STATISTICS DENMARK

Documentation of statistics for Construction 2018 Quarter 4

Statistics Denmark
Sejrøgade 11
DK 2100 København Ø

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1 Introduction

The construction statistic are a statement of the actual activity in construction, based on the Building- and Dwelling Register (BBR). The purpose is to produce statistics monitoring total construction activity (measured by total floor area) and total residential construction (measured by numbers of dwellings).

2 Statistical presentation

The quarterly construction statistics are compiled on the basis of data extracted from the registers on buildings and dwellings. The unit of counting is the floor area or the number of dwellings. The statistics are primary distributed by the state of the building projects, type of building and type of client.

2.1 Data description

The construction statistics are compiled on the basis of data extracted from the registers on buildings and dwellings. The statistics are based on building permits, etc. compiled by the municipalities, when construction results in an increase of the floor area or the number of dwellings. The statistics show the state of the building projects (permitted, started, completed and under construction) with information on type of building, geographical groups and type of client. Because of delays in the municipalities' registrations in the Central Register of Buildings and Dwellings provisional figures are published, which give an estimate of the construction activity. Data are revised back in time.

The data reported by the municipalities are based on the actual building cases, which imply that in cases where a building permit is not required data are not reported. Government institutions decide the extent and requirements. For more information on variables and their definitions, see http://www.ois.dk.

The statistics monitor all building permits, which increase the floor area or the number of dwellings. Building projects are grouped by their state:

- Building permits: The permit given by the municipality for starting a construction within a given period. The building permit will be annulled, if the construction is not started within a year. Some construction did not require a building permit, but only a notification. In a statistical context, the building permit and the notification are the same
- Start of construction: The date for the physical start of the construction. For non-residential buildings used for agricultural purposes etc. and small buildings (garages, carports and outhouses) the date of the building permit and the date of the construction started are similar. This kind of building is treated less strictly according to the Act.
- Completion of construction: A certificate for use or provisional use is given or for reasons where the construction is completed and no certificate is needed.
- Under construction: A building stock of building activities, which have started but not yet completed at a certain time (normally, at the end of the reference period).

The Central Register of Buildings and Dwellings monitors 3 units:

- Property/Site (= land register)
- Building
- Unit in Building

In the "old" BBR, The property unit identifies the public tax assessment of real property. In the

changed BBR "property" is replaced by site and ownership as the superior identification. The building is defined as a coherent construction built on a separate real property, and which is mainly constructed using uniform materials and with approximately the same number of floors. Furthermore, there must be entrance facilities from the street. A unit in a building is defined as one or several coherent rooms etc. used for residential or non-residential purposes. It is decisive that the unit can be independently addressed.

The statistical unit for construction statistics is the building. The property (or site and ownership) unit is used for identification and the units in the buildings submit figures on floor area and numbers of dwellings.

The unit of counting is the floor area or dwelling. Buildings are in some cases equal to building cases:

- The statistics use different terms for spaces. The most important terms are: The total building space equalling the sum of the space of all floors, the potentially utilized attic space but not the basement space and the building ground space (area built on), which is equal to the ground floor space.
- The term dwelling is delimited by the unit in a building, which is an all-residential unit, a combined residential and non-residential unit or a room (with a unique address.). The basic point is that the dwelling shall be sanctioned to be used throughout the year

In the Central Register of Buildings and Dwellings each building permit has several variables with information. The most important variables are:

- Main use of the building: The actual use is registered. If the building is used for several purposes, the use accounting for the greatest space is registered. The classification has 5 classes and 27 objects. The classes are residential buildings (weekend cottages excluded), production buildings, warehouses, farm buildings, industry and manufacturing buildings, public works etc., buildings for administration and trade, transport, personal services, buildings for cultural purposes plus institutions and other buildings.
- Type of builders: Private, housing societies and public builders (determined by the ownership).
- Construction materials: external cladding, type of roof and type of heating.
- Geography: Counties/Regions and municipalities.

The purpose is to monitor quarterly construction activities in terms of absolute figures. The statistics are estimated using monthly data from the Central Register of Buildings and Dwellings. During the time of producing the statistics Statistic Denmark has noted that there are delays in the municipality's data registrations. This makes it necessary to estimate provisional figures to be used for measuring construction activities.

The quarterly publications also contain a seasonally adjustment.

2.2 Classification system

The construction statistics follow the classification in the Central Register of Buildings and Dwellings (Bygnings- og BoligRegisteret) (BBR), but there are made some groupings. The most important are:

Unit:

- Total floor space: All floor space, incl. roof space, but excl. basement
- Number of dwellings: The sum of dwellings with kitchen and individual rooms for habitation

Use of buildings (BYG.21):

- Residential buildings: Code 110 to 190
- Production, administration, etc: Code 210 to 390
- Other buildings: Code 410 to 930
- One-family houses: Code 110 to 130
- Multi-dwelling houses: Code 140
- Other buildings/dwellings: Code 150 to 930

Up to 31. August 2016 there were (partly) different codes for use of building and for use of unit. Since 31. August 2016 is the coders identical and there are a line of new codes for use. The implementation of the new codes will take place in period of years, for instance through a new registration of all buildings used for production, business, agriculture, etc. Until the implementation is finish, the old codes will be used - with few exceptions, see the section concerning the Comparability. How the new codes are merged to the old codes can been seen in the following files, Merging of codes for use of buildings and Merging of codes for use of units.

Builders (BYG.92):

- Private builders: Code 10, 30, 40, 41 90 (private persons, private co-operative societies, companies and the like, plus others.
- Housing societies: Code 20
- Public builders: Code 50 to 80 (municipality, region and state)

2.3 Sector coverage

The sector for construction and civil engineering.

2.4 Statistical concepts and definitions

State of construction: - Building permits: The permit given by the municipality for starting a construction within a given period. The building permit will be annulled, if the construction is not started within a year. Some construction did not require a building permit, but only a notification. In statistical context, the building permit and the notification are the same: - Start of construction: The date for the physical start of the construction. For non-residential buildings used for agricultural purposes etc. and small buildings (garages, carports and outhouses) the date of the building permit and the date of the construction started are similar. This kind of building is treated less strictly according to the Act. - Completion of construction: A certificate for use or provisional use is given or for reasons where the construction is completed and no certificate is needed. - Under construction: A building stock of building activities, which have started but not yet completed at a certain time (normally, at the end of the reference period).

Central variables: In the Central Register of Buildings and Dwellings each building permit has several variables with information. The most important variables are:

- Main use of the building: The actual use is registered. If the building is used for several purposes, the use accounting for the greatest space is registered. The classification has 5 classes and 27 objects. The classes are residential buildings (weekend cottages excluded), production buildings, warehouses farm buildings, industry and manufacturing buildings, public works etc., buildings for administration and trade, transport, personal services, buildings for cultural purposes plus institutions and other buildings.
- Type of builders: Private, housing societies and public builders (determined by the ownership).
- Construction materials: external cladding, type of roof and type of heating.
- Geography: Counties/Regions and municipalities.

Population: - Property/Site (= land register) - Building - Unit in Building

In the "old" BBR, The property unit identifies the public tax assessment of real property. In the changed BBR is "property" replaced by site and ownership as the superior identification. The building is defined as a coherent construction built on a separate real property, and which is mainly constructed using uniform materials and with approximately the same number of floors. Furthermore, there must be entrance facilities from the street. A unit in a building is defined as one or several coherent rooms etc. used for residential or non-residential purposes. It is decisive that the unit can be independently addressed.

2.5 Statistical unit

The counting unit is the building, which is calculated on:

- Total floor space: All floor space, incl. roof space, but excl. basement (all areas are measured to the outside of the external wall or to limited roof area).
- Ground space (area built on): Equal to the ground floor space
- Number of dwellings: The sum of dwellings with kitchen and individual rooms for habitation - the dwellings shall be approved for habitation

2.6 Statistical population

The population consist of the construction activities, which demands a building permits. The construction activities can be new construction, bigger extensions and conversions and demolitions. The statistics include only building cases/permits which include a supply of area and/or dwellings, that means demolitions are not included.

2.7 Reference area

Denmark.

2.8 Time coverage

- Total construction: 1982 and forward
- Dwelling construction: 1981 and forward

2.9 Base period

Not relevant for these statistics.

2.10 Unit of measure

The units of measure are:

- Total floor space (square meters)
- Number of dwellings

2.11 Reference period

The time of reference is the quarter.

2.12 Frequency of dissemination

The statistics are published quarterly.

2.13 Legal acts and other agreements

Section 8 of the Act on Statistics Denmark secures the legal ground for collecting the data. The statistics fall under Council Regulation (EU) no. 1165/98 of 19 May 1998 and no. 1893/2006 of 20 December 2006 regarding short-term-statistics.

2.14 Cost and burden

As the BBR is an administrative register, there is no response burden.

2.15 Comment

The Construction sector has a subject page: Construction.

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3 Statistical processing

The construction statistics are compiled on the basis of data extracted from the Central Register of Buildings and Dwellings and is updated quarterly. Data valuations (correct errors) and a number of controls (valuations of quality) are carried out. Furthermore, different diverted variables and delimitations are formed. There are both non-corrected figures ("raw" figures) and corrected figures (because of delayed reporting). The quarterly publications also contain a seasonally adjustment.

3.1 Source data

The construction statistics were previous based on questionnaires to the municipally. After 1980 the construction statistics are compiled on the basis of data extracted from the Central Register of Buildings and Dwellings, which was established in 1977 (Act No. 243 of May 12, 1976) and came into force from 1980. For updating a building statistics register Statistics Denmark receives monthly data from the Central Register of Buildings and Dwellings. On 1. December 2009 the BBR was modernized and changed. In June 2017 come a new version of BBR.

3.2 Frequency of data collection

Data are collected monthly, but published quarterly.

3.3 Data collection

The construction statistic are based on the reports from the municipalities concerning the actual activity in building construction to Building and Dwelling Register (BBR). When the municipalities issued a building permit, it is reported to BBR. Statistics Denmark receives every month a copy of BBR. Every quarter, the monthly deliveries in the quarter are added up and then the register of building cases (BSR) is updated - when the data have been "cleaned", filed and the derived/compounded data are created.

3.4 Data validation

In connection with the import of figures to the Register for Building Cases (BSR) is there carried out a process of correcting errors where the following buildings cases are removed:

- Duplicates where the building_Id, date for building project and litra are identical.
- Building cases which are registered as ended without being completed. These cases are when the building has changed the number of property in case of dividing up or the like.
- Building cases which have no date of building project. It is buildings which are purely registered because of § 20 in the BBR-law. This is done because it should be possible to see future building projects when the building is traded.
- Building cases with negative intake of dwellings and/or area, typically demolitions.
- Temporary buildings. In connection with the publishing of 2nd quarter 2015, there is made a change of method where temporary buildings, typically pavillons and site huts, is removed back to 1st quarter 2010 and forward

The control consist of basically in four elements, namely control of if there are reports for all months and all municipalities in the reference quarter, if the reported "raw figures" (non corrected figures from the municipalities) contain errors, if the estimations (correction for delayed reporting) and the seasonal adjustment looks reasonable.

The updated BSR (register for building cases) is subject to a number of controls:

1. Figure import control: In this control there is a control partly of, if the date of delivery is correct (shall be in the actual delivery month), and partly of, if the parts of imported elements are on a satisfactory level, e.g. there shall be addresses on all buildings and there shall be a land register attached to all buildings
2. The total overview: It is a making up of permitted, started and completed construction, calculated on number of dwellings, total floor area and number of building cases. They are undertaking a valuation of, if the figures looks reasonable. They shall be higher than last quarter. Simultaneous, the Model version and the timetable is controlled.
3. Logical control for "outlayers", which exceed defined limits for number of dwellings, average size of dwellings and total floor space, checked against the use of the building and phase of construction
4. Individual control: This is a manual control of probability where focus is on the construction distributed on municipalities. The individual municipalities reports of the total construction for permitted, started and completed buildings is compared with the similar quarter 3 years back. If there are "suspicious" developments, all the building cases from the municipality concerned looking through and the "suspicious" building case is identified and analyzed. If it is evaluated as an error, the municipality is contacted. Possible errors are corrected in BSR.
5. Sum control: In connection with the estimation calculations there is partly a control of, if all the new months are included, and partly of, if the estimated figures looks reasonable.
6. Estimation control: The control consist of a evaluation, how good the estimations on permitted, started, under construction and completed construction hit the objective on +/- 5 % of the "final" figure (7. estimat).
7. Control sheet: In connection to the seasonal adjustment there is a control of, if all months in the reference quarter are there, and if the figures looks reasonable, e.g. if they are following the general tendency.

3.5 Data compilation

When the "raw" figures (not adjusted for delays) are enclosed in the BSR, an updating of the buildings address is taken place. Delayed reports from the municipalities are the construction statistics greatest problem. Statistics Denmark has established a model for estimation, which corrected the "raw" figures for these delays. The model estimates the extent of the delays and

corrected the reported figures for this in the last 18 months. The greatest challenge in the project has been to find a permanent pattern in the delays. The definition of a delay is, when a reported building case does not concern the actual counting month, so it is delayed. In http://www.Statbank.dk there is a making up of changes between the first reported figures and the figures today by phase of construction BYGVFORS.

The latest model for estimation is from 2012. It is based on the original model from 1996. The starting point for the model is, at analyses showed, that after 18 months there are very small revisions in the reported figures. Therefore, these are regarded as "final", but are still revised. Analyses also showed that the phase of construction, use of buildings, type of building case and type of builders were good variables for explanations. At the same time, it was clear, that it was not possible to make estimations on municipality level. There were too few data in particular the small municipalities.

The new model for estimation is in principle the same as the old model which takes into account:

- The state of the building permit.
- Floor area or number of dwellings.
- The classification: Use of Building.
- New building or conversion of buildings, etc.
- The classification: Ownership
- An ongoing revision at the times of publication, taking into account the delays observed. For each state of building project a raising-factor is estimated using analyses of regression for delays.
- No estimate is made for the geography and the number of buildings.

The new model for estimations results in two main differences:

1. It is less detailed. Earlier the model operated with about 1 mill estimation factors. It is reduced to about 13.000 in the new model. The reduction is done by grouping use of building and type of builders. It will give the model a greater robustness, because it result in more data to calculations of the individual factors.
2. To take the influence from the state of the market into account an extra variable, "trend", is included. Experience shows that more construction activity, means more delays. The "trend" is a measure of the difference between the actual month compared with the last month.

The method: There are made a set of raising factors for each series (12 pieces), based on data 5-6 years old, implying that data which shall be part of the model are not included in the calculations. This gives a higher validity. The series are made up by 13,000 linear regression analyses. In the original model there were 1,000,500 regression analyses, but the calculation has been done less detailed to be more robust because there will be more data to calculate the individual factors of estimation. The smaller degree of detail is received by grouping the use of building and type of builders into main groups. Furthermore, the monthly factor is removed, because analyses showed that it was not important. As a decisive change a "factor of trend" is made to open up better possibility to follow the state of marked and especially the changes in this. The trend difference is the difference between the current month and the previous month. The "trend" is calculated as a gliding average for each combination of the background variables. The criteria for success are that the 1st estimate of a month must range inside +/- 5 % of the "final" estimate for the same month (18th estimate).

Small buildings: The government pass into law that small buildings (typically garages, carports and outhouses) until 50 m2 not - under certain conditions - longer are obliged to report construction (new construction, extention/rebuilding or demolishing) to the municipality. The event shall alone recorded in master data, in other words there will be no building project. In the construction statistic will these cases be picked up in master data and imposes a "building project" which handled

similar other building project.

3.6 Adjustment

Seasonal adjustment is performed for permitted, started, under construction and completed construction back to 1998, by main groups of use of building (total floor space) and type of dwellings (number of dwellings).

It was earlier only the four main time series: started and completed floor area and started and completed dwellings, which were seasonally adjusted. In connection with publishing 2th quarter 2012, a revised and extended seasonally adjustment was performed. Now all series are seasonally adjusted, total and distributed by main groups of use of the buildings.

4 Relevance

The statistics are used by a wide range of users, from both the private and the public sector, news media and Eurostat. From the private sector users are mainly large companies and business organizations, while mainly ministries and municipalities represent the public sector.

Furthermore, The statistics are used as input in the national accounts statistics, published quarterly by Statistics Denmark to calculate the gross value added for the construction sector and as input in other parts of Statistics Denmark, e.g. to calculate rent.

4.1 User Needs

The statistics have three main purposes: planning, market analyses and analyses of main indicators. The primary use of the statistics is to monitor trends in the market for construction. These trends are, among other things, used in public debates concerning national economic matters. The statistics are used by a wide range of users, from both the private and the public sector. From the private sector users are mainly large companies and business organisations, while mainly ministries and municipalities represent the public sector.

4.2 User Satisfaction

The users in general view the construction statistics as an important and relatively fast short term-indicator. The statistics are often quoted in the media and used widely by other professional users. There are at the same time a certain demands for special deliveries - often more detailed data than the published data - which are delivered in accordance with Statistics Denmark´s of service.

The justified criticism voiced by the users concerns the extensive size of revisions due to delayed reports from the municipalities. The criticism points, to a considerable extent, at the municipalities and not Statistics Denmark.

4.3 Data completeness rate

It is not all variables in BBR which are published. Statistics Denmark have all variables in BBR.

This statistics is affected by demands from EU. In terms of completeness all these demands are fully met - however, office buildings can not separate sorted out.

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5 Accuracy and reliability

In general, the latest figures for the construction must be regarded with reservations, because the data source is uncertain. The main source of inaccuracy is the delays in the municipality's data registrations in the Central Register of Buildings and Dwellings. The estimates made by Statistics Denmark attempt to address this problem. The model estimate the delays for the latest 18 months and revises the figures in respect hereof. The estimate is encumbered with uncertainty, because there is not a steady pattern in the size and causes of the delays. It applied generally that the information on completed construction is more reliable than the information on started construction. Furthermore, the information on total construction is more reliable than for the number of dwellings.

5.1 Overall accuracy

A survey of the overall accuracy of the statistics has never been conducted. In general, the latest figures for the construction must be regarded with reservations, because the data source is uncertain. The statistics on construction are based on the database (the Central Register of Buildings and Dwellings/BBR) which contain all building cases and buildings in Denmark. The main source of inaccuracy is the delays in the municipality's data registrations in the BBR.

Therefore, the "raw" figures (uncorrected figures) are marked by great uncertainty in connection with their first publications. The delays varied widely, depending on the building phase and if it is total construction or construction of dwellings. Analyses show that most of the delays are received after 6 months and after 18 months and figures are regarded as "final", because there are only few and minor revisions after that time.

Generally, the quality can be evaluated to be of a reasonable quality which with some reservations can be used to estimate the market trend in construction. Normally, there are some different degrees of underestimation until the figures are being "final" after 18 months.

5.2 Sampling error

Not relevant for these statistics.

5.3 Non-sampling error

The construction statistic is register based (BBR), which in principle covers the target population. Our population differentiated a little from BBR:, because there are removed some building cases, which is not regarded as relevant for the construction statistic (see section 5.03.01). Furthermore are there added some building cases, which of different reasons not are included (see 5.03.01).

- Only recorded building project, i.e. constructions without building projects are not included - however there is a exception, construction of small buildings (garage, carport and outhouse) under 50 square metre, see chapter 3.05
- A range of "wrong" building projects are erased, e.g. doublets, se chapter 3.04
- Only buildings cases with a increase in dwellings and/or total floor space are included, which imply that demolitions and repair- and maintenance work are not included, if they not result in a increase in dwellings and/or total floor
- Measurement errors appears, typically errors in number of dwellings. Data validation catch this and they are been corrected in co-operations with the municipalities
- The problem of non-response is primarily a question of delayed reporting to the register. A model for estimation seek to corrected for this
- If any miscalculations they will be corrected and there will be published revised figures
- The statistical model is generally speaking determined by BBR. But there are carried out some delimitations in relation to what are published, see chapter 5.3.5

The problem concerning non-response hangs basically about delayed reports to the register (BBR). Through the estimation model do we make an attempt to take corrective actions (see 5.03.03).

5.4 Quality management

Statistics Denmark follows the recommendations on organisation and management of quality given in the Code of Practice for European Statistics (CoP) and the implementation guidelines given in the Quality Assurance Framework of the European Statistical System (QAF). A Working Group on Quality and a central quality assurance function have been established to continuously carry through control of products and processes.

5.5 Quality assurance

Statistics Denmark follows the principles in the Code of Practice for European Statistics (CoP) and uses the Quality Assurance Framework of the European Statistical System (QAF) for the implementation of the principles. This involves continuous decentralized and central control of products and processes based on documentation following international standards. The central quality assurance function reports to the Working Group on Quality. Reports include suggestions for improvement that are assessed, decided and subsequently implemented.

5.6 Quality assessment

A survey of the overall accuracy of the statistics has never been conducted. In general, the latest figures for the construction must be regarded with reservations, because the data source is uncertain. There are several "elements of uncertainty" concerning a correct estimation of the provisionally figures for construction. For the same reason, the statistics on construction do not operate with final figures, the figures are revised back to 1998 in every publication.

The main sources of inaccuracy are:

1. *The observed delays in the municipality's registrations*. This is the greatest element of

uncertainty. The definition of a delayed report is that the report does not have a bearing on the actual month of reference. It is difficult to state on single quality assessment, because the series, permitted, started, under construction and completed construction, have different sizes of delays. Since 2006 the size of delays for the "raw" figures (the uncorrected figures) is made up for started and completed construction. The figures can be seen in Statistikbanken/Business sectors/Construction/BYGVFORS. The statement shows the percentage growth of the first reported figures for a quarter up until today. It shows - together with other analyses - that: - The greatest delays are fund within the started construction, especially the started dwellings with a average percent of delay of about 75 %, - The smallest delays are fund within the completed construction, where there is no big difference between the total construction and construction of dwellings with an average percent of delay of about 20 %, - The size of delays in started construction is between the started and the completed construction, - The greatest part of the delays is received after 6 months and after 18 months and the figures are regarded as "final", which means that there are only minor revisions of the figures after that, - All experiences shows that the higher construction activities, the more delays and vice versa.

2. *The quality of the reported figures*: Concerning the central variables, primary areas and number of dwellings, there is a great effort to secure the quality of these figures. Systematic surveys of the quality has never been conducted, but more analyses indicate that the quality is reasonable.
3. *The quality of the model of estimations which try to estimate what the statistics would have been if there were no delays*. The model of estimation is described in the section about data compilation. It has appeared to be very difficult to find a stable pattern in the delays, because there are a great variety of causes, e.g. few resources in the municipalities, inexpedient administrative procedures and the builders often lacking/delayed reporting to the municipalities. The original model of estimation from 1996 had a basic problem, namely a lacking capacity to catch short time changes in the market trends. All experiences show that the higher construction activities, the more delays and vice versa. Therefore, the original method would on short-time underestimate at high market trend and vice versa. The new model for estimation from 2012 had tried to adjust by introducing a "factor of trend", see the sector about data compilation. The objective for the first estimates of the activity is plus/minus 5% compared to the "final" published figures (18th estimate). A deviation of +/- 10 % is - for the moment - accepted. The quarterly controls show: - Permitted construction: The total construction shows an "acceptable" level from the second estimate of the quarter, while the construction of dwellings first reach a "acceptable" on fourth estimate, - Started construction: The total construction shows a "acceptable" level from the fourth estimate of the quarter, while the construction of dwellings reach an "acceptable" on the fifth estimate, - Under construction: Both the total construction and the construction of dwellings show an "acceptable" level from the first estimate of the quarter, - Completed construction: Both the total construction and the construction of dwellings shows a "acceptable" level from the second estimate of the quarter. The general quality of the statistics on construction must be evaluated as reasonable. There are a number of conditions that must be taken in considerations when the statistics are used. With this starting point, the statistics are a reasonable indicator for the marked trends in construction.
4. 'A problem related to the method of estimation*: The chosen method of estimation needs the capacity to catch the full effect on the fluctuations in the market in the short run.

5.7 Data revision - policy

Statistics Denmark revises published figures in accordance with the Revision Policy for Statistics Denmark. The common procedures and principles of the Revision Policy are for some statistics supplemented by a specific revision practice.

5.8 Data revision practice

Because of the problem of delays, final figures are not produced. The figures are revised in step with the received delayed building cases.

6 Timeliness and punctuality

The statistics of construction are published quarterly (monthly as well as quarterly statistics). The statistics are published at the beginning of May, August, November and February. The punctuality is high and there are very few delays in relation to the scheduled dates.

6.1 Timeliness and time lag - final results

There is no distinction between provisional and final figures, because all figures after 1997 are regarded as provisional.

6.2 Punctuality

The quarterly statistics are normally published according to schedule.

7 Comparability

The greatest obstacle for the comparability over time is the change in 1981 from the survey-based statistic to the register-based statistic (BBR). It gives both a break in time series and a market extension of the descriptive variables, see the section on comparability over time. There are come out new versions of BBR,, which had result in some data break and the like, see 7.02.

7.1 Comparability - geographical

Every month figures for permitted construction are submitted to the statistical office of EU, Eurostat. Data for all EU countries can be found in the Eurostat database. The statistics are produced following the principles of an EU regulation, so the results are comparable

7.2 Comparability over time

Full data comparability over time is only possible from the year 1980. Before 1980 the statistics for construction were compiled on the basis of surveys and there are different geographic degrees of coverage and some differences in definitions. There are conducted different projects where attemps are made to carry the comparability longer back in time:

For the completed construction activities, estimates are available (the coverage compared with BBR):

- January 1950 - March 1960: The metropolitan area plus the 5 largest towns and their suburbs (degree of coverage: around 35%).
- April 1960 - December 1968: The metropolitan area plus the 18 largest towns and their suburbs (degree of coverage: around 50%).
- January 1969 - March 1970: Urban areas with more than 10,000 inhabitants (degree of coverage: around 50%).
- April 1970 - December 1972: Urban areas (degree of coverage: around 70%).

- January 1973 - December 1979: All Denmark (degree of coverage: 100%)

Furthermore, for the year 1979 the statistics of construction activities, based on questionnaires, are compared with the statistics based on the Central Register of Buildings and Dwellings. The new method proved to have 20% more floor area and 5% more dwellings, measuring the start of constructions.

There are established some historical series in Statistikbanken, see Historical summaries:

- BYGV04: Total construction back to 1939, by phase of construction and use
- BYGV05: Residential construction back to 1917, by phase of construction, use and builders
- BYGV06: Average floor area in new-constructed dwellings back to 1916, by use

Since the publication of 3th Quarter 2010, the statistics are based on a changed BBR, which has resulted in some correction in the figures back to 1998.

The main consequences are seen within construction of dwellings:

- 1998-2002: a reduction in number of permitted, started and completed dwellings of about 1 %
- 2002-2005: a reduction in in number of permitted, started and completed dwellings of about 4 %
- After 2005: a rise in number of permitted, started and completed dwellings of under 2 %

For the total construction the rise has only be under 1 % for permitted, started and completed construction.

The change of method in connection with publishing 2nd quarter 2015 where temporary buildings are removed back to 1st quarter 2010 is the estimate that it will have minimal consequences because there are very few registered temporary buildings before 2010. The corrections back to 2010 are about 1 % per. year for both construction of dwellings and area.

Since 31. August 2016 become the codes for use for both buildings and units more detailed and standardized. Until the changes are completely implemented, will the old codes for use been used, with some exceptions: - The level of building: The valuation is that the break in data will be minimal, because it by and large only is in connection with the creation of the new codes for annex there will be relocation between subcategories, e.g. from detached houses to Other residential buildings. For the main categories of use there will not occur changes. The statistics for construction is based on the level of building - The level of unit: It has been necessary to make a break in data - however inside the main category, commercial units, when 3 old codes (340, 350 and 360) are closed and are gathered in a new code (321, office)

In June 2017 came a new version of BBR. This has result in new methods, altered data structure and new, removed or changed variables etc. compared to the replaced version of BBR. This had resulted in two forms for data break (for the present, because the new version is first implemented in 2019): 1. A "temporary" data break concerning permitted and started construction, in particular for dwellings. This is a result of, that the information about "expected number of dwellings" first is re-establish in February 2018, i.e. after the publication of the construction statistics for 4Q 2017. It is expected ahead that it will increase the number of permitted and started dwellings in the first reporting, so that they - as minimum - will come on the level, as they have been before. 2. A minor data break in the time series, because there now come in more square metre in the construction statistics. This is the result of the changed method concerning small buildings (see 3.05) which lead to more square metre (catch more small buildings) and primary a changed duplicate searching, where fewer duplicates are removed. The changed duplicate searching has the effect that in the period 2006-15 there is coming 2.3 pct. more started square metre and 5.8 pct. more started

dwellings in average for all the years (test, February 2018). The consequence of the extension/change in including types of dwellings (all dwellings in residential institution and only legal permanent habitation in summer cottage) uncertain, because they pull different ways, namely more dwellings in residential institutions and fewer dwellings in summer cottages

7.3 Coherence - cross domain

The only statistics where comparability is possible are the statistics on the building stock and the housing censuses.

Because of several differences complete data comparability is not directly possible:

- The problem of delays in the construction statistics.
- The registrations of burnt and demolished buildings are not complete in the construction statistics. The statistics on constructions give a gross figure for the number of new dwellings and new floor area. The housing censuses give net figures
- Comparing the housing censuses and the construction statistic the definition of dwellings differs. The housing censuses include buildings and units of buildings which are linked to an address in the Central Population Register (CPR). The construction statistics include dwellings registered as all-year-residential-dwellings, e.g. excluding weekend cottages.
- Furthermore, data registered directly in the building stock, without building permits, are observed.

7.4 Coherence - internal

Seasonal adjustment is performed indirectly, which results in consistency between seasonal adjusted aggregates and their subcomponents. There are no other sources for possible internal inconsistency.

8 Accessibility and clarity

The statistics are published quarterly in *Nyt fra Danmarks Statistik* (News from Statistics Denmark) and by and large all figures can be found in the Statbank Denmark.

8.1 Release calendar

The publication date appears in the release calendar. The date is confirmed in the weeks before.

8.2 Release calendar access

The Release Calender can be accessed on our English website: Release Calender.

8.3 User access

Statistics are always published at 8:00 a.m. at the day announced in the release calendar. No one outside of Statistics Denmark can access the statistics before they are published. Theme publications etc. may be published at other times of the day. The National Statistician can decide that such publications may be released before their official publication time, e.g. to the media and other stakeholders.

STATISTICS DENMARK

8.4 News release

The figures are published in a quarterly news release: NYT from Statistics Denmark.

8.5 Publications

The figures are included in Statistical Yearbook and Statistisk Tiårsoversigt: (https://www.dst.dk/en/Statistik/Publikationer.aspx).

8.6 On-line database

Construction.

8.7 Micro-data access

There is no micro-data access.

8.8 Other

Scientists, analysts and others have the option to buy detailed micro-data through the Division of Customer Centre , Statistics Denmark.

8.9 Confidentiality - policy

Compilation of the statistics for construction complies with the confidentiality policy of Statistics Denmark (link, in Danish).

8.10 Confidentiality - data treatment

Not relevant for these statistics.

8.11 Documentation on methodology

Documentation, on a detail level, is given in a Danish manual, "BBR-instruks", or http://www.ois.dk.

8.12 Quality documentation

Results from the quality evaluation of products and selected processes are available in detail for each statistics and in summary reports for the Working Group on Quality.

9 Contact

The administrative placement of the statistics is in the Division of Short Term Statistics. The person responsible is Erik Nielsen, tel. +45 39 17 35 41, e-mail: eni@dst.dk

9.1 Contact organisation

Statistics Denmark

9.2 Contact organisation unit

Short Term Statistics, Business Statistics

9.3 Contact name

Erik Nielsen

9.4 Contact person function

Responsible for the statistics

9.5 Contact mail address

Sejrøgade 11, 2100 Copenhagen

9.6 Contact email address

eni@dst.dk

9.7 Contact phone number

+45 39 17 35 41

9.8 Contact fax number

+45 39 17 39 99