statistics Sweden (source 11) and the survey for county councils is a census covering all units and also conducted by Statistics Sweden (source 12). Other local government bodies, such as local government associations and reclassified local government corporations, are mainly compiled with indicators in the quarterly accounts. For local government subsectors, wages and salaries are based on Aggregate gross pay, payroll taxes and preliminary tax statistics from employers' monthly tax returns (LAPS, source 19).

In 2017 the local government comprised 290 primary municipalities, 7 county councils, 13 regions, 181 local government associations and 115 reclassified local government corporations.

Since the third quarter 2007, volume measurements for government production have been introduced in the Swedish National Accounts on an annual as well as a quarterly basis. According to the Eurostat decision, volume measurements are only used for the individual production. In Sweden, approximately 65 percent of the total production in the government sector is individual production. On an annual basis, seven per cent of the individual production is not covered by volume measures. On a quarterly basis, however, the information is scarce and the volume measurements are to a large extent based on forecasts or on estimates according to the most recent annual accounts.

For Education (COFOG 9), actual data on the number of students are used for primary and upper secondary school for all quarters except for the third. For other education areas, the quarterly estimates are based on forecasts using demographic data and historical volumes, believed to give relatively good estimates. A forecast model is used for Health (COFOG 7) based on demographic data, the production volume according to the cost method and historical information about the annual volume method. The calculation of COFOG 1020, Old age, is based on a forecast using demographic data and historical information on residential care services. Sickness and disability (COFOG 1012) is based on demographics. Other social exclusion (COFOG 1071) is based on the number of handled cases and the number of days spent in care or accommodation.

To determine fixed prices for collective production, the number of hours worked is used for the largest part consisting of compensation of employees and other taxes on production. For the other items of consumption; such as intermediate consumption, consumption of fixed capital, sales, other assets produced for own account, and social benefits in kind, weighted indices mainly based on CPI (source 25), Service producer prices (source 24) and Price index for domestic supply (source 23) are used.

5.3 NPISH final consumption

The consumption of NPISH is calculated using the cost method. The calculations of wages and salaries are based on Aggregate gross pay, payroll taxes and preliminary tax statistics from employers' monthly tax returns (LAPS, source 19). The data is comprehensive and comprises wages and salaries paid and pay-related benefits. Social contributions and other taxes on production are calculated using the information on their share of wages and salaries for the sector. A model-based

approach is used to calculate the consumption of fixed capital.[11] Subsidies comprise subsidies to wages and salaries and are obtained from the calculations for central government subsidies. Sales as well as intermediate consumption is calculated using ratios from the previous year. Deflation is carried out using the CPI total (source 25).

5.4 Gross fixed capital formation

Gross Fixed Capital Formation is calculated both by industry and by type of investment. Many different sources are used in the calculations although the major source is the Investment Survey (source 14) conducted by Statistics Sweden. Extrapolation methods based on the trends according to the sources are used for the majority of the calculations. Source values based on data on exports and imports are used directly for a few items, mainly ships and airplanes. Typically, the source statistics are in current prices and are deflated using indices for domestic supply (source 23) although a number of different indices are used for specific areas.

5.4.1 GFCF with its breakdowns in the ESA2010 transmission programme

The investment survey
The investment survey (source 14) produced by Statistics Sweden is used to account most investments in other buildings and structures, machinery, equipment and rail transportation for the business and household sector. It covers most industries and is conducted three times per year, in February, May and October. The survey covers both completed and anticipated investments. For the second quarter QNA, anticipated investments from the latest survey are used in calculations. For the most part, the survey´s source values are not used directly in the QNA but rather as a basis for extrapolation of annual benchmarked levels in current prices. Deflation into constant prices is done using indices for domestic supply.

Dwellings
To calculate investments in housing, a model is used based on the number of apartments/houses treated in terms of their commenced construction expenditures, normal construction, and completion time. Current prices are obtained by reflating with an index for construction.

Other buildings and structures
Other buildings and structures are mostly calculated using the investment survey. Road investments are calculated using data from The Swedish Transport Agency. Investments in insurance financed structures are calculated using data on damage payments from insurance companies.

Other machinery and equipment and weapon systems
Other machinery and equipment are mostly calculated using the investment survey. However, the survey does not cover the industries agriculture, forestry and fishing. The rate of change for the manufacturing industries are used to estimate investments in these industries. Weapon systems is mentioned below in the section on public investments.

For financially leased machinery the capital item leased is recorded in accordance with the ESA as gross fixed capital formation in the leasing activity. The leasing charges are consequently entered in the National Accounts with a breakdown as to

[11] For a more detailed description, see the QSA documentation. https://www.scb.se/contentassets/c89bb85e14184e92a4d5e4eec5ce4b98/sweden-qsa-inventory-esa2010-nov-2016.pdf

interest and amortisation costs. The calculations are based on both administrative and survey material. However, the sources used give no information about users' kind of activity. To get this split, the investment survey is used.

Transport equipment
Gross fixed capital formation in train machinery is calculated using the levels in the investment survey rather than extrapolating from benchmarks. A separate calculation is carried out for motor vehicles based on administrative source material. The main source for calculation of both investment and household consumption of vehicles are Statistics Sweden's vehicle statistics (source 13). Imports and exports are used to calculate investments in ships and aircrafts.

ICT equipment
The most recent annual national accounts figures for ICT equipment investments are used in addition to other machinery investments for the quarter to extrapolate ICT equipment in current prices. Special ICT price indices based on domestic supply are used for deflation to constant prices.

Cultivated biological resources
Investments in animal stocks are calculated by inflating investment numbers from the previous year with a suitable price index. Proper data are used in the annual national accounts. The Swedish Forest Agency supplies data on forestry investments.

Intellectual property products
The calculation of gross fixed capital formation in bought R&D is based on extrapolation with the production value index (source 4) of NACE 72, in current prices as well as in constant prices. The output value is based on the turnover statistics (source 7). The estimation of internal R&D investments uses the turnover statistics for each NACE industry to extrapolate from the ANA figures. External R&D is deflated using Service Producer Price Index (source 24) for technical testing and analysis while internal R&D uses the index for technical consultancy.

The calculation of gross fixed capital formation of software is based on extrapolation of yearly estimations of gross fixed capital formation in purchased software and software produced for own account, in current as well as constant prices. A production value index (source 4) is used for the extrapolation using the development in NACE 62 as an indicator. The deflator used is a service producer price index (source 24) for computer consultants.

The public sector
The Basis of central government net lending (source 10), compiled by the Financial Management Authority (ESV), records investment in accordance with the National Accounts' definitions grouped by buildings and structures, machinery, transport equipment and other equipment, research and development, and intangible investments. Investment data is reported to ESV by all central government agencies and then aggregated by Statistics Sweden. Further, investments in military weapon systems are also recorded in the source and split into different weapon types (such as ships and airplanes) by using weights provided by ESV.

The same surveys that are the basis for the calculations of consumption (see section 5.2) are the main source for the calculation of investments in the municipalities and county councils. Investments reported by the local governments are aggregated into buildings and structures, and machinery and equipment directly from the source. Further, software purchased and produced for own account, R&D as well as investments financed by leasing are also calculated. Regarding these investment types, the quarterly values of the previous year are extrapolated using appropriate growth rates.

5.4.2 Changes in inventories

The calculations of changes in inventories are based on a number of sources. Inventory stock consists mainly of inventories in the manufacturing industries and in retail and wholesale trade. A quarterly stock inquiry is carried out for the mining, quarrying and manufacturing industries (source 15). The establishments report separately finished goods, raw materials and work in progress. A quarterly survey is also conducted for retail and wholesale trade (source 16). Quarterly information is also available for inventories of fuel, oil, agriculture, and inventories in the government sector. The calculations of inventories in forestry are based on information about input into the pulp and paper industry and sawmills. For all types of inventories, the source data is the same in the quarterly accounts as in the annual accounts and levels from the source data are used directly in the quarterly accounts.

5.4.3 Acquisitions and disposals of valuables

A total value estimate for assets in the form of valuables is calculated by using the trend of a weighted indicator based on the net exports of valuables, Turnover statistics (source 7) for domestic trade with antiques and a forecast on new production of valuables.

5.5 Imports and exports

Imports and exports are based on the monthly Foreign trade in goods statistics (Extrastat and Intrastat) (source 17), and the quarterly Foreign trade in services statistics (source 18). A number of adjustments are made to the source data for national accounts purposes.

External trade statistics are delivered from the source statistics in both current and constant prices. The calculations of constant prices are in all essentials based on the export and import price indices (source 23). Since international trade in goods statistics only partly cover non cross-border trade, a few complementary sources are used in the National Accounts. The adjustments made to the Foreign trade in goods statistics are described below:

Adjustments for economic ownership instead of crossing border statistics:

- Merchanting is calculated yearly based on the Structural Business Statistics, SBS. The quarterly statistics are arrived at by using growth figures from the Foreign trade in services statistics.
- An addition is made for fish that is exported directly without crossing the Swedish border.

Goods sent abroad for processing:

- Goods sent abroad for processing are supposed to be recorded on a net basis in the national accounts but are recorded on a gross basis in the Foreign trade in goods statistics. In the annual accounts, this is adjusted for in the National Accounts and the quarterly estimates are calculated with the aid of growth figures.

Additional adjustments:

- Repairs are to be treated as goods in the National Accounts. Since Foreign trade in goods does not capture repairs, data from Foreign trade in services are used instead.
- Adjustment are made to include bunkering of fuel used in flight aviation and shipping.
- Adjustment are made regarding Swedish shipping companies' purchases abroad.

Certain CN[12] numbers in the trade in goods statistics are treated as services in the National Accounts and are therefore reclassified. The types of services in question are consultancy services for computer systems and software, architectural and technical consultancy services, miscellaneous other business services, film and video services and creative, literary and artistic services. Conversely, some services are classified as goods in the National Accounts and handled accordingly.

Another adjustment made in the National Accounts is that invoice values are used in the calculation of exports of goods and not statistical values (i.e. exports valued free on board). This approach also affects the calculation of trade in freight services, which are also expressed in invoice prices. The reason for shifting to invoice values is the difficulties involved in collecting data in a way that meets necessary requirements for valuing exports f.o.b. (free on board) and imports at c.i.f. (cost insurance and freight). Shifting to invoice values also allows for greater consistency with data on production, consumption and so forth. For Intrastat trade, export data is collected directly from invoice values. For Extrastat data, the information provided by Swedish Customs is transformed to invoice values. Because of this approach, a global f.o.b./f.o.b.-calculation, as stipulated in the ESA 2010 manual, is not carried out.

For trade in services, the estimates in the National Accounts are based on the trade in services survey and the complementary calculations that the Riksbank is responsible for. Data from the trade in service statistics are produced in current prices and calculations in constant prices are made by the National Accounts department. Since no specific indices are available for trade in services other indices have to be used instead. One third of the products are deflated with Service price indices (source 24) for the corresponding industry and one third are deflated by labour cost indices. The remaining third relies on indices for export and imports of goods and on Consumer price indices.

There are a few differences in the trade in services and goods according to the National Accounts and the Balance of Payments. These discrepancies are due to a different valuation of freights, under-coverage in the sources, the use of different sources and to adjustments made in the National Accounts. As mentioned above, shifting from statistical values to invoice values results in freight services being calculated at invoice values in the National Accounts while the statistical values are recorded in the Balance of Payments. Furthermore, some adjustments are made on transportation services e.g. data on exports of port and navigation services are calculated on the basis of statistics covering ships entering and leaving ports. This item is not covered in the survey on trade in services. Travel services are recorded gross in the National Accounts according to ESA but net in the Balance of Payments. Financial Services Indirectly Measured (FISIM) is included in both the National Accounts and the Balance of Payments but calculated in different ways.

[12] Combined Nomenclature

Chapter 6 GDP components: the income approach

GDP is allocated in the generation of income account between compensation of employees, taxes on production and imports minus subsidies, operating surplus and mixed income. The income approach is calculated on a total level and broken down by institutional sectors in the quarterly sector accounts. Compensation of employees is calculated by industries and published with the same breakdown as value added and hours worked.

6.1 Compensation of employees

For compensation of employees, estimates are carried out separately for total levels as well as for the separate industries and sectors.

The source for calculating Compensation of employees for the whole economy as well as for the business sector and NPISH is Aggregate gross pay, payroll taxes and preliminary tax statistics from employers' monthly tax returns (LAPS, source 19). For central government and local government the sources are the same as those used for calculating consumption. For central government, the source is the records kept by the Financial Management Authority (ESV) and for the local governments the information collected in the specific surveys is used along with LAPS.

For the central governments, direct values from ESV are used. For local governments, the last known yearly values are extrapolated using LAPS. However for the total economy, as well as for the business sector and NPISH, the source is used to extrapolate quarterly values from the previous year, with the trends formed in accordance with the source. The difference between the sector sums and the separate estimate of total wages and salaries are chiefly allocated to the business sector.

To scrutinize the estimates on wages and salaries as well as hours worked and number of employees, the implicit estimates of hourly wages and wages per employee are compared to estimates in the short-term statistics on wages and salaries. Inexplicable differences between the estimates are a basis for adjustment in the QNA estimates of wages and salaries, number of employees or number of hours worked.

Employers' social contributions are split into two components, social contributions compulsory by law and social contributions regulated by agreement. Calculations are made for the total levels, based on total payments and deposits within companies, as well as for the separate industries. The total sum of social contributions regulated by law is calculated on the basis of the amount of social contributions that has been paid to the government and social security sectors from all sectors. For social contributions by agreement, the total level is compiled using information on payments from employers to insurance companies and the allocations made within the companies.

Calculations for the separate industries are carried out using wages and salaries and the established percentage rates for social contributions by law and by agreement within the reference period. The same method is used for NPISH. For central and local government, information on actual payments is used after the deduction of

payroll taxes. The difference between the sector sums and the separate estimate of total social contributions is allocated to the business sector.

Payroll taxes are calculated in the same manner as social contributions. Total payroll taxes are based on the payments to the central government. For the separate industries the payroll taxes are calculated by applying the established rates for payroll taxes on the values for wages and salaries. For central and local government. payroll taxes are compiled using wages and salaries and the established percentage rates for payroll taxes.

6.2 Taxes less subsidies on production

The Swedish calculations for other taxes on production are based for the most part on the records kept by the Financial Management Authority, ESV (source 10) of the income of departments and agencies of central government by revenue headings that are entered monthly. Since the ESV's records are cash-based and inward payments to the revenue headings usually take place in arrears, period readjustments are made by ESV in order to obtain the accrued value. In practice, the incomes are shifted back in time, for example income items for February-January may instead be recorded as income for the fourth quarter. Subsidies are comprised both of subsidies paid by EU and by central government and local governments. As a result of the lack of reliable quarterly accrual information for some other items, redistribution between quarters is made. The calculation of subsidies are based on the Financial Management Authority (ESV) (source 10).

6.3 Gross operating surplus and mixed income

Gross operating surplus and mixed income (B.2g+B.3g) are balancing items that depend on the calculation of gross value added (B.1g), compensation of employees (D.1) and taxes on production and imports minus subsidies (D.2-D.3).

Chapter 7 Population and employment

7.1 Population

The population figures presented in the National Accounts are compiled by the Population statistics, which in turn, are based on the population registration administrated by the Tax Authority. The population in the QNA refers to the average between the beginning and the end of the reference quarter.

7.2 Employment: persons

Employment in the Swedish National Accounts refers to persons employed, no estimation of the number of jobs is compiled. Three sources are used on a quarterly basis, the Labour Force Survey (LFS, source 20), Short-term employment (KS, source 21), Short-term wages and salaries in the private and public sectors (KL, source 22). Direct estimates of levels are not made on a quarterly basis. Instead the method used is to extrapolate the level from the corresponding quarter of the previous year with the trends formed in accordance with the sources. When calculating employment, as well as hours worked, estimates are carried out independently for the total economy and for the separate industries and sectors. In a final step the estimates of the number of employees and the number of hours worked for market producers is adjusted in order for the sum of the industries and sectors to equal the estimates for the total economy.

In order to estimate the number of employed persons in the total economy, the number of employed persons aged 15-74 years according to Labour force survey is used. The QNA data is extrapolated using the growth rate from the corresponding quarters of the previous year in the LFS. In the LFS data used in the National Accounts, Swedish residents working abroad are excluded (one-year rule). Supplements for non-residents working in Sweden are only done on an annual basis. In the quarterly calculations, these are assumed to follow the same trend as the total economy.

To make more accurate estimates for detailed economic activities, enterprise surveys are used to calculate the number of employees. These surveys are Short-term employment, Wages and salaries in the private sector, Salaries in the Government sector and Salaries in the primary local authorities and county councils. Employed persons, as well as hours worked, is calculated separately for employees and self-employed persons with a breakdown of 68 industries. However, in the domestic release, covering 33 industries, no distinction is made between employees and self-employed persons. The reason for this is the poor quality in the detailed-level estimates of self-employed persons.

Self-employed persons are based on the LFS for the total as well as for the industry breakdown. There is a conceptual difference between self-employed persons according to the LFS and according to the National Accounts concerning self-employed persons working in their own corporation. In the National Accounts, persons working in their own corporation are regarded as employees and not as self-employed persons as they are in the LFS.

7.3 Employment: hours worked

The volume of hours worked, on both an annual and quarterly basis, is compiled together with the number of employed persons. The levels of the numbers of hours worked are not calculated directly on a quarterly basis, rather the extrapolation method is used. When calculating the number of employed, as well as the number of hours worked, estimates are carried out independently for the total economy and for the separate industries and sectors. In a final step the estimates for the numbers of hours worked by employees of market producers are adjusted in order for the sum of the industries and sectors to equal the estimates for the total economy.

The Labour force survey (LFS, source 20) is the source for estimating hours worked for the total economy. The trend used for extrapolation is the growth rate from the corresponding quarter of the previous year for employed persons 15-74 years. The treatment of hours worked for Swedish residents working abroad and non-residents working in Sweden is the same as for employed persons (see section 7.2).

In order to make more accurate estimates for detailed economic industries and sectors, hours worked according to the enterprise surveys Short-term wages and salaries in the private sector, Salaries in the Government sector and Salaries in the primary local authorities and county councils are used.

Two methods are used to calculate the volume of hours worked in the Swedish economy:

- Direct method, the total hours actually worked are estimated according to the trends of the number of hours worked according to LFS or the enterprise statistics.

- Accounts method, data on the number of employed persons are combined with average hours worked per employed according to the LFS or the enterprise surveys.

The direct method is used to estimate the numbers of hours worked by self-employed persons. The source data is the LFS for the total economy as well as for the industries. Reclassifications are made for hours worked by persons employed in their own company analogous with the treatment of number of self-employed persons.

When calculating the hours worked by employees in market producers per industry, the accounts method is used, combining estimates on the number of employees according to Short-term employment statistics (source 21) with actual working time per employee according to Short-term statistics, wages and salaries, private sector (source 22).

The accounts method is also used for estimates of total hours worked in the total general government sector. The number of employees in the general government sector are based on Salaries in the Government sector and Salaries in the primary local authorities and county councils. To estimate the volume of hours worked for total general government sector, the trend for quarterly working time according to LFS is used (volume of hours worked = number of employees x annual working time per employee). The subsectors are extrapolated using the direct method with Salaries in the Government sector and Salaries in the primary local authorities and county councils as sources. The subsectors are then adjusted to fit the estimate for the total general government sector.

The hours worked by employees in NPISH are estimated using national accounts estimates on the growth rate of the value added of NPISH.

Hours worked in the hidden economy are on a quarterly basis assumed to have the same development as the industry for which they are calculated.

The validity of employees and hours worked is verified by a direct method and an indirect method. The direct method is to compare the estimates from the different sources used in the calculations. The number of employed persons and hours worked are measured both by LFS and KL and number the of employees are also estimated in the Short-term employment statistics. The indirect method is to compare estimates of hourly wages and wages per employee according to the QNA with the survey estimates of wages, salaries and labour costs. There are, however, some conceptual differences between these estimates. For instance, wages in the national accounts are not on an accrual basis. Nevertheless the comparisons may indicate possible lacks of consistency between employees/hours worked and wages and salaries which may warrant further investigations and editing.

Chapter 8 Flash estimates

8.1 Flash GDP estimate

Statistics Sweden has published a flash estimate of GDP for the second quarter of every year since 1996. The publication takes place about 30 days after the end of the quarter. Both the production side and the expenditure side are calculated, and published in both constant and current prices. Compared to an ordinary quarterly publishing, the expenditure side of the flash report version is published at the same level of detail while production and employment are published on a somewhat more aggregated level. The flash estimates were launched on commission of the Swedish Ministry of Finance following a reorganisation of the budgetary year which implied that relevant national accounts figures were needed earlier in order to be used as a forecasting tool in the budgetary process.

The source data for the flash report calculations are less complete than those used in a regular, quarterly calculation. For areas covered by monthly statistics two of the quarter's three months are usually available for use in the flash estimate. This is the case, for example, for the data used to calculate production in the energy industry and for housing investments. The Production Value Index (source 4) used in the majority of the value added calculations for both the manufacturing and service industries, supplies source data for the two available months and, for the service industries, also a forecast of the quarter's third month. The flash estimate of Foreign Trade in Goods (source 17) is based on the ordinary goods-distributed foreign trade statistics for the first two months coupled with their flash statistics, based on a more limited survey, for the last month.

In those cases where the source data consists of quarterly statistics, the data used in the flash estimate have more imputed values than in an ordinary delivery. A prominent example is Foreign Trade in Services (source 18). The two main data sources (sources 15 and 16) for the calculation of changes in inventories are also quarterly surveys and the estimations available in the flash calculation is therefore limited.

Other areas have very little or no information available for the flash calculations, and in these cases the estimates are based largely on models and evaluations. Such is the case, for example, for the calculations of municipal consumption in current prices, and for production in forestry and in financial services. The primary data source for the estimation of gross fixed capital formation, (source 14), relies heavily on forecasts both in the flash estimate and in the ordinary calculation of the second quarter.

There is a three month Consumer Price Index (source 25) and a three month Producer Price Index (source 23) available for deflation into constant prices. The Service Production Price Index (source 24), however, is a quarterly survey and is replaced by a forecasting model in the flash estimate.

Section 3.2.1 outlined the principles guiding the balancing procedure of a regular QNA compilation. Due to differences in the data sources available, the guidelines do not apply to the flash estimate. Rather, the balancing of the flash QNA tends to favour the production side estimate although, when warranted, considerations are made to account for falling input coefficients in times of economic growth.

The flash estimate is, as mentioned, only calculated for the second quarter. About 40 days after the release of the flash estimate, an ordinary QNA compilation for the second quarter is published. Table 8.1 contains the size of the revisions for the years 2007-2017. The figures represent the difference between the flash estimate and the subsequent quarterly calculations (unadjusted volume change according to the flash estimate less unadjusted volume change in the ordinary quarterly calculations). Positive numbers imply that the flash estimate overestimated the development and negative numbers that the development was underestimated.

As can be seen, the size of the GDP revisions varies considerably over the years, with absolute values ranging from 0,0 to 1,0 percentage points. The absolute average for the 10-year period is 0,5 percentage points.

Table 8.1 Revisions to the flash estimate of the second quarter, 2007-2017

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Resources											
Value added market producers and producers for	0,2	0,6	-0,2	-1,3	0,5	0,9	0,9	-0,9	-0,6	-0,7	2
Value added central government and social authorities	0	-1,7	-0,8	-0,8	-0,2	-1	0,2	-0,8	-1,1	0,5	0,3
Value added local authorities	-0,2	-2,1	-0,9	-2	0,5	0,8	0,5	-1,2	1,1	0	-3,5
Value added NPISH	0,6	1	-0,2	0,8	0,2	0,1	2,7	3,7	0	-0,2	1,5
Imports of goods and services	0,3	1,4	0,9	-0,2	-0,2	0,8	-1,7	-0,1	0,7	-1,2	-3
Uses											
Household consumption	-0,2	0	-0,4	0,2	-0,9	0	-0,1	-0,3	-0,2	0,5	0,2
General government consumption	0	-1	-0,5	-2	-0,5	0,7	-0,2	-0,1	0,9	-1	-0,6
Gross fixed capital formation	-0,6	-0,3	0,1	-0,4	-2,2	-0,2	-0,1	-1,6	-1,9	-2,6	0,6
Changes in inventories (GDP contribution)	0,3	0,2	1,2	-0,6	0,9	0,4	0,2	-0,2	0,4	0,4	0,3
Exports of goods and services	0,4	1,3	-1,4	0,2	0,7	1,7	-0,9	0,2	-0,1	-1,3	-1,4
GDP	**0,1**	**0**	**-0,2**	**-1**	**0,4**	**1**	**0,5**	**-0,7**	**-0,3**	**-0,3**	**1**

8.2 Flash employment estimate

An estimate of hours worked and of persons employed is published along with the flash GDP estimate of the second quarter and at the same level of detail as in an ordinary release. Estimates of total persons employed and total hours worked are based on information for the entire quarter from the Labour Force Survey (source 20). The first two months of the Short-term statistics, wages and salaries, private sector (source 22) are available for the flash estimation.

Chapter 9 Main data sources used

Before listing the main sources used in the QNA, it is of value to offer a brief description of Statistics Sweden's Business Register (FDB) as the sampling frame provided by the FDB is of particular importance for the production of economic statistics. All statistics intended to provide information on the Swedish economy, regardless of level, call for coordination of definitions of units to be surveyed, industries, size categories etc. This in turn requires a register of high quality to serve as an instrument of coordination. The FDB register covers all Swedish enterprises, departments and agencies of government, organisations, their establishments and activity units. With the aid of the FDB, populations are demarcated depending on the coverage, industries and size groups needed for the specific statistical inquiry. The register also serves as a catalogue for name and address data for the enterprises, establishments and/or activity units to be covered by various inquiries.

Currently, the register consists of approximately 1.2 million enterprise units and 1.3 million establishments.

The production approach

Source 1: Crop production forecast for cereals and oilseed crops
Link to surveys undertaken at the European level :-
Type of source: Forecast on harvest.
Population and sample: Forecast
Periodicity: Annual, the forecast is made in August every year.
Time of availability of results: 15 days
Main variables used in QNA: Quantities and prices for the main crops
Further adjustments made to the survey data: -

Source 2: Animal products - Annual and Monthly Statistics
Link to surveys undertaken at the European level : -
Type of source: Administrative
Population and sample: Covers all slaughter-houses in Sweden
Periodicity: Monthly
Time of availability of results: 45 – 60 days
Main variables used in QNA: Quantities and prices for the main livestock groups, and for milk and eggs
Further adjustments made to the survey data: -

Source 3: Swedish sea-fisheries
Link to surveys undertaken at the European level : -
Type of source: Administrative
Population and sample: Covers all fisheries in Sweden
Periodicity: Monthly
Time of availability of results: 30 days
Main variables used in QNA: Quantities and values for the main species

Source 4: Production value index
Link to surveys undertaken at the European level: -
Type of source: Survey.
Population and sample: All non-financial enterprises within NACE 07-96, except 64-66 and 84, largely mirroring the populations from the *New orders and deliveries in industry* and the *Turnover statistics* for NACE 07-35 and 36-96 respectively.
Periodicity: Monthly.
Time of availability of results: 35 days.
Main variables used in QNA: Production indices, volume changes by industry.
Further adjustments made to the survey data: Adjustment for changes in inventories are made for NACE 07-35 to better reflect the production value rather than deliveries.

Source 5: New orders and deliveries in industry
Link to surveys undertaken at the European level :According to Council Regulation (EC) no 1165/98, concering short-term business statistics
Type of source: Survey
Population and sample: The population is all enterprise units with at least 10 employees in (NACE 10-40), the sample consists of 2100 enterprise units.
Periodicity: Monthly
Time of availability of results: 40 days
Main variables used in QNA: Production indices, value changes by industry (NACE 10-37)
Further adjustments made to the survey data: Adjustment for changes in inventories to better reflect the production value rather than deliveries. For industries with more substantial production of services, supplements are made.

Source 6: Monthly electricity statistics (also used for Household consumption)
Link to surveys undertaken at the European level :-
Type of source: Survey
Population and sample: The population is all establishments in NACE 10-37, electric network establishments, and railway traffic enterprises. Supply of electricity covers the whole population, and for the uses of electricity 1800 establishments are surveyed (all establishments with an annual exceeding 2000 MWh).
Periodicity: Monthly
Time of availability of results: 40 days
Main variables used in QNA: Quantities on MWh.
Further adjustments made to the survey data: -

Source 7: Turnover statistics (also used for Household consumption)
Link to surveys undertaken at the European level: Council Regulation No 1165/98 concerning short-term statistics
Type of source: Survey
The population is all non-financial enterprise units within NACE 36-96 except 64-66. The sample is about 7500 enterprise units.
Periodicity: Monthly
Time of availability of results: 45 days.
Main variables used in QNA: Turnover trends, value changes by industry
Further adjustments made to the survey data: -

Source 8: Financial corporations except insurance companies – quarterly financial data (also used for Household consumption)
Link to surveys undertaken at the European level:-
Type of source: Survey
Population and sample: The sampling frame used is the inspection register of the Financial Supervisory Authority. The statistics cover insurance companies and pension institutions, excluding pension foundation and benevolent societies. The inquiry is a full census.
Periodicity: Quarterly
Time of availability of results: 45-55 days
Main variables used in QNA:
Further adjustments made to the survey data: -

Source 9: Swedish insurance companies– quarterly financial data (also used for Household consumption)
Link to surveys undertaken at the European level:-
Type of source: Survey
Population and sample: The sampling frame used is the inspection register of the Financial Supervisory Authority. The statistics cover financial corporations- except insurance corporations. The inquiry is a full census.
Periodicity: Quarterly
Time of availability of results: 44-55 days
Main variables used in QNA: Data on administrative costs, premiums, provisions, claims and number of insurances.
Further adjustments made to the survey data: -

The expenditure approach

Source 10: Total activity of central government (also used for central government value added, wages, and salaries)
Link to surveys undertaken at the European level: -
Type of source: Administrative
Population and sample: Covers all the institutional units in the central government sector.
Periodicity: Quarterly
Time of availability of results: 45 days
Variables used for QNA: Income and expenditures
Further adjustments made to the data: -

Source 11: Quarterly survey on municipalities (also used for value added, wages and salaries in municipalities)
Link to surveys undertaken at the European level: -
Type of source: Survey
Population and sample: Covers about 84 out of 290 municipalities
Periodicity: Quarterly
Time of availability of results: 40 days
Main variables used in QNA: Income and expenditures
Further adjustments made to the survey data: -

Source 12: Quarterly survey on county councils (also used for value added, wages and salaries in county councils)
Link to surveys undertaken at the European level: -
Type of source: Survey
Population and sample: Covers all of the 18 county councils and the 2 regions
Periodicity: Quarterly
Time of availability of results: 40 days
Variables used for QNA: Income and expenditures
Further adjustments made to the data:-

Source 13: Statistical register for vehicles
Link to surveys undertaken at the European level: -
Type of source: Administrative, based on the Central Motor Vehicle Register of the National Road Administration.
Population and sample: The vehicles registered in the Central Motor Vehicle Register of the National Road Administration
Periodicity: Monthly
Time of availability of results: 30 days
Variables used for QNA: Changes in number of vehicles
Further adjustments made to the data: -

Source 14: The investment survey
Link to surveys undertaken at the European level: -
Type of source: Survey
Population and sample: The population covers all enterprises, except NACE 1-3, 49.32, 50, 53-56, 59-60, 66, 68.204, 69-70, 84-93. The sample includes all enterprises with more than 200 employees and enterprises with 20 to 199 employees are sampled. The sample is stratified to ensure sufficient coverage of all NACE sections. The survey has cut-offs for different NACE sections, varying between enterprises with less than 20, 10 or 5 employees.
Periodicity: Quarterly (3 quarters, 1st , 3rd, 4th)
Time of availability of results: 50 days (for internal use 45 days)
Main variables used in QNA: Changes in gross capital formation by industry and type of investment.
Further adjustments made to the survey data: -

Source 15: Industrial inventories
Link to surveys undertaken at the European level:-
Type of source: Survey
Population and sample: The population is 53000 enterprise units with at least 10 employees in (NACE 10-40). Sample of 1300 enterprise units.
Periodicity: Quarterly
Time of availability of results: 45 days
Main variables used in QNA: Stocks of inventories as well as changes in inventories in current prices as well as constant prices.
Further adjustments made to the survey data: -

Source 16: Quarterly survey on inventories in retail trade and wholesale trade
Link to surveys undertaken at the European level: -
Type of source: Survey
Population and sample: Covers 364 000 wholesale and retail trading enterprises. About 2 000 enterprises are surveyed.
Periodicity: Quarterly
Time of availability of results: About 45 days.
Main variables used in QNA: Stocks of inventories in current prices as well as constant prices.
Further adjustments made to the survey data: -

Source 17: Foreign trade - exports and imports of goods
Link to surveys undertaken at the European level: Intrastat - Council regulation (EEC) no 638/2004. - Commission Regulation (EEC) no 1982/2004 Extrastat - Council regulation (EEC) no 1172/95 - Commission Regulation (EEC) no 1917/2000
Type of source: Administrative and survey (custom data for Extrastat and survey for Intrastat).
Population and sample: Extrastat: For enterprises exporting and importing goods to and from countries outside the EU (third countries) data is derived from the export notifications and import declarations, which the enterprises supply to Swedish Customs in conjunction with the export and import of goods. Intrastat: Data is collected on a monthly basis from enterprises with imports of goods from other EU countries totalling a minimum of SEK 2 200 000 and/or with exports of goods to other EU countries totalling a minimum of SEK 4 500 000.
Periodicity: Monthly in current prices, quarterly in constant prices
Time of availability of results: 65 days in constant prices (preliminary data for internal use, 50 days)
Main variables used in QNA: Exports and imports on goods in current and constant prices.
Further adjustments made to the survey data: Invoice values are used in NA.

Source 18: Foreign trade in services statistics
Link to surveys undertaken at the European level: The regulation EC-184-2005 regarding the balance of payments.
Type of source: Surveys mainly
Population and sample: Population and sample: For the 2017 statistics, the sample framework was approximately 60 000 enterprises and the sample of approximately 6000 enterprise units.
Periodicity: Quarterly
Time of availability of results: 40 days after the reference quarter
Main variables used in QNA: Trade in services in current prices. Primary income to and from rest of the world, current transfers to and from rest of the world.
Further adjustments made to the survey data: Invoice values are used in NA

The income approach

Source 19: Aggregate gross pay, payroll taxes and preliminary tax statistics from employers' monthly tax returns (also used for value added in NPISH)
Link to surveys undertaken at the European level: -
Type of source: Administrative
Population and sample: Covers all employers that make payments of wages and salaries.
Periodicity: Quarterly
Time of availability of results: 50 days (for internal use 45 days)
Variables used for QNA: Wages and salaries
Further adjustments made to the data: -

Source 20: The labour force survey
Link to surveys undertaken at the European level: According the EU Regulation No 430/2005
Type of source: Survey
Population and sample: The target population in the Labour force survey is all persons with civil registration in Sweden who have reached the age of 15 but not 75, approx. 7 400 000 individuals. The survey is based on a sample of about 29 500 persons each month.
Periodicity: Monthly/Quarterly
Time of availability of results: Quarterly data after 40 days
Main variables used in QNA: Number of employees and self-employed by industry and by sector. Hours worked for employees and self-employed persons by industry and by sector.
Further adjustments made to the survey data: Self-employed persons that work in their own corporation are regarded as employees in the National Accounts and are specified separately in the delivered LFS data.

Source 21: Short-term empolyment statistics
Link to surveys undertaken at the European level: EU regulation (1165/98) concerning short-term employment statistics.
Type of source: Survey
Population and sample: The population includes all establishments in the private sector and NPISH and all organizations in the public sector with at least one employee in accordance with Statistics Sweden's Business register (FDB). The sample for the private sector comprises approx. 17800 establishments. The public sector is covered by a sample of 650 establishments and 900 establishments in NPISH.
Periodicity: The inquiry is conducted every month and published quarterly
Time of availability of results: 55 days
Main variables used in QNA: Changes in the number of employees by industry.
Further adjustments made to the survey data: -

Source 22: Short-term wages and salaries
Link to surveys undertaken at the European level: Council Regulation No 1165/98 concerning short-term statistics
Type of source: Survey
Population and sample: The population consists of enterprises with at least five employees. The sample in the 2018 survey was about 6000 enterprises.
Periodicity: Monthly
Time of availability of results: 60 days (preliminary results for internal use 45 days)
Main variables used in QNA: Number of employees, hours worked, hourly wages
Further adjustments made to the survey data: -

Prices

Source 23: Price indices in producer and import stages
Link to surveys undertaken at the European level: Council Regulation No 1165/98 concerning short-term statistics
Type of source: Survey
Population and sample: The population is all transactions concering sales from producers and purchases from importers of products in NACE A-E. Approximately 1200 producers/importers are surveyed reporting about 4000 quotes (1500 home sales, 1000 exports and 1400 imports).
Periodicity: Monthly
Time of availability of results: 25 days
Main variables used in QNA: Indices for producer prices, home sales; producer prices, export sales (export price index); producer prices, home sales and exports: import prices, and; domestic supply prices, home sales and imports.
Further adjustments made to the survey data: -

Source 24: Service price index
Link to surveys undertaken at the European level: Council Regulation No 1165/98 concerning short-term statistics
Type of source: Survey
Population and sample: Populationen is all transactions concering sales of certain services in service industries. 1000 enterprise units are surveyed reporting about 4000 quotes
Periodicity: Quarterly
Time of availability of results: 45 days
Main variables used in QNA: Service prices indices at detailed level
Further adjustments made to the survey data: -

Source 25: Consumer price index
Link to surveys undertaken at the European level: Harmonized Indices of Consumer Prices (HICPs) according to Article 121 of the Treaty of Amsterdam (109j of the Treaty on European Union).
Type of source: Survey
Population and sample: The population is all transactions concerning goods and services in the private domestic consumption.
Periodicity: Monthly
Time of availability of results: 15 days
Main variables used in QNA: Consumer price indices
Further adjustments made to the survey data: -