Quarterly National Accounts

Methods and sources of the quarterly and monthly national accounts compilations for Norway

In the series Reports, analyses and annotated statistical results are published from various surveys. Surveys include sample surveys, censuses and register-based surveys.

Symbols in tables	Symbol
Category not applicable	.
Data not available	..
Data not yet available	…
Not for publication	:
Nil	-
Less than 0.5 of unit employed	0
Less than 0.05 of unit employed	0.0
Provisional or preliminary figure	*
Break in the homogeneity of a vertical series	—
Break in the homogeneity of a horizontal series	|
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Preface

The structure of this document is written in accordance with the guidelines developed by the Statistical Office of the European Communities (Eurostat) in the document 'Guidelines for the drafting of QNA inventories' (Eurostat 2006). A common template for country-specific information is useful to ease comparison of national differences in methods and sources of the quarterly national accounts compilations. This document is intended for expert users as well as a broader audience.

Statistics Norway would like to thank Eurostat for awarding a grant to finance the project of writing this report.

Statistics Norway, 31 December 2018

Abstract

Statistics Norway started publishing the Monthly National Accounts on 11 September 2018, and this changed the way the Norwegian Quarterly National Accounts (QNA) were compiled. The objective of this document is to provide a transparent and explicit description of the sources and methods in use.

The document is divided into chapters containing detailed information on the compilation of the QNA. Chapter one serves as a quick summary of the document and contains the most essential information, which in turn is explained in more detail in the following chapters. Chapter two presents a publication timeline for relevant statistics released by the Division for National accounts, as well as revision- and co-ordination policy. Chapter three goes into detail on the overall compilation approach, including aspects such as balancing, benchmarking and seasonal adjustment methods. Chapter four to six deals with the calculation of gross domestic product from the three different approaches (production-, expenditure and income approach), while chapter seven explains the sources and methods of the integrated labour accounts. Chapter eight lists the source statistics used in the compilation of the Norwegian Monthly National Accounts (MNA) and QNA.

Due to the timing of the monthly and quarterly estimates (+/- 40 days after the reference period), flash estimates are not compiled. The proposed chapter eight about flash estimates in the Eurostat guidelines is therefore left out.
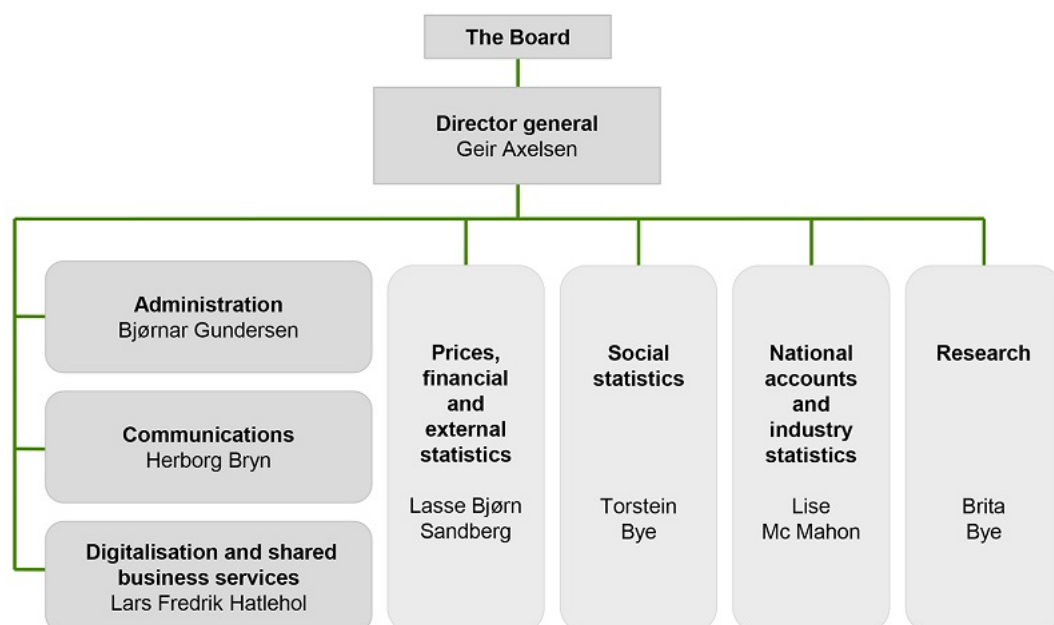
Contents

1. Overview of the system of quarterly national accounts

1.1 Organisation and institutional arrangements

The Norwegian Quarterly National Accounts (QNA) is compiled at Statistics Norway by the Division for National Accounts. Division for National Accounts is part of Department for National Accounts and Industry Statistics. Statistics Norway is an independent government institution placed under the Ministry of Finance and governed by the Board of Governors and the Director General. The Statistics Act of 1989 provides the legislative framework and guidelines, and the financial outline of Statistics Norway's production is set at any time by the Government and the National Assembly.

In addition, annual national accounts (ANA), annual and quarterly non-financial sector accounts (ASA and QSA), as well as the Balance of Payments (BoP) are compiled by the Division for National accounts. The division is also responsible for regional accounts and several satellite accounts, all harmonised with the core national accounts. The Division for Financial Account Statistics is responsible for the financial accounts, while the government accounts are compiled by the Division for Public Finance in close cooperation with the Division for National Accounts. GFS data are fully integrated in the ANA/QNA/ASA/QSA. The Division for Financial Account Statistics and Division for Public Finance are organised under Department for Prices, Financial and External statistics. In general, the majority of the input used in the compilation of the QNA is produced and published separately by other divisions in Statistics Norway.

From September 2018 Statistics Norway started publishing Monthly National Accounts (MNA). The first dissemination was 11th September 2018. This changed the way the Norwegian Quarterly National accounts are compiled, which will be further described in this inventory.

1.2 Publication timetable, revision policy and dissemination of QNA
Monthly figures are from 2016 the basis for the quarterly figures, which are calculated as the sum of three months. The Monthly National Accounts (MNA) are

published about 40 days after the end of the reference period. QNA are published four times each year, together with the last month of the quarter. The accounts for the first quarter of the current year are published in May, together with revised figures for the previous year. In August, QNA is benchmarked with final estimated ANA for year t-2, and all quarters for the year t-2 up to Q1 for the present year is reconciled and updated, see section 1.4. The first estimates for the second quarter are thus published together with the revised figures for the quarters for the past two years. In this publication, the results for year t-2 are considered final. In November, the first estimates for the third quarter are published together with revised figures for the first and second quarter. Finally, figures for the fourth quarter are published in February the following year, together with revised figures for the first, second and third quarter. The February estimates are used as the first preliminary estimated of ANA t-1 (calculated as the sum of quarter 1 to 4).

1.3 The QNA compilation approach
The Norwegian QNA are compiled mainly according to what is known as the *indirect approach* (ESA 2010 §12.08). That means that we use short-term indicators to extrapolate from the latest final annual estimates. However, it should be noted that sources similar to those in the Annual National Accounts (ANA) are incorporated if available. Examples where the direct approach is used is for government non-market production/consumption/expenditure, as well as for import and export of goods. In addition, all price information available for the ANA is also available and used in the QNA.

The Norwegian QNA (MNA) compilations rely on a range of short-term indicators, which are used to extrapolate the latest annual figures, and which are then automatically balanced in a supply and use model. This allows compiling fully balanced supply and use tables (SUT), both at current and constant prices. The structure of the supply and use model is based on the latest ANA, which means that all supply/use coefficients are estimates from the annual accounts. Thus, the QNA model is an aggregated version of the ANA. The coefficients are updated every year in August when the ANA for year t-2 are final and published.

The MNA and QNA are compiled at a detailed level for SUT consisting of about 80 industry groups, 39 groups for household final consumption expenditure and 120 product groups, and with cross classification of gross fixed capital formation for three to five asset types in each industry. The data is published at a more aggregate level, described in chapter 2.

1.4 Balancing, benchmarking and other reconciliation procedures
The MNA (QNA) are benchmarked to the final ANA in a way that best preserves the monthly pattern, achieved by applying a mathematical technique known as the proportional Denton method. The benchmarked monthly figures are further summed up to quarterly figures, both unadjusted and seasonally adjusted. Benchmarking of the monthly figures to the independently derived final annual estimates is necessary to assure consistency between the ANA, QNA and MNA.

The preliminary annual figures for years succeeding the latest final ANA is simply the sum of 12 months from the MNA (and thus four quarters). Hence, ANA, QNA and MNA are at all time fully consistent.

The three approaches to determining GDP are compiled simultaneously in the SUT-model. GDP is determined by combining the production and expenditure approach. For most industries the production/value added are estimated based on short-term production indicators, but for some parts (e.g. trade) information from the expenditure side is used to estimate production. Finally, changes in inventories/statistical discrepancies are compiled as a residual on the expenditure

side balancing the GDP, while operating surplus similarly are compiled as a residual in the income approach.

Figures for labour market variables are made as part of the integrated quarterly labour accounts and published at the same industry level as the rest of the QNA.

1.5 Volume estimates

In order to form volume time series, extrapolation techniques are used, see discussion in section 3.1.1. A large proportion of the production indicators are volume indicators, and thus the method will generate constant price estimates directly. The current price estimates are estimated by inflating the volume/constant price series with appropriate price indices. If value indicators are used, the current price estimates will be deflated. Since the method is based on extrapolation from the "base year" (latest version of ANA), the constant price estimates for the present month/quarter are additive in the base year's prices for all components.

For time series prior to the base year, the volume data is chain-linked using the annual overlap method.

1.6 Seasonal and calendar adjustment

The last step of the compilation of MNA/QNA is calendar- and seasonal adjustment, using X12-ARIMA. The monthly figures from the base year and onwards are adjusted by indirect seasonal adjustment at disaggregated level, and then summed up to quarters, covering both current and constant prices. Using the indirect method has the advantage that contribution from industries to GDP growth can be explained.

For series preceding the year prior to the base year, the seasonal factors are kept constant in order to avoid unnecessary revisions (see chapter 3.3.3). Furthermore, the series of gross value added are adjusted directly and not as the difference between production and intermediate consumption. Seasonally adjusted series are not benchmarked to the annual estimates. Meanwhile, the discrepancies between annual figures and the sum of months/quarters from the seasonal adjusted data are of minor magnitude and can be attributed to calendar effects.

The adjusted figures are balanced in the sense that changes in inventories/statistical discrepancies are treated as balancing items to assure consistent estimates of GDP. Working-day adjustment means calculating the MNA (and QNA) as if each period contained the same number of working days. Working-day adjusted series, as well as trend estimates, are not published separately but are made as part of the seasonal adjustment routine.

1.7 Additional information

The QNA (MNA) press release is focused mainly on q/q growth for seasonally adjusted volume figures and q/q contributions to growth. Tables with growth contributions are not published separately, but can be seen as part of the tables in constant prices. And as already noted, the methods ensure additivity in the base year's prices. Else, in the press release the focus is mainly on GDP mainland-Norway.

The MNA/QNA press release is published in Norwegian and English and is available at 08.00 am at: https://www.ssb.no/en/nasjonalregnskap-og-konjunkturer/statistikker/knr/maaned.

2. Publication timetable, revisions policy and dissemination of QNA

2.1 Release policy
Statistics Norway started publishing the Monthly National Accounts (MNA) on 11 September 2018. The monthly figures are, starting in 2016, the basis for the quarterly figures, which are calculated as the sum of three months. The monthly national accounts (MNA) are published about 40 days after the end of the reference period. The QNA are published four times each year, together with the last month in the quarter. This means that there may be deviations between the monthly and quarterly figures in the two months before the new quarter is calculated.

The national accounts data for a specific month, quarter or year are revised in accordance with an ordinary publication and revision cycle. In February, along with the first figures for the fourth quarter of year t-1, the three preceding quarters (or all months) can be revised if new information has become available. In May, all quarters (months) of year t-1 are in theory subject to revisions. It should be noted that new information is incorporated in the accounts on a current basis. In August, The QNA are published together with final annual figures for year t-2 from the ANA, updated preliminary annual data for t-1, and updates for all months due to the incorporation of ANA t-2 as the new benchmark year. In November, the first figures for the third quarter are published together with revised figures for the first and second quarter.

The table below shows the publication cycle for the quarterly and annual national accounts figures. In addition to what is stated in the table, monthly data will be published about 40 days after the end of the month. In May, year t (which coincides with the QNA for the first quarter), all months (including those in year t-1) can be revised. After May year t, only the monthly figures for the current year are subject to revision.

Table 2.1 Dissemination calendar related to quarterly and annual national account, from first to final estimates

Release date in:	1st quarter year t	2nd quarter year t	3rd quarter year t	4th quarter year t
May, year t	First preliminary version	Revised 3 for year t-1	Revised 2 for year t-1	Revised 1 for year t-1
August, year t	Revised 1 Revised 5 for year t-1 Final for year t-2	First preliminary version Revised 4 for year t-1 Final for year t-2	Revised 3 for year t-1 Final for year t-2	Revised 2 for year t-1 Final for year t-2
November, year t	Revised 2	Revised 1	First preliminary version	Revised 3 for year t-1
February, year t	Revised 3 for year t-1	Revised 2 for year t-1	Revised 1	First preliminary version for year t-1

The preliminary annual figures from year t-2 and onwards are given by the sum of 12 months, and thus the quarterly figures.

The QNA are fully consistent with the figures provided in the quarterly non-financial sector accounts (QSA), which are usually published 2-3 weeks after the corresponding QNA (approximately 65 days after the relevant quarter) and are subject to the same revision standards. The final annual sector accounts are published for year t-2 together with QSA in September, while preliminary annual non-financial sector accounts are published for year t-1 in the beginning of March, and the revised preliminary annual figures are provided at the end of May and in

August. BoP statistics are in Norway fully integrated with the national accounts. The quarterly BoP statistics are published at the same time as the QSA, approximately 65 days after the reference period, with imports and exports consistent with the QNA published about 2-3 weeks earlier.

In every QNA release a table with the magnitude of the revisions in the main aggregates for unadjusted and seasonally adjusted data for the last four quarters are provided, and more detailed information is supplied upon request. The revisions of the unadjusted monthly and quarterly account figures are mainly due to revisions in input data, which when initially incorporated in the MNA and QNA may have been rough estimates, or for some statistics, subject to routine revisions. For an overview of the main data sources used in the QNA release, see sections 4-6.

The publication dates of a year are announced in Statistics Norway release calendar already at the end of the preceding year, see Statistics Norway's on-line published release calendar at https://www.ssb.no/en/kalender. All releases by Statistics Norway are scheduled at 8 a.m.

2.2 Contents published
The MNA and QNA are compiled as fully balanced supply and use tables (SUT) and with the same level of detail. As is the case for the ANA, the MNA and QNA contain national aggregates and consist of supply and use tables at current and constant prices (volume figures). In addition, the MNA and QNA system also produces tables with seasonally adjusted figures. The accounting structure of the MNA and QNA is, however, more aggregated than in the final annual SUT. While the SUT in the final annual accounts consist of 155 industry groups and about 800 product groups, the SUT in the monthly and quarterly national accounts consist of about 80 industry groups and 120 product groups. Even though MNA and QNA consists of the same level of detail, only main aggregates are published monthly, i.e macro figures for GDP and final expenditures.

In addition, the monthly publication includes a table showing rolling three months estimates. Volume change in rolling three months is calculated by comparing a three-month period with the previous three-month, for example GDP in May to July compared with February to April. Furthermore, a quarter will be the sum of three months, i.e January-March will represent the first quarter.
The published level of breakdown in the QNA is more disaggregated than in the MNA, as described below.

The following data are available at Statistics Norway's StatBank when the QNA are released:

- Production and income generation accounts data (including output at basic prices, intermediate consumption and value added at basic prices) by industry (see table below)
- Final consumption expenditure of households by consumption group (COICOP top level) and durability
- Final consumption expenditure by local and central government (individual and collective consumption)
- Final consumption expenditure of NPISHs
- Gross fixed capital formation by asset type and industry
- Imports and exports of goods and services by product groups
- Fully integrated labour accounts including wages and salaries, compensation of employees, employed persons (employees and self-employed), full time equivalent employment and total hours worked, by industry

Data in both MNA and QNA are presented as current and constant prices, (both unadjusted and seasonally adjusted), as well as value-, volume- and price change, y/y and q/q (unadjusted and seasonally adjusted).

The publication of the QNA according to economic activity is done at a level comparable to classification A38 of the NACE Rev.2, with an added dimension of sector specific information for general government.

Table 2.2 Level of industry breakdown for contents published

Level of breakdown/Kind of activity	NACE Rev.2
Agriculture and forestry	01 + 02
Fishing and aquaculture	03
Mining and quarrying	05 + 07 + 08 + 09.9
Oil and gas extraction including services	06 + 09.1
¬ Oil and gas extraction	06
¬ Service activities incidental to oil and gas	09.1
Manufacturing	10-33
¬ Food products, beverages and tobacco	10 + 11 + 12
¬ Textiles, wearing apparel, leather	13 + 14 + 15
¬Manufacture of wood and wood products, except furniture	16 + 17
¬Manufacture of paper and paper products	17
¬ Printing and reproduction of recorded media	18
¬ Refined petroleum, chemical and pharmaceutical products	19 + 20 + 21
¬¬Manufacture of basic chemicals etc	20.1
¬ Rubber, plastic and mineral products	22 + 23
¬ Basic metals	24
¬ Machinery and other equipment n.e.c	25 + 26 + 27 + 28
¬ Building of ships, oil platforms and modules	29 + 30
¬ Furniture and other manufacturing n.e.c	31 + 32
¬ Repair and installation of machinery and equipment	33
Electricity, gas and steam	35
Water supply, sewerage, waste	36 + 37 + 38 + 39
Construction	41 + 42 + 43
Wholesale and retail trade, repair of motor vehicles	45 + 46 + 47
Transport via pipelines	49.5

Ocean transport	50.101 + 50.201+50.204
Other transport activities	49.1 + 49.2 + 49.3 + 49.4+ 50.102 + 50.109 + 50.202 + 50.203 + 50.3 + 50.4 + 51 + 52
Postal and courier activities	53
Accommodation and food service activities	55 + 56
Information and communication	58 + 59 + 60 + 61 + 62 + 63
Financial and insurance activities	64 + 65 + 66
Real estate activities	68.1 + 68.209 + 68.3
Imputed rents of owner-occupied dwellings	68.201 + own calculations
Professional, scientific and technical activities	69 + 70 + 71 + 72 + 73+ 74 + 75
Administrative and support service activities	77 + 78 + 79 + 80 + 81 +82
Public administration and defence	84
Education	85
Health and social work	96+87+88
Arts, entertainment and other service activities	90 + 91 + 92 + 93 + 94 +95 + 96 + 97+ 99
Mainland Norway	All industries with the exception of: 06 + 09.1 + 49.5 + 50.101 + 50.201 + 50.204
¬ General government	
¬¬ Central government	
¬¬¬ Civilian central government	
¬¬¬ Defence	
¬¬ Local government	

The latest versions of national accounts data can be found here:
https://www.ssb.no/en/nasjonalregnskap-og-konjunkturer/statistikker/knr/maaned

2.3 Special transmissions
QNA at the most detailed level are made available through secured government databases at the time of publication for the Ministry of Finance and Norges Bank (the central bank of Norway). The detailed series may be available for all users upon request. In addition, special calculations may be supplied for users on a service basis. Both unadjusted and seasonally adjusted data are transmitted to OECD and Eurostat at the time of publication, as well as aggregates to IMF (including preliminary estimates of the missing components in the BoP that are updated once the BoP is released about two weeks later).

2.4 Policy for metadata
Exhaustive information on concepts, sources and methods are available in the GNI Inventory for ESA2010 and provides a detailed description of the Norwegian National Accounts. Norway subscribes to the SDDS, which can be found at:
http://dsbb.imf.org/Pages/SDDS/CtyCtgList.aspx?ctycode=NOR

In addition, documentation papers on different issues will be made available at Statistic Norway's web site and can be found under the heading "About the statistics".

3. Overall QNA compilation approach

3.1 Overall compilation approach

Statistics Norway started publishing the Monthly National Accounts (MNA) on 11th September 2018. This changed the way the Norwegian Quarterly National accounts were compiled. The QNA compilation system was converted to monthly frequency with respect to input, system and output. Hence, MNA is made with the same level of detail as the QNA. This means that the quarterly data in QNA is now compiled as the sum of three months from the MNA, both for unadjusted and seasonally adjusted figures. However, unlike the QNA, MNA does not include labour accounts.

In the following we will describe the compilation of the quarterly national accounts in detail, which is based on a monthly system.

3.1.1 General architecture of the QNA system

The compilation of the Norwegian QNA falls under the heading of what is known in the national accounts literature as the *indirect approach*: an extrapolation of final annual figures by short-term indicators, in a balancing framework of supply and use tables (SUT). A supply table shows the supply of goods and services by product and by type of supplier, distinguishing between domestic producers and imports. A use table shows product by industry as intermediate consumption, final consumption expenditure, gross fixed capital formation, changes in inventories or exports. The QNA system applies the same definitions and principles as the final Annual National Accounts (ANA); however, while the SUT in the ANA are predominantly manually balanced for 155 industries and 800 categories of goods and services, the compilation of the QNA is considerably less resource-demanding as it utilises an automatic balancing procedure at a more aggregated level (80 industries and 120 product groups) every month. It must be underlined that the use of the SUT model ensures consistency in how price indices are used (prices related to production for domestic use, for exports, imports etc), which are important for the consistency throughout the system both at current and constant prices.

The three approaches to calculating GDP are consistent by definition (i.e. production, expenditure and income, see sections 4-6), providing a single definitive measure of GDP. The balancing model includes a commodity-flow balance (supply = use), a price input-output system and a set of equations for summaries and definitions. The supply/use coefficients are calculated from the supply and use tables from the base year. The balancing procedure is performed on unadjusted data, at the most detailed QNA/MNA product level. The QNA/MNA figures are preliminary until monthly figures are benchmarked to the final ANA for year t in year t+2 (i.e. year 2016 was final in August 2018). The supply/use model is updated annually with the final ANA data. Hence, the volume estimates from the base year and onwards are fixed price estimates. Preliminary ANA are simply the sum of 12 months, which is equal to the sum of four quarters of the QNA.

Monthly volume figures are subsequently added to chain-linked time series data (chain-linked using the annual overlap technique, see chapter 3.3.1) and finally seasonally-adjusted in both volume and value. The seasonally adjusted figures are consistent in the sense of providing a single estimate of GDP, see chapter 3.4 for details.

Essentially, there are nine stages of the quarterly/monthly national accounts compilation process, as shown in figure 3.1.1. In the indicator process, the short-term statistics are used to extrapolate the latest ANA figures to provide exogenous input to the supply/use model. The indicators used are presented in chapter 4-6. The general form of the simplest extrapolation technique is given by

$$X_{t,m} = k_{t,m} \times X_T \times \left(\frac{I_{t,m}}{\sum_m I_{T,m}} \right),$$

where X is the exogenous variable, I is the indicator, with subscript t for the current year, subscript m for month and subscript T indicates the base year (latest ANA). k is a correction term used to incorporate additional information to improve the estimate when such information is available, or when deviations from the source statistics is considered necessary. Indicators may be in weekly, monthly, quarterly etc. intervals, which require a conversion to months. Hence, the value of X from the latest ANA is extrapolated by the growth in the monthly indicator, with the possibility of manual correction. Several indicators may be used so that, for instance, the production of a given industry may be assigned different short-term indicators for different parts of the product composition.

Figure 3.1.1 The QNA compilation process
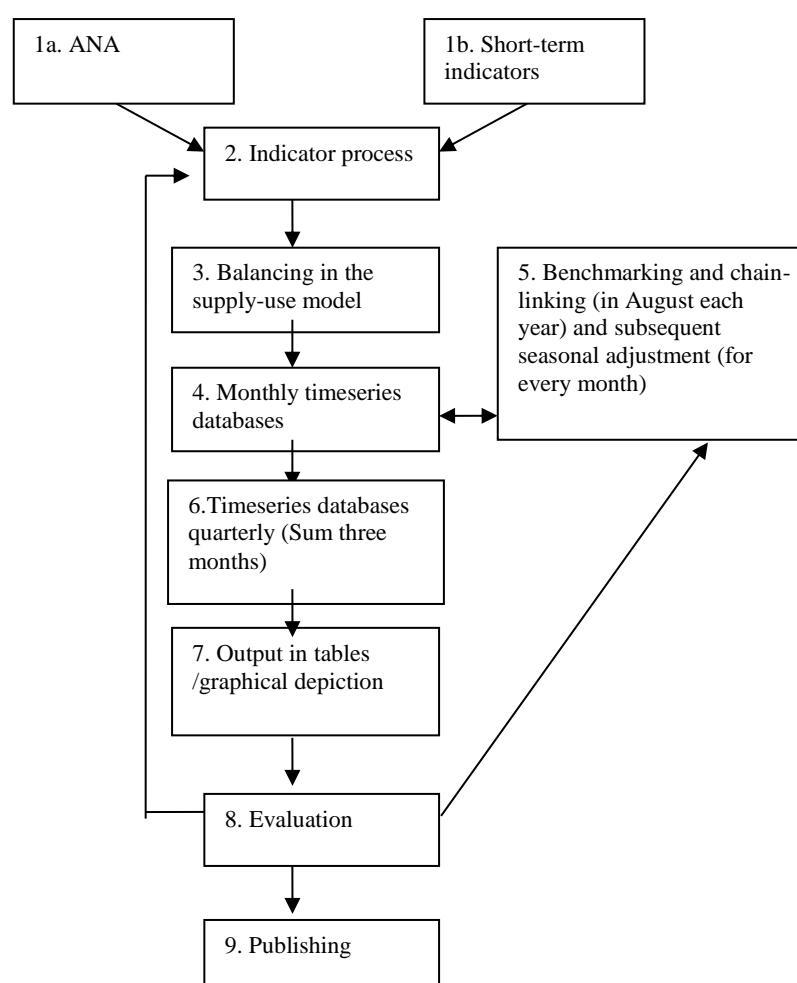
The SUT are compiled simultaneously for current and constant prices in the model programmed in a Massachusetts Institute of Technology developed computer package called 'Portable TROLL (Timeshared Reactive OnLine Laboratory)'. The

input data used in TROLL is an aggregated version of the latest ANA, supplied in the form of lists, matrices and vectors (from SAS) into TROLL, which is used as a tool to generate equations and to simulate the supply-use model. TROLL has an interface to FAME (Forecasting Analysis and Modelling Environment, a software optimised for handling time series data) where the indicator process, short-term statistics and input data are stored. The supply-use model with base year 2016 consists of 15,599 equations that define 5,256 endogenous variables and 10,343 variables and balancing items calculated from summaries and definitions (based on the structure of the latest final ANA). The model is feed with 2,917 exogenous variables composed of detailed price indices or constant/current price estimates compiled by using short-term statistics (process 2 in the chart). Process 1-4 in the figure above describes how the monthly unadjusted figures are estimated.

After estimating the exogenous variables using the short-term indicators and updating all price information (indicator process 2), the supply-use model takes only a few minutes to finish the full balancing of the accounts in constant and current prices. The monthly results are summed up to quarters and stored in time series databases (box 4 and 6 in figure above), which, among other things, provides the basis for different sets of tables (box 7). The unadjusted monthly figures are seasonally- and calendar adjusted (box 5) using X12-ARIMA (see chapter 3.4) and then summed up to quarterly seasonally adjusted figures.

There are several sets of tables (unadjusted and seasonally-adjusted monthly and quarterly figures) that can be divided into sets for in-house checks and analysis of data, and more aggregated sets of data for publishing. These, alongside the graphical tools of FAME useful for inspecting time series, are used to analyse the results, first at the industry level in close cooperation with the different statistical divisions delivering input, and then at the macroeconomic level in cooperation with the macroeconomic research group who uses the QNA as input in their macroeconomic projections model (KVARTS). The supply-use model and the corresponding listing of tables needs on average to run at least three times for a satisfactory result to be achieved (primary data may need to be adjusted, some input may be lacking or have been wrongly updated in the indicator process, some time is needed to examine the results, etc.), but the results in terms of estimating GDP from the three approaches (production-, expenditure and income, see chapters 4-6) are always consistent by definition.

In any given quarter, from the start up of the QNA/MNA process to the date of release date, it takes approximately two weeks of work by a team consisting of six-staff members. For the monthly process, two teams consisting of three people, rotate in the compilation of the first two months of the quarter. This work takes about a week (not full time). The MNA and QNA compilations also include preliminary annual estimates which show that the automatic procedures and the organisation of the QNA/MNA compilations are highly efficient.

3.2 Balancing, benchmarking and other reconciliation procedures

3.2.1 Quarterly GDP balancing procedure
The supply-use model programmed in TROLL includes commodity-flow balances, an input-output system for prices and a set of equations for summaries, balancing items and definitions. The supply and use coefficients are calculated from the SUT in the latest ANA and updated every year in August when the ANA for year t-2 are final and published. The variables calculated from the monthly indicator compilations in FAME are transferred to model as exogenous variables.

The main exogenous variables in the supply and use model are:

- Output in constant prices measured in basic value by industry
- Final consumption expenditure of households in constant prices measured at purchasers' value by consumption group
- CPI by consumption groups
- Capital formation in current prices (and to a lesser extent in constant prices) at purchasers' value by industry and asset type
- Imports in constant and current prices in CIF (cost-insured freight) value by product;
- Exports in constant and current prices in FOB (free on board) value by product
- Intermediate consumption in current prices in central and local government
- Compensation of employees in central and local government
- Consumption of fixed capital in current prices in central and local government
- Taxes and subsidies on products by asset type, VAT
- Producer price indices for domestic output delivered to the home market by product

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In addition to these, all variables from the labour accounts are exogenous, except social contributions which are defined in the model as the difference between compensation of employees and wages and salaries.

These exogenous variables are calculated in the indicator process (box 2 in figure 3.1.1), in most cases with the simple extrapolation technique described above. In the case of missing indicator data, an estimate is either calculated as a weighted average of past growth rates or other statistical techniques, depending on the available additional information. All indicator formulae contain a correction term, which is used on the basis of other information, knowledge of the fit of the indicator, etc. The following items in constant and current prices are endogenous and compiled in the supply-use model:

- Intermediate consumption is estimated using fixed coefficients from the base year. Both current and constant prices are estimated in the model. An exception is general government; information is available and thus exogenous input.
- Value added tax (VAT) is estimated in in the model based on information on tax rules related to the different expenditure items. The estimated value is controlled and reconciled with the exogenous VAT-input from government accounts.
- Changes in inventories
- Consumption of fixed capital
- Output in the industry Wholesale and retail trade, based on information from the expenditure side and fixed coefficients.

Intermediate consumption for most industries at constant prices (the total except FISIM[1]) is assumed to be a fixed proportion of total output for the relevant industry. The distribution of intermediate consumption (except FISIM) of different products at constant prices is also assumed to be the same as in the base year. The

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[1] FISIM = Financial Intermediation Services Indirectly Measured

industries' use of FISIM as intermediate consumption is extrapolated with the growth in total output of FISIM services. The underlying assumption is constant FISIM shares of total FISIM output.

Output in the retail and wholesale trade activities in constant prices is compiled from the use side, based on coefficients from the annual SUT (meaning fixed trade margins).

Changes in inventories are residuals in the commodity-flow balance Consumption of fixed capital in constant prices, needed to estimate output and value added in non-market activities, as well as the net fixed capital formation etc, are calculated according to the perpetual inventory method (PIM) with geometric depreciation rates. This is similar to the PIM in the ANA.

To compile balanced SUT at current prices we need price indices on all supply and use categories. The deflation and inflation process then use the assumption that the structure of the production and use of the relevant products are equal to the base year (fixed coefficients). Each product is subject to three different price indices, one producers price index for domestic output delivered to the home market, a second for imports and a third for exports. Thus, the producer price index (PPI) for an industry's total output is a weighted average of the price indices for the home and export market (as indicated in the PPI). Similarly, the price indices of a gross fixed capital formation asset will be a weighted average of the PPI for domestic use and imports depending on the structure from the base year.

We have explicit product information only for exports and imports. For output and intermediate consumption totals are calculated for each industry based on fixed structure from the base year, consumption is divided into consumption groups and investments by industry and asset type. Output is measured in basic value, while uses are measured in purchasers' value and imports in CIF-value. All products are balanced in basic values, by using coefficients (product shares and tax/duty rates) from the latest ANA for the expenditure side. The commodity flow balance in basic value for product i is expressed as:

$$\lambda_{Ii} \times I_i + \sum_j \lambda_{xij} \times X_j$$
$$= \sum_j \lambda_{Mij} \times M_j + \sum_j \lambda_{Cij} \times C_j + \sum_k \lambda_{Jik} \times J_k + \lambda_{Ai} \times A_i + DS_i$$

λ_{Ii} =Coefficient expressing imports in basic value in relations to the CIF-value (IB_i / I_i)

I_i = Imports, CIF-value, product i

λ_{xij} = Output-coefficient expressing output of product i, industry j, in basic value as a share of total output in industry j in basic value (X_{ij} / X_j)

X_j = Output, basic value, industry j

λ_{Mij} = Input-coefficient. Intermediate consumption of product i, industry j, in basic value as a share of total intermediate consumption in industry j in purchasers' value (MB_{ij} / M_j)

M_j = Intermediate consumption (excluding electricity, heating- and transport oil), purchasers' value, industry j

λ_{Cij} =Input-coefficient. Consumption of product i, consumption group j, in basic value as a share of total consumption in group j in purchasers' value (CB_{ij} / C_j)

C_j = Private consumption, purchasers' value, consumption group j

λ_{Jik} = Input-coefficient. Capital formation of product i, asset k, in basic value as a share of total capital formation of asset k in purchasers' value excluding VAT (JB_{ik} / J_k)

J_k = Fixed capital formation, purchasers' value excluding VAT, asset k

λ_{Ai} = Input-coefficient. Exports in basic value as a share of FOB-value (AB_i / A_i)

A_i = Exports, purchasers' value (FOB), product i

DS_i = Changes in inventories/statistical discrepancies, basic value, goods and services i

The item changes in inventories is estimated as a balancing item for goods and services respectively, and includes thus statistical discrepancies.

To balance the GDP in current prices from the income approach, consumption of fixed capital in current prices is estimated by PIM (see above), compensation of employees is estimated in the quarterly labour accounts, and other taxes and subsidies on production are taken from government accounts and distributed by industry. Operating surplus is a residual, used as a balancing item.

Thus, the balancing of the SUT yields identical results for the three approaches to GDP, but compilation of GDP in the QNA/MNA in Norway is based on a combination of the production and expenditure approach, as described in section 1.4. The residuals are interpreted, and assessments are made based on the economic sense and meaningfulness of these components.

The seasonal seasonally adjusted figures are balanced in the sense that the different approaches to GDP yield the same result. This is achieved by seasonally adjusting the different components at the same level as the published unadjusted figures, with the exception of the residual changes in inventories/statistical discrepancies, which are used as a balancing item. For more information on the seasonal adjustment routines, see chapter 3.4.

Tables and graphical depictions of the time series are compiled for every component of supply and use at the most detailed level every time the model is run, and tables are distributed for checks both internally in the Division for National Accounts as well as to other divisions (suppliers of basic data). National accountants focus on the plausibility of the price and volume changes in the indicators with support from the primary data suppliers, with continuous editing throughout the compilation period due to updated data, additional information, knowledge of the direction of revisions in indicators and checks of the plausibility of estimates in connection with other variables (e.g. operating surplus, wage quotas), etc. Meetings are held with the different statistical divisions, with a final meeting held with the Research Department in which the emphasis is on the macroeconomic result (mainly seasonally-adjusted volume figures) both at present and over time, as well as any peculiarities at a detailed level.

3.2.2 Benchmarking of QNA and ANA
Preliminary annual national accounts are simply the sum of 12 months (and thus four quarters). The final ANA are compiled in greater detail, with final and more reliable information available. To assure consistency and improve the quality of the monthly and quarterly figures, the MNA is benchmarked against the final ANA every year t in August when year t-2 is final. The benchmarked monthly figures are further summed up to quarterly figures, both unadjusted and seasonally adjusted. The benchmarking is done by implementing the new annual figures while at the same time preserving the monthly pattern and avoiding breaks from the twelfth month of one year to the first month of the next, achieved by applying a mathematical technique known as the proportional Denton method.

For optimal movement preservation there are several different Denton methods to choose from, the one chosen in the Norwegian QNA compilations is the Min M4 version. It is a method that *minimises the sum of the squared differences in the relative adjustments from one month to the next*, given that the sum of the months of flow series should add up to the annual data. The main method (Min M4), subject to the restrictions, is the solution to the minimisation of the expression:

$$\sum_{i=1}^{n}\left[\Delta\left((Y_i - X_i)/X_i\right)\right]^2 = \sum_{i=1}^{n}\left[Y_i/X_i - Y_{i-1}/X_{i-1}\right]^2 ,$$

where Y is the adjusted monthly value and X the original. For certain series, where the least-square based methods yield unsatisfactory results, simple pro rata adjustments are used instead. The benchmarking procedure involves MNA time-series for two years at the time.

Seasonal- and calendar adjustment is the last step and applied to the benchmarked (and chain-linked) monthly series, with no restriction to sum up to the annual figures (i.e. not benchmarked to the unadjusted annual figures). The new and benchmarked seasonally adjusted quarterly figures are the sum of three months. Balanced seasonal adjusted data within each month and quarter is achieved by using the residuals as balancing items. This implies that the adjusted data is balanced in the sense of providing a single estimate of GDP, see chapter 3.4.

3.2.3 Other reconciliations of QNA different from balancing and benchmarking
The labour accounts are compiled only on a quarterly basis and are an integrated part of the QNA. No checks need to be implemented to assure consistency between the different parts. Plausibility checks are also in order and are performed by national accountants involved in the compilations in cooperation with the divisions supplying the basic data.

The relevant QNA results are adopted in the quarterly and preliminary annual non-financial accounts. Imports and exports of goods and services in the QNA and the successive release of the BoP are also fully consistent. The result of these procedures is a consistent set of accounts in QNA, QSA and Labour accounts.

3.2.4 Amount of estimation in various releases
Estimates for a given quarter, aside from revisions in preceding months and quarters when a new quarter is calculated, are only published once. Due to the timeliness of the monthly and quarterly estimates (+/- 40 days after reference period), flash estimates are not compiled.

3.3 Volume estimates

3.3.1 General volume policy
As we have described, the supply and use tables are calculated in current and constant prices. Current prices refer to the prices of the current quarter, while constant prices refer to the average prices of the base year. An updated reference year is introduced every year in chained linked indices, and where the reference year/base year is the final ANA. The supply-use model is compiled every month on the basis of the latest ANA, and preliminary ANA are the sum of the 12 months (and thus four quarters), with no adjustments made for changes in relative prices

from the base year. Hence, the monthly and quarterly figures from the base year and onwards are calculated with a fixed-base period.

This is not the recommended approach; it is normally expected that constant price estimates have higher quality if calculated in the prices of the previous year. This will give the more updated weights for volume aggregates. However, the gain to be made from updating to relative t-1 prices for the preliminary estimates has been found to not outweigh the cost of establishing new weights. In addition, the advantage of additivity of fixed price estimates is considered desirable by our domestic users. Revisions indicate that the changes in relative prices are small and do not significantly impact the main aggregates, with the possible exception of oil- and gas extraction. It should be noted that fluctuations here could easily also affect weights significantly in a much shorter time, hence the optimal weight period could shift from quarter to quarter.

Data for constant prices are created either in the indicator system or in the supply-use model, by deflating variables in current prices with relevant price indices at the most detailed level, or by inflating variables at constant price series with the relevant price indices. Series in constant prices are Laspeyres volume indices, while the corresponding prices are Paasche price indices.

The Paasche price index is given by

$$P^{FB}{}_{m,t} = \frac{\sum_{i=1}^{n} p_i^{m,t} q_i^{m,t}}{\sum_{i=1}^{n} p_i^{0} q_i^{m,t}}$$

where p_i^0 is the quantity-weighted annual average (arithmetic) price of the ith product of n products in each quarter of period 0, and $q_i^{q.t}$ and $p_i^{q.t}$ is the quantity and price of item i in quarter q in year t.

The Laspeyres volume index is given by

$$L^{FB}{}_{m,t} = \frac{\sum_{i=1}^{n} p_i^{0} q_i^{m,t}}{\sum_{i=1}^{n} p_i^{0} q_i^{0}}$$

where

p_i^0 and q_i^0 are quantity-weighted annual average price and average quantities of the ith product of n products in the quarters of period 0. The denominator expresses the price value at period 0 and the numerator the value in quarter q in year t in prices of period 0. Note that in a fixed-base Laspeyres index the weight period coincides with the base period. Applying this technique to a SUT framework is convenient since balancing at constant and current prices lends itself to construction of Laspeyres type volume indices.

With a fixed-base period, figures are additive. Chain-linked series, on the other hand, implies not having a fixed base (or weight) period, but chaining together developments measured in figures with different base periods. The purpose of chain-linked volume measures is to take into account the difference in relative prices from period to period, which means that chain-linked series do not satisfy any additivity constraint.

There are several ways to chain-link monthly data; the technique chosen in the Norwegian National accounts is the annual overlap method, where there is no need to further adjust the resulting monthly and quarterly figures to the annual figures with benchmarking. When using annual overlap, the monthly estimates are compiled with the weighted annual average prices of the previous year; subsequently, the monthly volume indices with different base and reference year are linked using the corresponding annual indices to scale the monthly data up or down. This ensures that the figures will be equal to the independently derived annual chain-linked data. The short-term link in an annually chain-linked quarterly index:

$$L_{m,t} = \frac{\sum_{i=1}^{n} p_i^{t-1} q_i^{m,t}}{\sum_{i=1}^{n} p_i^{t-1} q_i^{t-1}}$$

p_i^{t-1} is the quantity-weighted average of the price of product i in the months of year t-1, and q_i^{t-1} the average quantity of product i in period t-1, measuring the volume change from the average of year t-1 to month m in year t.

MNA and QNA volume figures are published (in monetary terms) with reference period equal to the latest ANA (which, as already noted, is also the base year for the periods following the latest final ANA). Although additivity does not apply for figures in the time series preceding the base year, focus is always on the latest periods in the QNA release (which has a fixed-base period), and the lack of additivity is made clear in a footnote in all relevant time series available online.

Contributions to growth in quarter q from component xi in the aggregate X, in year t from the previous quarter in year t, in a fixed-base volume series is calculated simply as

$$\text{Contribution}(x_i, X)_{FB}^q = \frac{\left(x_i^{q,t} - x_i^{q-1.t}\right)}{X^{q-1,t}}.$$

$$\text{Contribution}(x_i, X)_{FB}^q = \frac{\left(x_i^{q,t} - x_i^{q-1.t}\right)}{X^{q-1,t}}$$

The chain-linked *annual* volume figures are published with reference year based on Eurostat recommendations, which is 2005. Also, as already mentioned, the annual figures for the years succeeding the base year are simply the sum of 12 months.

3.3.2 Chain-linking and benchmarking
Monthly series in both constant and current prices are benchmarked to final annual national accounts; the annual overlap method described above assures that chain-linked monthly and quarterly volume series will have the same annual value as the chain-linked ANA series so that no further benchmarking is necessary.

3.3.3 Chain-linking and seasonal adjustment
Seasonal adjustment (henceforth, the term 'seasonal adjustment will refer to both calendar and seasonal adjustment) is the last step of the compilation process when benchmarking and subsequently chain-linking. Consequently, seasonally adjusted series are only showed for chained figures. Since the same chaining-policy applies to seasonally adjusted series, a fixed base period applies to the volume series from the latest ANA year. The figures are adjusted by indirect seasonal adjustment; i.e.

the aggregate is a sum of its components for this period and hence additivity is present from the base year and onwards.

After the implementation of the main revision in 2011, an effort was made to limit the amount of revisions in seasonally adjusted time series for periods preceding the base year. This was done by seasonally adjusting the aggregates directly from 1978 to the year before the base year, but by using seasonal factors from the "old" series in order to avoid a new pattern in the new series. The seasonal adjustment factors for the aggregates are thus kept constant from the base year (Rodriquez 2012).

3.4 Seasonal and calendar adjustment

3.4.1 Policy for seasonal adjustment
Monthly and quarterly data is often subject to calendar and seasonal variations due to events such as seasonal climate conditions, the placement of Easter and other holidays, etc. To ease quarter-to-quarter comparability, a process of calendar and seasonal adjustments is needed to interpret the underlying economic activity. The seasonal adjustment tool in use is the US Bureau of Census developed X-12-ARIMA.

Several hundreds of monthly series are seasonally adjusted every month, first at a disaggregated level and then summed up to quarters and the main aggregates (indirect approach) in current and constant prices for figures dating back to the base year (e.g. from Q1 2016 for quarters estimated with base year 2016). For all months and quarters *succeeding* the base year we have figures that are additive. Chaining applies to all months and quarters *prior* to the base year, and thus additivity is lost. For series preceding the year prior to the base year, the seasonal factors are kept constant. Furthermore, the series of gross value added are adjusted directly and not as the difference between production and intermediate consumption. Household final consumption expenditure on goods are adjusted by applying the seasonal factors that are estimated for the monthly index of household consumption of goods (see chapter 5.1 for details).

Calendar adjustments are performed on all series showing significant and plausible calendar effects using the Norwegian calendar. Outliers are detected automatically and removed before seasonal adjustment is carried out and then reintroduced into the seasonally adjusted data. Model selection (and filters, outliers and regression parameters) is primarily automatic and continuous (concurrent adjustment). A manual decomposition scheme is adopted, based on a graphical inspection of the series, where additive decomposition is used for series with negative values, otherwise multiplicative. Seasonally adjusted series are not required to sum up to the annual unadjusted data. However, supply equals use also in seasonally-adjusted figures; changes in stocks/statistical discrepancies are treated as residuals (balancing items). For quality measures of the seasonal adjustment and an up-to-date evaluation and summary of the indicators, please see paragraph 5.2, under the heading 'On seasonal adjustment of the quarterly national accounts' accompanying the QNA press release (http://www.ssb.no/a/english/kortnavn/knr_en/sesongjustering_en.html).

It is worth noting that the focus is on constant price figures in the seasonally adjusted data. The seasonally adjusted data is released at the same time as the unadjusted data. The QNA press release is almost entirely devoted to q/q growth and contributions to q/q growth from seasonally adjusted constant price figures, but both unadjusted and seasonally adjusted constant and current price estimates, as well as price indices, for contents described under chapter 2.2, are made available. Also, seasonally adjusted monthly growth figure is described in the press release.

Data is available in html and csv tables, as well as exhaustive time series for all variables in Statistics Norway's StatBank. Also note that the *annual* figures presented in the tables alongside seasonally- and calendar adjusted figures are unadjusted figures. Although consistency between unadjusted and adjusted annual data is not imposed, they are presented as such to ease public dissemination. The discrepancies between unadjusted and adjusted annual figures are of minor magnitude and can be attributed to calendar effects.

3.4.2 Policy for calendar adjustment
Working-day adjustment consists of calculating the QNA as if each quarter contained the same number of working days. Working-day adjusted series, as well as trend estimates, are not published separately, but are made as part of the seasonal adjustment routine.

3.4.3 Revision policy for seasonally adjusted data
When a new base year is established, we use identical seasonal adjustment factors as before, which means that changes in the seasonally adjusted data are only due to changes in the unadjusted data. The seasonal adjusted time series are thus kept constant for this period. Information from the entire period of the time series is used to estimate seasonal adjustment factors, but this information is only used on the series starting with the first month and subsequently quarter of the base year. As a result of this method, seasonally-adjusted figures are revised back to the base year for each MNA and QNA release.

4. GDP components: the production approach

Gross domestic product (GDP)
GDP is an indicator for total value added in a country and is also an expression for gross income generated from domestic production. GDP is measured in market prices and is defined and compiled from three different approaches.

In this chapter, the production approach is covered, where GDP is calculated as:
GDP = Output (basic price) - Intermediate consumption (purchaser price) + Taxes on products - Subsidies on products
= Total value added (basic price) + Taxes on products - Subsidies on products

There are no residual items in the GDP calculations from the production approach, except that part of value added is based on estimations from the expenditure side. From this follows that the GDP estimate is compiled through careful evaluation of components in all approaches, and through a reconciliation of estimates in the production and expenditure approach in particular. The GDP estimates are consistent by definition in the MNA and QNA system.

4.1 Gross value added, including industry breakdowns
Since the launch of the Monthly National Accounts, the QNA has been compiled by summing up monthly figures. Monthly indices are used for the preparation of monthly national accounts, such as the production index for oil, mining and industry, the retail turnover index and price indices, which will be described in the next chapter. Meanwhile, 'A-ordningen' (See chapter 7 for more details) is one of the main sources in the MNA, and the introduction of this data source largely enabled the realisation of MNA. For some industries where there are no explicit monthly production indicators, monthly information from 'A-ordningen' is obtained. A working time measure based on number of jobs, reported overtime, absence and working days is introduced as an indicator of production in several industries. This variable (I) is divided in several components:

$$I_{t,m} = lwa_t + lwo_t - lwf_t$$
$$lwa = lwa_T * jobs_t * karb_t$$
$$karb_t = work - vac$$

lwa = Agreed working hours
lwo = Overtime hours
lwf = Absence hours
$work$ = Working days
vac = Vacation days

Agreed working hours in an industry are developed with the growth in the number of jobs and a calculated working time indicator.

Overtime hours are deduced on the basis of employer's stated overtime pay to the 'A-ordningen', while the absence rate is deduced on the basis of employer's stated refunds from the Norwegian Labour and Welfare Administration (NAV).

The number of working days is the number of weekdays minus red days. For industries where people work beyond the working days, a shift job variable is added. There are 24 holidays in each year. These are mainly added to July. There are also holiday days for school winter holidays, Easter, school autumn holidays, and Christmas.

A correction factor can be used to include other information. By the end of the year, we will have access to more detailed statistics that may be incorporated into the model.

A broad description of source statistics and methods by industry breakdown is provided below, distinguishing between market and non-market producers. Secondary sources, where applicable, used in evaluation of an industry, are also described.

4.1.1 Market producing industries
Value added in market producing industries is calculated as output (basic prices) less intermediate consumption (purchasers' prices).

Output in constant prices is largely calculated by extrapolating the latest final ANA value with the growth rate of the corresponding volume indicator from short-term statistics, or value indicator deflated by a suitable price index to produce volume figures (or weighted growth rate of several indicators), as described in section 3.1.1. The preliminary QNA figures are always compared with the final results of the ANA to give an indication of the quality of the indicator. Correction factors are used when other information available of the development in a variable contradicts the indicator, i.e the person in charge of the short-term statistics behind the indicator has information that justifies deviations from the statistics, either due to lack of sufficient data or suspected wrongful raw data at time of QNA compilations. Close cooperation with the different units producing source statistics is important trait of the Norwegian QNA compilation process. Also, following the introduction of the Monthly National Accounts in 2018, we have continuous and earlier information about a quarter's development. Prior to the compilation of a quarter in QNA, we have already published the first two months of a quarter in the MNA.

We have indicators for two of three components (price indices, volume estimates, current price estimates), where the third one is a residual. Typically, we have price indices and volume indicators, with current price value being calculated residually. If an indicator is based on current price estimates, the value is deflated with a suitable price index in the indicator process and fed into model as a volume estimate. In model it is assigned a price index for the industry's total output calculated as a weighted average of the price indices for the home and export market (at product level) using the input-output coefficients from the latest ANA as weights (see chapter 3.1.1).

Intermediate consumption is mainly calculated as a fixed share of output in volume in the industries due to a lack of data for the non-financial market sector. Intermediate consumption excluding FISIM is divided into four groups, out of consideration for the macroeconomic models used by the Research Department: electricity, heating oils, transport oils, and a last group consisting of the remaining relevant products, all made up of their respective shares in latest ANA.

NACE A. Agriculture, forestry and fishing
Agriculture: Detailed information on a range of products, volume and price estimates, are obtained from several sources. The Budgeting Committee for Agriculture has annual data at a detailed product level where the estimates are assigned to the respective months the products are harvested. For agriculture there is also detailed volume information available for intermediate consumption. The price indices of domestic output of agricultural goods are detailed annual indices compiled by Budgeting Committee for Agriculture.

Forestry: Output is extrapolated using the volume estimates from the monthly commercial roundwood removal statistic. A monthly producer price index for timber extraction from the Division for Housing, Property, Spatial and Agricultural Statistics is the main price index used.

Fishing: Detailed monthly volume and value estimates for different species of fishes are obtained from the Directorate of Fisheries, whereas monthly exports of salmon and trout, in volume and value, from Statistics Norway's trade statistics, are the main indicators in *aquaculture*.

NACE B. Mining and quarrying
Mining and quarrying; see manufacturing.

Extraction of crude oil and natural gas: Volume figures for extraction of crude oil and natural gas and natural gas liquids are compiled based on monthly quantity information from the Norwegian Petroleum Directorate. The output in current prices is calculated by inflating the output at constant prices with the corresponding monthly producer price indices and export price indices.

Services incidental to oil and gas extraction: Output is estimated by using indices of production in volume given by the Norwegian index of industrial production and a monthly producer price index for the industry.

NACE C. Manufacturing
The source for manufacturing is Statistics Norway's index of industrial production where output is estimated using industry specific monthly volume indices. Monthly production price indices have the largest weights when the inflating the manufacturing industry.

NACE D. Electricity, gas, steam and air conditioning supply

The production output of electricity, gas, steam and air conditioning supply is extrapolated from data from the monthly electricity statistics. The production of electricity is mainly inflated with a weighted price index for electricity consumption of main recipients (households, industries, other, and energy intensive manufacturing). The output in the remaining industries is inflated with a mix of price indices, mainly cost price indices from the labour accounts of wages and salaries per hours worked.

NACE E. Water supply, sewage, waste management and remediation services
Output in volume is extrapolated by using a working time indicator based on information from 'A-ordningen' as described in chapter 4.1. The production is further inflated with related consumer price indices (CPI). In addition, the development of this industry is continuously evaluated against turnover statistics based on the VAT-register.

NACE F. Construction
Output in volume in construction and development of buildings is compiled with working time indicator based on information from 'A-ordningen' as described under chapter 4.1. The production is further inflated with the construction cost index, based on weighted monthly building cost indices for different kinds of housing and road construction. In addition, the development of this industry is continuously evaluated against the quarterly production index for construction

NACE G. Wholesale and retail trade, repair of motor vehicles and motorcycles
Output in current and constant prices for *wholesale and retail trade* are calculated in the model from the use (expenditure) side with weights (trade margin share) from the base year. Output in *repair of motor vehicles and motorcycles* is extrapolated by bimonthly turnover statistics for maintenance and repair of motor vehicles, deflated with a corresponding CPI.

NACE H. Transportation and storage
Transport via pipelines: Transport margins are extrapolated by using the monthly production index series for oil and gas extraction from the Division for Manufacturing and R&D. Output is balanced in the model as equal to the export (use) of natural gas (and where export of this product is from the output compilations in the industry *extraction of crude oil and natural gas*)

Air transport: Volume is compiled using monthly growth of passenger numbers on domestic flights from Avinor (state-owned airport operator). Inflated (mainly) by CPI for passenger air transport.

Sea and coastal transport abroad (passenger and freight): Information from external trade statistics on international trade in services on exports of ocean freight and passenger transport services in current prices is used. A price index for sea transport based on information from global freight indices is estimated.

The output of remaining industries such as land transport, domestic water transport, support activities for transportation and postal and courier activities is mainly extrapolated with working time indicator based on information from 'A-ordningen' as described in chapter 4.1. The development in these industries is also evaluated against several other statistics, where applicable:

- Turnover statistics based on VAT-register;
- Volume-based on tonne-kilometres from CargoNet (main freight transportation company);

- Number of kilometres and passengers travelling with NSB (state-owned railway service) and the Airport Express Train;
- Number of kilometres and passengers travelling with bus, tramways and subway; and
- Tonne kilometres for carriage of goods by lorries.

NACE I. Accommodation and food service activities
The output in volume in food service activities is also extrapolated by using a working time indicator based on information from 'A-ordningen', while accommodation is developed with number of hotel and camping guest nights. The production is further inflated with related consumer price indices (CPI).

In addition, the development of this industry is continuously evaluated against turnover statistics based on VAT-register.

NACE J. Information and communication
Output in volume is also extrapolated by using a working time indicator based on information from 'A-ordningen'. The output in current prices in *Telecommunications* and *Information and communication services* is calculated by inflating the output at constant prices with the corresponding quarterly producer price indices for services. Output in *Publishing activities* is inflated mainly with a related consumer price index.

The development of this industry is continuously evaluated against turnover statistics based on VAT-register.

NACE K. Financial and insurance activities
The main activity is FISIM (see chapter 4.2) and the production of directly paid bank services. The latter is extrapolated by using the number of card transactions given by BankAxept (The national payment system in Norway) and inflated by CPI for financial services excluding insurance. *Insurance services* use an indicator for net insurance premiums (life- and non-life insurance) from quarterly insurance statistics from the Division for Financial Markets Statistics and working time indicator based on information from 'A-ordningen'. *Other financial services* are extrapolated using working time indicator for the industry with a corresponding CPI.

NACE L_N. Real estate, Professional, scientific and technical activities, and administrative and support service activities
Dwelling services of owner-occupiers: The starting point is the housing stock in t-1, which is added monthly figures for buildings started (for households) compiled by the Division for Construction and Service Statistics, and with an added correction term for quality improvements. The output is inflated with CPIs for rent and imputed rent (with weights from the base year of their respective shares).

Output in *Dwellings, renting services of residential and non-residential property* is given the same development in volume as dwelling services of owner-occupiers, and inflated by CPI for paid rent in household dwellings.

Output in volume in *Real estate, Professional, scientific and technical activities, and administrative and support service activities* is extrapolated by using a working time indicator based on information from 'A-ordningen'. In addition, the development of this industry is continuously evaluated against turnover statistics based on the VAT-registry.

NACE P_Q. Education and health
Output in volume in education and human health activities is extrapolated by using a working time indicator based on information from 'A-ordningen' and inflated with a related consumer price index.

Market producers within *social work activities* consist mainly of kindergartens. This industry is therefore extrapolated by using an annual volume indicator for amount of hours spent in child care for children in kindergartens.

NACE R_S. Arts, entertainment and other services
Output in volume is extrapolated by using a working time indicator based on information from 'A-ordningen' and inflated with a related consumer price index. The development in these industries is also evaluated against several other statistics such as the quarterly turnover from Norsk Tipping and Norsk Rikstoto (state-owned companies for money games).

4.1.2 Non-market producing industries

General government
Gross value added in general government is derived from the cost side (non-market producers have no net operating surplus) as follows:

Gross value added = compensation of employees + consumption of fixed capital + taxes on production - subsidies on production.

Value added in central government is compiled for the industries *Defence, Public Administration*, *Education*, *Human Health Activities*, *Social Work* and *Arts, Entertainment and Recreation.* Several of the industries are covered in the local government in addition to Water supply, sewerage and waste management. The Defence industry is exclusively a central government activity.

Central government accounts and local government accounts are both principal sources of the statistical system. The items of the government accounts are tabled with a whole set of information. By using detailed decoding plans, the required information is transformed into the structure and concepts used in the QNA and ANA, as well as in the non-financial sector accounts.

Figure 4.1 General government
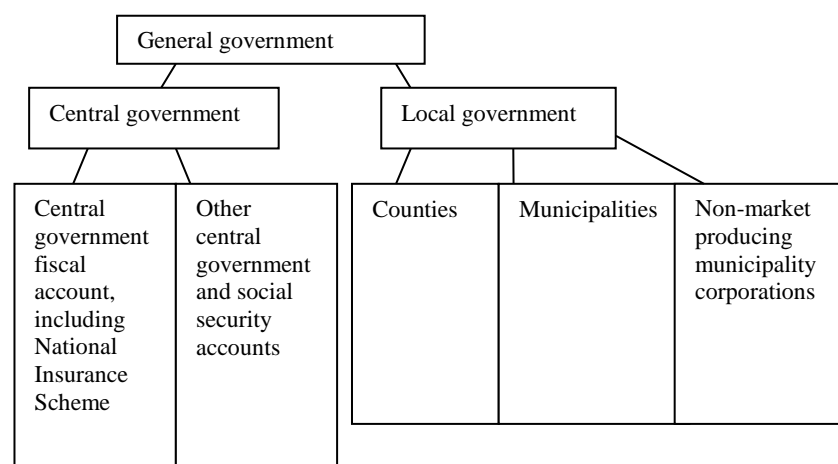
Central government fiscal accounts, including the National Insurance Scheme, reflect how the National Budget, approved by the National Assembly each year, is

carried out and show how central government income and expenditure is dispersed on the ministries. The information is organised in chapters, items and sub-items. The items reflect various types of expenditures or income.

Other central government and social security accounts collects information from institutions and establishments not covered by central government fiscal accounts. These are defined as part of central government, including health enterprises, the Government Pension Fund Global, the Government Pension Fund Norway, state-owned universities and university colleges, among others. Other central government and social security accounts are organised from type of expenditure/revenue to comparable chapters in, for instance, the central government fiscal accounts.

Local government consists of establishments run by counties and municipalities, including church accounts and non-market producing municipality corporations. Data for local government is transferred to Statistics Norway via electronic forms and electronic account files, as part of KOSTRA ('Municipality-State-Reporting'). Information reported through the KOSTRA system is organised in functions and types. Government accounting data was earlier less detailed in local government than in central government, but with the introduction of KOSTRA the opposite is true.

The central government fiscal accounts follow the cash accounting system, where transactions are recorded when the payment is received or paid. Other central government and social security accounts records transactions according to the accrual accounting system, meaning that payment occur when the underlying economic events take place. Counties, municipalities and church accounts utilise an accounting system closely related to the accrual accounting system.

The information in the central and local government accounts described above is transformed into the data structure of the NA, the so-called FIIN structure, to serve both supply and use tables and the non-financial sector accounts. The item identifications in terms of chapters and corresponding items and sub-items or functions and types are the ones given in the government accounts themselves. Each of these most detailed specifications are given a set of connected information, i.e. the nature of the flows in types of account, the purpose or function of the flows in COFOG groups, and the product specification of the flows in NA-products.

Type	*Product*	*COFOG*	*NACE*	*Sector*	*Sector*	*Amount*
Type of NA transaction, for example production, intermediate consumption, compensation of employees, income, transfers etc.	Detailed NA product for use in SUT (when relevant, i.e. production, intermediate consumption)	Classi-fication of function	Classi-fication of industry	Reporting sector (govern-ment)	Partner sector (when known)	NOK

Since parts of central and local government data is not readily applicable to national accounts definitions due to the different accounting systems adopted, great care is taken to convert the data to the principle of accrual accounting. This is done in cooperation with the Division for Public Finance. In any given quarter, it is likely that data from one or more units in general government are missing during QNA compilations, and the Division for Public Finance calculate estimates for

these to assure that complete government accounts are available. The calculation for consumption of fixed capital is general and described in chapter 6.3.

However, after the implementation of the MNA, a monthly indicator for compensation of employees was introduced for both central and local government: All labour cost components in current prices are extrapolated by using salary payments reported in the 'A-ordningen'. When calculating figures for a quarter, these are replaced by further details from the general government accounts and labour accounts. The labour accounts are based on information from the 'A-ordningen' and figures from the state and municipal accounts.

In addition, compensation of employees in fixed prices follow employment from the 'A-ordningen' on a monthly basis and is summed up to quarters every third month. Intermediate consumption is exogenous in the model and supplied on a quarterly basis based on a transformation of central and local government data described above.

Subsidies on production are not present in central and local government. Industries in central and local government are all subject to an annual excise duty and registration tax on motor vehicles. These are obtained in current prices from central government accounts once a year and dispersed on months and quarters using production as allocation factor.

NPISHs
Gross value added in non-profit institutions serving households (NPISHs) is also derived from the cost-side. Production in current prices is equal to gross value added plus intermediate consumption, but output in constant prices is mainly extrapolated by a working time indicator based on information from the 'A-ordningen'. This regards the industries *arts, entertainment and recreation, education services, social work, and other services.* Meanwhile, *Human health activities* is an exception *that* uses annual grants (dispersed pro rata on months) from General government deflated by an implicit price given from market producing human health activities.

Gross value added in current prices in NPISH industries is equal to compensation of employees from the labour accounts (see chapter 6.1), consumption of fixed capital calculated by the same method as described for general government, and subsidies less taxes on production (both equal to zero in the NPISH sector). Intermediate consumption is a fixed share of production from the base year. The price indices of production are thus the implicit cost price indices based on compensation of employees (and consumption of fixed capital) and the volume estimates from the constant price compilations described above.

4.2 FISIM
Financial intermediate services indirectly measured (FISIM) is produced by banks and other financial institutions by charging a higher interest on loans, and by offering a lower rate of interest on deposits, than the reference rate of interest. The value of this intermediation service must be calculated indirectly, as it is not readily observable. FISIM is used for intermediate consumption, final consumption expenditure and export, and is part of production in the financial and insurance activities industry and imported by residents who pay/receive interest on loans/deposits abroad. Use of FISIM, including exports and as well as imports, is extrapolated by the production of FISIM.

In the MNA and QNA, FISIM is calculated as the sum of loans multiplied by the difference between the interest rates of borrowing and the reference rate of interest,

and deposits multiplied by the difference between the reference rate of interest and the actual rate of interest on deposits. Loans and deposits are collected from banks, state owned lending institutions and credit- and finance companies. These are summed to totals, unlike in the annual national accounts where they are allocated to their respective paying/receiving sectors. The actual average weighted interest rates for loans and deposits are calculated, and the reference rate of interest, which represents the risk-free interest rate excluding the service element, is represented by the three-month NIBOR (Norwegian Interbank Offered Rate).

FISIM in constant prices may be interpreted as the margin of interest accrued in the reference period expressed in the interest rates of the base year, and loans and deposits are adjusted for the price change in final domestic use of goods and services. The price index of FISIM is used as a price index for production delivered to both the home- and export market, as well as for intermediate and final consumption.

4.3 Taxes less subsidies on products

In the Norwegian quarterly and annual national accounts, taxes on products, excluding VAT consist of all taxes on products except value added type taxes, including D 212 Taxes and duties on imports excluding VAT and D 214 Taxes on products, except VAT and import taxes.

Items of other taxes on products are normally not easily categorised into these two main classes, although several of the items seem relevant for one of the two classes only. One clear exception is of course customs duties that exclusively belong to the first main class and sub-category D 2121 Import duties. In general, taxes on products are usually linked to both domestic production and imports. Goods domestically produced are taxed when leaving storehouse for sale or for own final use (exports are normally excluded from product taxes). Goods produced abroad are taxed when being imported. In Norway, approximately 30 different taxes on production and imports are treated as taxes on products. These are aggregated into categories for use. Subsidies on products consist of item D 319 Other subsidies on products exclusively. They are mainly paid by central government, but to a lesser degree also by local government. Import subsidies - ESA item D 311 - are non-existent in Norway. There are currently nine categories of subsidies in the QNA, applied to the products agricultural crop and livestock, education, and research and development services.

Taxes and subsidies on products
Monthly and annual figures are collected from the government accounts and the Norwegian Government Agency for Financial Management, used in combination with detailed information on agricultural taxes and subsidies from the Norwegian Agricultural Economics Research Institute. The cash-based monthly data are converted to the NA accrual accounting principle by applying a one-month delay, following the official terms of payments. The annual current price estimates are dispersed on months and quarters using production as allocation factor. The constant price estimates are based on tax/subsidy-rates from the base year for the different use categories, while the current price estimates are simply the exogenous data from the sources mentioned above.

Value added tax (VAT)
Non-deductible VAT in current prices is calculated from all relevant product flows of the use table using current VAT rates. This is reconciled with the accrued VAT compiled by converting cash-based figures from the central government accounts. VAT at constant prices is calculated the same way using fixed base year coefficients.

Total accrued VAT is presented as the major part of the aggregate *taxes and subsidies on products* in the published QNA tables.

5. GDP components: The expenditure approach

= Final consumption expenditure + Gross fixed capital formation + Changes in inventories + Exports - Imports
= Final uses - Imports
= Final domestic uses + Exports - Imports

5.1 Household final consumption expenditure

Final consumption expenditure of households, are calculated at the most detailed level for 39 consumption groups, and published at a more aggregate level equal to the two-digit COICOP (Classification of Individual Consumption According to Purpose, a nomenclature developed by the United Nations Statistics Division). Household final consumption expenditures are calculated in general as in the rest of the QNA system; by extrapolating final national account figures with monthly growth in indicators. This is also the case for household consumption abroad, and non-resident consumption in Norway, which is calculated as an integrated process for use both in the BoP and the MNA/QNA.

Consumption of goods

The main source for household final consumption expenditures on goods is the monthly Index of Retail Sales broken down by detailed industries. In addition, information on purchases of motor vehicles (initial registration) and consumption of electricity and sales of petroleum products (volume) is used. These latter items are incorporated in the monthly Index of Household Consumption of Goods (IHCG). The IHCG is compiled according to National Accounts definitions and is published prior to the QNA. To achieve consistent estimates and due to the availability of monthly data in the IHCG, the monthly seasonal adjustment factors from the index is used in the MNA and summed up to quarters in the QNA.

The survey 'Wholesale and retail trade, breakdown of turnover by product', published every fifth year in accordance with Eurostat requirements, is used to convert the sales of goods through retail outlets at detailed industry level in the Index of Retail Sales to household consumption by consumption group through a transformation matrix. A given consumption group in the IHCG is then extrapolated by the corresponding weighted subgroups in the Index of Retail Sales and is coupled with one or more price indices from the Consumer Price Index (CPI) to create volume estimates. The CPI is available for most groups at the same level of detail as the consumption groups calculated in the QNA/IHCG or in some cases at a more detailed level, in which a weighted average is used.

For some consumption groups in the IHCG and subsequently in the MNA and QNA, monthly volume indicators are used directly (as opposed to deflated turnover statistics from the Index of Retail Sales). This is the case for the following consumption groups:

- Mineral water and beer, part of consumption group food and beverages, which is extrapolated by an indicator based on litres sold of different kinds of beverages reported by the Norwegian Brewer- and Beverage Association.
- Electricity consumption uses monthly electricity statistics from the Division for Energy and Environmental Statistics.

- Petrol and diesel fuel, which is a as part of the consumption group purchases of vehicles and petrol, use sales of petroleum products from the Division for Energy and Environmental statistics.
- Registration of new and imported used motor vehicles (from an official source, www.ofv.no) is used to extrapolate the consumption of new motor vehicles.
- Household consumption of used motor vehicles is developed with the growth in fixed capital formation in the asset type motor vehicles in t-3 (due to tax regulations, incentives are to sell motor vehicles from industries to households after three years).

Consumption of services

The consumption groups of services are mainly extrapolated by production of the same services. CPIs are available for most services. Exceptions are related to imputed consumption groups such as consumption of FISIM, which utilises the implicit price index of FISIM production resulting from the value and volume calculations (see chapter 4.2). In addition, there are some minor groups that are poorly covered by CPIs where alternative price information (mainly producer prices indices) are used. For insurance, the constant prices are estimated directly based on volume information from the production side (hours worked), and prices are calculated residually (as is output, described in chapter 4.2).

Direct purchases abroad by resident households/direct purchases by non-residents

Direct purchases abroad by resident households are extrapolated using number of departed passengers from Norwegian airports (from Avinor, a state-owned airport operator) and the quarterly travel survey in addition to the survey on cross border trade, when available (the surveys usually lags one quarter when QNA is published). The monthly price index is mainly based on a weighted average of consumer price indices and exchange rates from nine different countries.

Non-residents consumption in Norway's economic territory is extrapolated by a monthly volume indicator based on guest nights in different accommodation establishments (hotels, camping sites, holiday dwellings, etc.). The price index used is a weighted CPI of relevant consumption groups.

5.2 Government final consumption, including split individual/collective consumption

Government final consumption expenditure (GFCE) equals production (= compensation of employees + consumption of fixed capital + intermediate consumption + taxes on production - subsidies on production) less fees (sales of goods and services) plus social transfers in kind (government direct purchases). GFCE is grouped according to COFOG (Classification of Functions of Government). Government accounts are described in more detail in chapter 4.

The sources used to estimate government final consumption expenditure are the central and local government accounts, as is gross value added described in chapter 4. Fees appear on the income side. Government purchases from non-government producers supplying households (transfers in kind) are also available from the government accounts.

Industry specific fees in current prices from quarterly government accounts data are deflated with input price indices from corresponding industries. Transfers in kind in current prices are deflated by price indices of production of relevant products. Data from quarterly reporting in central and local government accounts is detailed enough to split consumption in individual and collective consumption

according to the detailed decoding plans mentioned in chapter 4.1. In the QNA, GFCE in central government is compiled for *Defence*, *Human Health Activities* (collective (R&D etc.) and individual), *Education* (collective and individual), *Social Work* (individual), *Arts, Entertainment and Recreation* (individual) and *other GFCE* (collective, consisting of the remaining consumption groups such as general R&D, public administration, environmental issues, police, legal system etc.). GFCE in local government is compiled for *Human Health Activities* (collective and individual), *Education* (collective and individual), *Social Work* (individual), *Arts, Entertainment and Recreation* (individual), *Water supply, sewerage and waste management (collective)* and *Other GFCE* (collective, consisting of the remaining consumption groups). The consumption groups are published at a more aggregated level, described in chapter 2.

5.3 NPISH final consumption

Non-profit Institutions Serving Households (NPISHs) output is the sum of costs: the sum of intermediate consumption, compensation of employees, consumption of fixed capital and net taxes on production less receipts of sales of goods and services. Consumption is defined as output less services paid by households. Monthly estimates of NPISHs final consumption expenditures are extrapolated using growth in industry volume output, and then aggregated to quarterly figures. Prices are also the implicit prices from value and volume output calculations in corresponding industries. The industry output calculations are described in chapter 4.1. NPISH final consumption expenditures are calculated for *Health Activities*, *Arts*, *Entertainment and Recreation*, *Education*, *Social work* and *Activities of Membership Organisations*, and published only for the total.

5.4 Gross capital formation

Gross capital formation consists of gross fixed capital formation and changes in inventories and valuables. Changes in inventories are residuals in the model (called changes in inventories and statistical discrepancies), as there is no quarterly information available.

Gross fixed capital formation (GFCF)

Defined as the value of acquisitions less disposals of new or existing fixed assets. Fixed assets, which are produced assets used repeatedly, or continuously, in processes of production for more than one year, consist of both tangible fixed assets (dwellings, other buildings and structures, other structures, transport equipment, other machinery and equipment, livestock for breeding, vineyards, orchards, etc.) and intangible fixed assets (mineral exploration including oil and gas, computer software, entertainment, literary or artistic originals, etc.). Inventories and valuables that are not used repeatedly in production are not recorded as fixed assets. The same is the case for tangible and intangible non-produced assets, which are therefore not included in the capital stock and capital formation of industries, only as store of value in non-financial sectors and hence in the non-financial sector accounts only.

GFCF has two main breakdowns: by types of fixed assets and by kind of activities (by industries and market/non-market, as for production, to form symmetric output and capital data for productivity analysis). The GFCF flows by industries are in terms of aggregated products at the level of types of assets. In the ANA there are 56 types of assets, grouped in 7 main categories, while in the QNA these assets are aggregated to nine types:

- *Building and construction*,
- *Oil and gas production wells*,
- *Oil platforms and modules*,

- *Pipelines for oil and gas*,
- *Ships and boats*,
- *Aircrafts*,
- *Transportation vehicles*,
- *Machinery and equipment*
- *Petroleum exploration*.
- *Research and development*

At the more aggregated published level, the total (cross-classification for industries and asset types) for six asset types are shown, as well as for industries at the same level of breakdown as for output/gross value added (see chapter 2.2). As for output, acquisitions of fixed assets from the base year are extrapolated using short-term indicators, albeit with a less extensive set of indicators. For instance, research and development assets are extrapolated using production in industries as an indicator.

A broad description follows below, distinguishing between market producing industries, NPISH, and general government. The figures (both acquisition and disposal) are either inflated or deflated using asset specific price indices that are endogenous in the input-output model, calculated at product level with home market and import price indices, with shares and tax/duty rates from the base year (often with unit product prices from trade statistics, or implicit prices from industry output calculations).

Market producing industries and NPISH
In the majority of market producing industries, acquisition of fixed capital consists of three asset types: *building and construction*, *transportation vehicles* and *machinery and equipment*. The short-term indicators used are assets rather than industry specific. The exception is for agriculture, fisheries, petroleum activities, manufacturing, wholesale and retail trade and electricity supply, where industry specific statistics for acquisition of fixed capital exist. For the former, the general indicators used in most market producing industries in addition to NPISH are:

- *Buildings and construction*: monthly building statistics for building work started, which is lagged for 35 periods (months) with descending weights, reflecting the estimated completion of start up building work;
- *Transportation vehicles*: monthly series for the number of initial registration of trucks and passenger cars, etc. (industry specific, i.e. more passenger cars than trucks in certain industries) from the Norwegian Public Roads Administration; and
- *Machinery and equipment*, which are simply extrapolated with volume output growth in the corresponding industries lacking short-term indicators.

Agriculture uses the same three asset types, but figures for building and construction and machinery and equipment are annual estimates from The Budgeting Committee for Agriculture, dispersed on quarters reflecting that most investments take place during the second and third quarter. The indicator for transportation vehicles is the aforementioned series for initial registrations of trucks from the Norwegian Public Roads Administration. *For Fisheries* there are two asset types, namely *ships and boats* and *machinery and equipment*, both developed with the growth in imports of new and used fishing vessels from trade statistics (see chapter 5.5. below).

Extraction of crude oil and natural gas: six asset types, where each type has detailed information from the quarterly statistic *Oil and gas activity, investments* from the Division for Energy and Environmental Statistics. The statistic covers all active enterprises or investment enterprises within extraction of crude oil (NACE 06.100) and extraction of natural gas (06.200) and pipeline transport (49.500), with the exception of licensees without an operatorship and active investment enterprises within drilling services attached to oil and gas extraction (09.101). The QNA is published in advance of the quarterly statistics for investments in petroleum activities, and thus an estimate for the total is made by the division supplying data, in which all asset types are adjusted accordingly in the QNA. The final estimate is then incorporated with a one quarter lag (note that the initial estimate is considered reliable). For more information on the quarterly statistics on investment in petroleum activities as well as the other statistics referred to, see the list provided in chapter 8. *Services incidental to extraction of crude oil and natural gas* uses the same source as for extraction of crude oil and natural gas, but only a part of the population (09.101) in the industry is covered in the aforementioned statistic, and it is not published. The estimates are thus considered less reliable, but the level of the investment figures is small compared with the extraction industry. *Transport via pipelines:* one asset type, *oil and gas pipelines*, same source as above.

Manufacturing and electricity supply: same three types of assets, and all industries are covered by the quarterly statistic *Investments in manufacturing, mining and quarrying and electricity supply*.

Wholesale and retail trade: compiled for three asset types as for the majority of the other industries described above but with detailed information from the quarterly *Retail trade, investment statistics*.

Disposal of fixed assets in volume are set equal to the final ANA in the majority of the industries, evenly dispersed on the quarters (the major exception is petroleum activity where trade statistics is used to trace exports of used petroleum asset types such as oil rigs and modules etc.).

General government
The quarterly central and local government accounts are used to estimate acquisition and disposal of fixed assets in general government. In **local government** the three asset types *building and constructions*, *transportation vehicles and machinery and equipment* are represented in all local government industries. Both acquisition and disposal are covered by the local government accounts and supplied as current price estimates, which are coupled with the aforementioned general asset type price indices. In **central government**, public administration and human health work are covered by the three asset types mentioned, while education, social work and arts, entertainment and recreation are covered by the asset types *building and constructions* and *transportation vehicles*. Defence has in addition to all of these, GFCF in *ships and boats* and *aircrafts and helicopters*. Both acquisition and disposals are supplied with information from central government accounts and coupled with corresponding general asset type price indices.

See chapter 4.1 for detailed information on central and local government accounts. Great care is taken to convert the estimates to accrual accounting standards and is done so with expert judgement from the Division for Public Finance.

Changes in inventories and valuables

Estimation of changes in inventories by products takes place through the balancing of supply and use, described in chapter 3. The changes in inventories are assessed based on economic interpretation, and the other components may be adjusted accordingly. Since the QNA is a monthly extrapolation of the final ANA, the level of inventories is ''inherited'' from the annual compilations, and thus reflects the persistent additions that have been made to inventories in the past. At time being, statistics on inventories have been attempted in the ANA but discarded.

Acquisition less disposal of valuables has not been introduced in the Norwegian National Accounts in a significant way. In the ANA, the product *works of art* has been identified, but with an insignificant level of investment. The acquisitions and disposals of valuables from ANA is extrapolated with production in the MNA and QNA. The item has also been listed separately in the publication of ANA, QNA and MNA.

5.5 Imports, exports

Imports and exports are compiled at product level. Main sources are customs data, which is utilised for the monthly external trade statistics from the Division for External Trade Statistics, for current price estimates of trade in goods, coupled with unit price indices. The quarterly sample survey on International Trade in Services (UT) and corresponding price indices from domestic production are the main sources for most service items. At time of publication of QNA, the imports/exports of goods are considered reliable, while the imports/exports of services are mostly estimated for the current quarter. Figures are compiled for 70-80 products and published at a more aggregated level (see chapter 2 for contents published).

Imports of goods

Imports of goods are distinguished by three main categories, each cross-classified with a set of products, namely *imports of goods recorded in external trade statistics*, *imports of ships, oil rigs and modules*, and *imports not recorded in external trade statistics*. No general adjustment is made to external trade statistics in order to account for goods that cross the border without a change of ownership, but adjustments are made for foreign ownership territorially, related to cross-border off-shore oil and gas fields in the North Sea and air transportation of SAS (Scandinavian Airlines). Imports of goods are valued at CIF prices, which include all freight and insurance connected with the imported goods, irrespective of whether the payments are made to Norway or abroad. The items of goods not recorded in external trade statistics refers to imports of unspecified goods for oil and gas extraction activities and pipeline transportation which is calculated based on oil and gas activity statistics, and jet fuel and petrol and marine gas oils purchased abroad by moveable equipment (ships, aircrafts etc.).

Imports of services

Three main categories: *current expenditures abroad for shipping*, *direct purchases abroad by residents - Travel* (calculated by the sources mentioned under *Direct purchases abroad by resident households* in chapter 5.1. The development in the two components are set equal, but the level is different as imports contain more than just households' direct purchases abroad) and *imports of other services*. The main other sources used are UT-statistics (sample survey), maritime transport statistics and oil and gas activity statistics.

Exports of goods

The same broad categorisation of exports of goods as for imports of goods: including and excluding information from trade in goods statistics and a last category for exports of ships, oil rigs and modules. Products relating to the last category includes adjustments made for foreign ownership shares in cross-border off-shore oil and gas fields.

Exports of goods are valued FOB at Norwegian ports where goods are exported, or at the customs frontier of the operation area of the Norwegian part of the continental shelf. The FOB prices are purchasers' prices that may include export levies and costs connected with loading, irrespective of whether these are paid by the exporter or importer.

Exports of services
The three main categories are *gross receipts from abroad in shipping*, *direct purchases in Norway by non-residents*, and *exports of other services*. Gross receipts from abroad in shipping are calculated using maritime transport statistics for annual benchmarking combined with the quarterly development in the UT statistics, while direct purchases in Norway by non-residents are compiled as described under chapter 5.1 for household consumption.

Prices used for external trade are a combination of prices received from the producer price indices, and if they are not available, mainly unit price indices from the Division of External trade statistics are used.

6. GDP components: the income approach

= Compensation of employees + Operating surplus + Consumption of fixed capital + Other taxes on production - Other subsidies on production

6.1 Compensation of employees, including components (wages and salaries)
Compensation of employees is made as part of the integrated quarterly labour accounts. Compensation of employees has two breakdowns: by category of main components and by kind of activity, i.e. by *wages and salaries* and *employers' social contributions*, and by industry. The labour accounts are compiled at the same detailed industry level as the rest of the QNA.

Indicators used for both the compilation of wages and salaries and employers' social contributions are based on information provided by employers in the reporting scheme called 'A-ordningen'. This administrative source was established on 1 January 2015 and is a coordinated digital collection of employment, income, and tax deductions for the Norwegian Tax Administration, the Norwegian Labour and Welfare Administration (NAV), and Statistics Norway. All enterprises located in Norway including local and central government and non-profit organisations, with a few minor exceptions, are obliged to report status for all jobs, wages and salaries paid to persons holding the jobs, pension contributions and a vast amount of other information needed by the three institutions, no later than five days after the end of the month. For more information, see chapter 7.

However, annual figures for compensation of employees in general government are aligned with the figures for compensation of employees in government accounts according to the official figures from the government accounts.

6.2 Taxes less subsidies on production
Other taxes and subsidies on production are taxes and subsidies irrespective of quantity or value of the goods and services produced or sold, incurred by resident producers and that are payable/receivable to/from general government as a result of engaging in production. There are two breakdowns: by types and by kind of activity (industry). The information is available from government accounts (local, central- and other central government accounts, see chapter 4.1.2 for details).

In the QNA, other taxes and subsidies on production are annual estimates from government accounts, which are dispersed by using production within the quarters. An estimate for the annual figures at a detailed level is made by the Division for Public Finance based on information from the National Budget in advance of the complete annual accounts, and coded to NA industry. This is done when compiling figures for the first quarter. The final annual central government accounts have some 30 items for taxes and 300 items for subsidies. Local government taxes on production are mainly property taxes, while there are various items of subsidies, such as local employment initiatives, subsidised craft training, etc. These makes up the types and are subsequently coded as other taxes and subsidies on production at industry level in the QNA. Other taxes and subsidies on production are only compiled in current prices.

6.3 Gross operating surplus and mixed income
Gross operating surplus in an industry is defined as:
= Value added – Compensation of employees – Other taxes on production + Other subsidies on production.

Net operating surplus:
= Gross operating surplus - Consumption of fixed capital.

Net operating surplus is the balancing item when generating income accounts. It is the surplus accruing from processes of production before deducting any interest charges, rents or other property incomes payable on the financial assets, land or other tangible non-produced assets required to carry on the production. The breakdown is solely by kind of activity.

Operating surplus is only compiled in current prices.

Consumption of fixed capital
Consumption of fixed capital is defined as a decline in the current value of the stock of fixed assets owned and used by a producer during the accounting period as a result of physical deterioration, normal obsolescence, or normal accidental damage. There are two breakdowns: by type of fixed assets and by kind of activities. Calculation of consumption of fixed capital applies to net capital stock - valued at written-down replacement cost, i.e. gross capital stock less cumulative consumption of fixed capital - and changes in this value. Consumption of fixed capital, and the capital stock of fixed assets, is calculated according to the perpetual inventory method (PIM) with geometric depreciation rates (see chapter 5.4 for a description of the calculations for gross fixed capital formation). Consumption of fixed capital is calculated for the aggregated types of assets in an industry, which in general government ranges from two or three (in most industries) to five (defence).

7. Population and employment

Quarterly employment figures are calculated in the integrated quarterly labour accounts at the same industry level as the rest of the industry figures in the QNA: employment, full-time equivalent employment, and total hours worked, by employees and self-employed as well as compensation of employees broken down on its components are published on a quarterly basis. Annual earnings, full time equivalents (a variable not defined in ESA2010, but of considerable national interest and use) are published as part of the QNA, but only as preliminary annual figures and at a more aggregate level. All quarterly figures are consistent with annual data (sum of quarters, and subject to the same benchmarking to the final and more comprehensive annual labour accounts). Seasonally adjusted figures are published for employed persons, employees, total hours worked (employees and self-employed) and hours worked by employees as well as compensation of

employees and wages and salaries. The compilation method adheres to the same general idea as the rest of the QNA: extrapolation of final annual labour accounts by use of short-term indicators. All labour accounts variables are compiled in the indicator system, as described in chapter 3.

The methods used in the quarterly labour accounts are developed from the final annual labour accounts calculations. The building blocks of volume variables in the labour accounts start with the definition of jobs. Jobs differ from employed persons by allowing for several jobs for the same person. Jobs are divided into main jobs, side jobs, full time jobs, and part time jobs. Persons employed are equal to main jobs. Full time equivalent persons correspond to full time jobs plus part time jobs converted to full time. Note that it is contractual and not actual working hours that are used in the concept of full time and part time. Thus, full time equivalents do not include effects of sickness leave, overtime, etc. To reach total hours worked we need to introduce contractual-, overtime- and absence hours. Contractual hours are calculated as normal weekly hours times the number of working weeks, the latter being the sum of full time equivalents times the number of working weeks in a year.

On 1 January 2015 the 'A-melding' was introduced in Norway, see 7.2 for further description of this source. The quality of the data reported, its high frequency, its extensive coverage and number of variables, justifies this source to be the preferred one when compiling figures for number of employees, employee-jobs, agreed upon hours of work per week, overtime work, absence from work due to sickness and leaves, and for the estimation of wages and salaries.

At the time being, when it comes to estimation of employment, the 'A-ordning' has only been used as a source for extrapolating levels of employees in the QNA, while the levels were determined in the latest main revision in 2014 by use of the sources available at that time. According to plans however, the levels will be adjusted as part of the 2019 main revision.

7.1 Population
Total population is defined according to the concept of residence and includes all persons regardless of citizenship who resides permanently within the country's economic territory even if they are temporarily absent. Permanent residence in a country is defined as staying, or intending to stay, on the economic territory of a country for one year or more. Temporarily absentees are defined as people who are absent, or intending to be absent, for less than a year. However, nationals who study abroad, military personnel stationed abroad, nationals working as staff of diplomatic missions abroad, nationals on ships, aircrafts, etc. operating outside the economic territory and patients receiving medical treatment abroad, are considered as part of the total population.

The one-year limit to be considered as a permanent resident differs from Statistics Norway's official population statistics (population register data) in which the limit is six months. Population as part of national accounts data reported to Eurostat has been reported as the official population figure and thus we assume that the different limits in respect to residence has little impact on the total.

The temporal reference for total population is the average between the opening and closing date of a quarter, for example for the fourth quarter it is the average of the population as of 1 October and 1 January, known as the mean population.

7.2 Employment: persons
According to ESA2010, paragraph 11.11: 'Employment covers all persons engaged in productive activity that falls within the production boundary of the national

accounts. Persons in employment are employees or self-employed persons. Persons holding more than one job are classified as employees or self-employed according to their main job'.

The main source is 'A-ordningen'. This administrative source was established the 1st January 2015 and is a coordinated digital collection of employment, income, and tax deductions for the Norwegian Tax Administration, the Norwegian Labour and Welfare Administration (NAV), and Statistics Norway. This means that Statistics Norway receives information about wages and employees directly from the so-called 'A-ordningen', which is the electronic message containing all the information collected. All enterprises located in Norway including local and central government and non-profit organisations are obliged to report status for all jobs during the month to be reported, and a vast amount of information connected to those jobs and the persons holding them, no later than 5 days after the end of the month. The source is available with monthly data beginning January 2015. The monthly reporting to 'A-ordningen' is for the majority of enterprises an integrated part of the software used to administer payments of wages and salaries and keep track of its employees. As part of the reports all enterprises must identify themselves with the central business register number and the employees holding the jobs by the personal identity number. The enterprises are obliged to register each job under a job-identifying number. Hence, for Statistics Norway, each employee-job can be identified each month, along with the person holding the job, and the enterprise where the work takes place. Statistics Norway receives all data and add further information on the enterprises and its employees by merging the reported data with other register information. In this way the final registry data have detailed industry and sector classification of the enterprises and more information regarding the employees such as type of education, place of living, age, and so on.

The number of self-employed has traditionally been decided according to the Labour Force Survey (LFS). More emphasis is now put on the registry-based statistics on income among self-employed. By combining the detailed information that forms the basis for this statistics with the detailed data-sets from the 'A-ordning', persons who hold both an employee-job and a job as self-employed, can be correctly classified as employees or self-employed. Thus, the detailed data that are used in the production of income statistics among self-employed will be used extensively in future calculations of number of self-employed in the national accounts.

7.3 Employment: total hours worked
The 'A-ordning' is now the primary source for the development in hours worked in the QNA. Sickness absence is available and incorporated at the most detailed level. In addition to this information, working days and holidays are used directly in the compilation of hours worked so that 'unadjusted' hours worked are in fact calendar adjusted (otherwise they would bear little meaning).

The methods applied in the final annual accounts and in the QNA are in general the same. In QNA, however, the (same) methods are used for producing indicators to prolong the time series from the base year. Hours worked (H) are divided into the following three components:

HA = Hours agreed upon (employment contracts)
HF = Hours of absence from work
HO = Hours of overtime work,

so that

$$H = HA - HF + HO$$

Hours agreed upon (HA) are estimated by multiplying full-time equivalent jobs by the number of standard working weeks for the specific industry per year and agreed upon working hours per week according to registry-based employment statistics. A standard working week consists of five days where a full-time employed is expected (according to the agreement) to work each of the five days, meaning that public holidays as well as other holidays have been deducted in the calculation of the number of standard working weeks each year.

Hours of absence from work is calculated as rate of absence (f) multiplied by the hours agreed upon. The parameter f covers absence due to sickness, parental leaves, conflicts between employer and employees (strikes), etc. Effects of lay-offs due to low turnover are captured in the estimation of full-time equivalent jobs.

$$HF = f \times HA$$

Hours of overtime work (HO) is calculated as the rate of overtime work (o) multiplied by the hours agreed upon. The parameter o covers paid overtime work

$$HO = o \times HA$$

Total hours worked for self-employed follows the same methods and source as employees in the quarterly compilations (thus assuming the same development). The labour accounts do not calculate figures for mixed income; only volume variables are made for the self-employed.

8. Main data sources used

	Industry	Source	Link	Periodicity	Information relating to QNA
Agriculture and forestry	*Agriculture*	The Budgeting Committee for Agriculture	http://www.nilf.no/english/Account_statistics_in_agriculture_and_farm_forestry https://www.nibio.no/tjenester/volum-og-prisindeksar https://www.felleskjopet.no/korn/artikler/prognose-for-tilgang-og-forbruk-av-norsk-korn/	A	Estimates for grain, potatoes, vegetables, fruit, flowers, eggs, wool and various other products, in volume, and with corresponding price indices. Dispersed on months in accordance with harvest seasons.
	Forestry	Commercial roundwood removals	http://www.ssb.no/en/jord-skog-jakt-og-fiskeri/statistikker/skogav	M	Volume and price index

Fishing and aquaculture	*Fisheries*	Directorate of fisheries	https://www.fiskeridir.no/Statistikk/Statistikkbank	M	Volume and value estimates for various species
	Aquaculture	External trade in goods	http://www.ssb.no/en/utenriksokonomi/statistikker/muh	M	Export of salmon and trout, in volume and value
Mining and quarrying, manufacturing		Index of industrial production	http://www.ssb.no/en/energi-og-industri/statistikker/pii	M	Volume estimates for mining and quarrying including petroleum activities
		Producer price index for oil and gas, manufacturing, mining and electricity	http://www.ssb.no/en/priser-og-prisindekser/statistikker/ppi/	M	
Electricity, gas, steam and air conditioning supply	*Electricity*	Electricity, production	http://www.ssb.no/en/energi-og-industri/statistikker/elektrisitet	M	Volume estimates
	Electricity	Electricity prices	http://www.ssb.no/en/energi-og-industri/statistikker/elkraftpris	Q	Weighted price index for domestic production (for household consumption, industries and energy-intensive manufacturing)
	Gas, steam and air conditioning supply	Index of industrial production	http://www.ssb.no/en/energi-og-industri/statistikker/pii	M	Volume estimates
	Gas, steam and air conditioning supply	Producer price indices	https://www.ssb.no/en/priser-og-prisindekser/statistikker/ppi/	M	
Water supply, sewage, waste management and remediation services	*Water supply, sewage, waste management and remediation services*	'A-ordning'		M	Number of jobs, overtime and absence
	Water supply, sewage, waste management and remediation services	Consumer price index	http://www.ssb.no/en/kpi	M	
Construction	*Construction*	'A-ordning'		M	Number of jobs, overtime and absence

	Construction	Construction cost index for residential buildings	https://www.ssb.no/en/priser-og-prisindekser/statistikker/bkibol	M	Detached houses of wood, multi-dwelling houses
	Construction	Construction cost index for road construction	https://www.ssb.no/en/priser-og-prisindekser/statistikker/bkianl	Q	Road construction, total
Wholesale and retail trade	*Weights of expenditure in volume*			M	
	Repair of motor vehicles and motorcycles	Wholesale and retail trade sales statistics	https://www.ssb.no/en/varehandel-og-tjenesteyting/statistikker/vroms	M	Follows the total index
	Repair of motor vehicles and motorcycles	Consumer price index	http://www.ssb.no/en/kpi	M	For repair of motor vehicles and motorcycles
Transport and storage	*Rail and land passenger transport*	'A-ordning'		M	Number of jobs, overtime and absence and absence.
	Rail and land passenger transport	Consumer price index	http://www.ssb.no/en/kpi	M	Consumer price indices for various transport types
	Freight road transport	'A-ordning'		M	Number of jobs, overtime and absence
	Freight road transport	Producer price indices for services	https://www.ssb.no/en/priser-og-prisindekser/statistikker/tpinaering/kvartal	Q	Price index for freight transport by road
	Sea and coastal transport abroad	External trade in services	http://www.ssb.no/en/utenriksokonomi/statistikker/uhtjenester	Q	
	Sea and coastal transport abroad	Estimated Price index for sea transport	https://lloydslist.maritimeintelligence.informa.com/ http://www.harperpetersen.com/harpex/harpexVP.do https://www.ssb.no/transport-og-reiseliv/statistikker/skipute/aar	Q	Estimated price index for sea transport based on information from global freight indices

	Sea and coastal transport domestic	A-ordning'		M	Number of jobs, overtime and absence
	Sea and coastal transport domestic	Consumer price index	http://www.ssb.no/en/kpi	M	
	Air transport	Air transport	https://www.ssb.no/en/transport-og-reiseliv/statistikker/flytrafikk	M	Number of passengers on domestic flights
	Air transport	Consumer price index	http://www.ssb.no/en/kpi	M	
	Warehousing and support activities for transportation	'A-ordning'		M	Number of jobs, overtime and absence
	Warehousing and support activities for transportation	Air transport	https://www.ssb.no/en/transport-og-reiseliv/statistikker/flytrafikk	M	Aircraft movements and number of passengers on domestic flights
	Warehousing and support activities for transportation	Consumer price index	http://www.ssb.no/en/kpi	M	
	Postal and courier activities	'A-ordning'		M	Number of jobs, overtime and absence
	Postal and courier activities	Producer price indices for services	https://www.ssb.no/en/priser-og-prisindekser/statistikker/tpinaering/kvartal	Q	Price index for postal and courier services
Accommodation and food service activities	*Food service activities*	'A-ordning'		M	Number of jobs, overtime and absence
	Accommodatione activities	Hotel and camping accommodation	http://www.ssb.no/en/transport-og-reiseliv/statistikker/overnatting	M	Number of hotel and camping guest nights
	Accommodation and food service activities	Consumer price index	http://www.ssb.no/en/kpi	M	Detailed information from the CPI is used for different parts
Information and communication	*Information and communication*	'A-ordning'		M	Number of jobs, overtime and absence
	Telecommunications and information and communication services	Producer price indices for services	https://www.ssb.no/en/priser-og-prisindekser/statistikker/tpinaering/kvartal	Q	Producer price index for telecommunication services

	Publishing activities	Consumer price index	http://www.ssb.no/en/kpi	M	
Financial and insurance activities	*Directly paid banking services*	Bank Axept	https://bankaxept.no/	M	Number of card transactions
	FISIM	Financial corporations, accounts	https://www.ssb.no/en/bank-og-finansmarked/statistikker/banker/maanedsbalanse	M	Loans and deposits
	FISIM	Interest rates in banks and mortgage companies	https://www.ssb.no/en/bank-og-finansmarked/statistikker/renter	M	Interest rates, loans and deposits
	Banking services and other fiancial services	Consumer price index	http://www.ssb.no/en/kpi	M	
	Insurance service and other financial services	'A-ordning'	http://www.ssb.no/en/bank-og-finansmarked/statistikker/forsikring	M	Number of jobs, overtime and absence
	Insurance services	Life and non-life insurance companies, accounts	http://www.ssb.no/en/bank-og-finansmarked/statistikker/forsikring	Q	Net premiums
Real estate activities	*Real estate activities*	'A-ordning'		M	Number of jobs, overtime and absence
	Real estate activities	Consumer price index	http://www.ssb.no/en/kpi	M	
	Dwelling services of owner-occupiers	Building statistics	http://www.ssb.no/en/bygg-bolig-og-eiendom/statistikker/byggeareal	M	Buildings started
Professional, scientific and technical activities + Administrative and support service activities		'A-ordning'		M	Number of jobs, overtime and absence
		Producer price indices for services	https://www.ssb.no/en/priser-og-prisindekser/statistikker/tpinaering/kvartal	Q	Price indices for several services
Education, market producers	*Education*	'A-ordning'		M	Number of jobs, overtime and absence
	Education	Consumer price index	http://www.ssb.no/en/kpi	M	
Health and social work, market producers	*Human health activities*	'A-ordning'		M	Number of jobs, overtime and absence
	Social work	Kindergartens	http://www.ssb.no/en/utdanning/statistikker/barnehager	A	Amount of hour spent on child care
	Human health activities and social work	Consumer price index	http://www.ssb.no/en/kpi	M	
Arts, entertainment and other service activities,		'A-ordning'		A	Number of jobs, overtime and absence
		Consumer price index	http://www.ssb.no/en/kpi	M	

market producers					
General government	*Central and local government*	General government revenue and expenditure	https://www.ssb.no/en/offentlig-sektor/statistikker/offinnut/kvartal	Q	Quarterly figures are compiled for the QNA by the Division for Public finance. Adjusted to accrual accounting
	Central government			M	
NPISH	*Human health activities*	General government revenue and expenditure	https://www.ssb.no/en/offentlig-sektor/statistikker/offinnut/kvartal	A	Man-years is used to extrapolate compensation of employees in constant prices.Annual grants from central government
	Remaining industries: Education, Social work, Arts, entertainment and recreation, Other service activities	'A-ordning'		M	Number of jobs, overtime and absence
Gross fixed capital formation	*General indicator*	Building statistics	http://www.ssb.no/en/bygg-bolig-og-eiendom/statistikker/byggeareal	M	*Asset type Buildings and construction*
	General indicator	The Norwegian Public Roads Administration	http://www.vegvesen.no/en/The+NPRA/About+the+NPRA/Facts/Norwegian+Public+Roads+Administration.56886.cms	M	*Asset type transportation vehicles*
	Agriculture	The Budgeting Committee for Agriculture	http://www.nilf.no/english/Account_statistics_in_agriculture_and_farm_forestry	A	
	Fisheries	External trade in goods	http://www.ssb.no/en/utenriksokonomi/statistikker/muh	M	
	Petroleum activities	Oil and gas activities, investments	https://www.ssb.no/en/kis	Q	
	Manufacturing and electricity supply	Investments in manufacturing, mining and quarrying and electricity supply	https://www.ssb.no/en/kis	Q	
	Wholesale and retail trade	Retail sales, investment statistics	http://www.ssb.no/en/varehandel-og-tjenesteyting/statistikker/detinv	Q	

	R&D and other intellectual property products			M	*Follows production in industries*
	General government	General government revenue and expenditure	https://www.ssb .no/en/offentlig - sektor/statistikk er/offinnut	Q	
Household final consumption expenditure	*Consumption of goods*	Index of retail strade	http://www.ssb. no/en/varehand el-og- tjenesteyting/sta tistikker/doi	M	
	Consumption of goods	Consumer price index	http://www.ssb. no/en/priser-og- prisindekser/sta tistikker/kpi	M	
	Consumption of goods	The Norwegian Brewer- and Beverage Association	http://www.drik keglede.no/tall_ og_fakta/	M	Figures for mineral waters and beer - volume
	Consumption of goods	Electricity consumption	http://www.ssb. no/en/energi- og- industri/statistik ker/elektrisitet	M	Volume information
	Consumption of goods	Initial registration of cars	http://www.ofv. no/	M	Volume information
	Consumption of goods	Sale of petroleum products	http://www.ssb. no/en/energi- og- industri/statistik ker/petroleumsa lg	M	Volume information
	Consumption of services	Output in corresponding industries		M	Consumption groups *Paid and imputed rent (+fees)*, *Services incidental to dwellings(+fees)*, parts of *Repair of personal and household goods, Human health services(+fees)*, *Passenger transport*, parts of consumption group *Repair of motor vehicles, parking etc.* (fees), *Postal and courier consumption*, parts of *Leisure service consumption(+f*

						ees), Education(+fees), and *Accommodation and food service consumption(+fees), Banking services, legal and business activities consumption (+fees),* parts of *Kindergartens and other personal services(+fees)*
Employment and population	*Employment and compensation of employees*	'A-ordning'	https://www.skatteetaten.no/en/business-and-organisation/employer/the-a-melding/about-the-a-ordning/about-a-ordningen/	M		
	Compensation of employees, general government	General government revenue and expenditure	https://www.ssb.no/en/offentlig-sektor/statistikker/offinnut	Q		
Import/Export	*External trade in goods*	External trade in goods	http://www.ssb.no/en/utenriksokonomi/statistikker/muh	M		
	External trade in services	External trade in services	http://www.ssb.no/en/utenriksokonomi/statistikker/uhtjenester	Q		
	External trade in goods	External trade in goods, indices of volume and price	http://www.ssb.no/en/utenriksokonomi/statistikker/uhvp	Q		

References

Bloem, A.M., Dippelsmann. J, Mæhle, N.Ø. (2001): Quarterly National Accounts Manual. Concepts, Data Sources, and Compilation. International Monetary Fund
https://www.imf.org/external/pubs/ft/qna/2000/Textbook/

Handbook on quarterly national accounts. Eurostat 2013
https://ec.europa.eu/eurostat/web/products-manuals-and-guidelines/-/KS-GQ-13-004

European system of Accounts 2010 (ESA 2010). Eurostat 2013
https://ec.europa.eu/eurostat/web/esa-2010

System of National Accounts 2008. European Commision, IMF, OECD, United Nations, World Bank 2009.
https://unstats.un.org/unsd/nationalaccount/docs/SNA2008.pdf

ESS Guidelines on Seasonal Adjustment. Eurostat (2015)
https://ec.europa.eu/eurostat/web/products-manuals-and-guidelines/-/KS-GQ-15-001

Rodriquez, Joaquin (2012). Seasonal adjustment: direct versus indirect approach. Two cases from the Norwegian Quarterly National Accounts.
http://search.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=STD/CSTAT/WPNA(2012)23/ADD1&docLanguage=En

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