

# Joint Eurostat/OECD 2019 questionnaire on the methodology underlying capital stocks data in national accounts

**Country: Belgium**

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## *Information regarding Gross Fixed Capital Formation (GFCF) compilation*

This information sheet presents metadata provided by the country for publication by Eurostat. It informs on the methods and sources used to compile GFCF under the [European System of Accounts 2010](#) (ESA 2010). While the questionnaire has a common structure, the level of detail of replies differs from one country to another and, therefore, only available country replies are shown here.

For easier cross-country comparison, users of GFCF data are invited to consult the tabular presentation of metadata on estimation of capital stocks by asset type, industry and institutional sector:

[Capital Stock Metadata in Tabular Format](#)

### **N111. Dwellings**

**Question 1. What is/are the main source/s to estimate GFCF in dwellings in your country, and which are the products or assets included under this asset category? Please specify if sources differ across industries and/or institutional sectors.**

Gross fixed capital formation in residential property (housing) comprises dwellings in residential buildings, the construction of social housing, corresponding transformations, dwellings in nonresidential buildings and registration fees. GFCF in dwellings is estimated based on a price x quantity approach, based on GDS statistics and average output prices. A detailed description can be found in the GNI inventory p. 483-486.

**Question 2. What is the length of the GFCF series for dwellings? If long GFCF series are available (previous to 1995), how do you estimate historical data? Please, describe additional sources and/or methods, and specify if these differ across industries and institutional sectors.**

GFCF series for dwellings are available in COP (2000 prices) since 1853. These are backwards calculations of GFCF based on: GFCF series from national accounts estimated directly in accordance with ESA 2010 (from 2010 onwards); GFCF series of national accounts in accordance with ESA 95 and converted to ESA 2010 (period 1995-2009); and, the evolution of GFCF series prepared by the Federal Planning Bureau for previous estimates of capital stock, combined with specific sector estimates of NBB for branches that are present in the public as well as in the private sector (period 1853-1994).

**Question 3. Are costs of ownership transfer included in GFCF? How do you define them and treat them in the estimation of capital stocks of dwellings (e.g. treated equally to GFCF, or specific average service life/depreciation profile for these costs)?**

Costs of ownership transfers are included in GFCF and comprise registration duties (tax payable on the acquisition of land and transactions in buildings on the secondary market), as well as associated notary costs. They are treated equally in the estimation of capital stocks of dwellings.

**Question 4. What price indices do you use to deflate GFCF in dwellings, and how do you construct these indices? How do you account for quality improvements? Do you use specific price indices for detailed asset categories? Do these price indices differ across industries / institutional sectors? If they are available, please provide links to and/or relevant documents and metadata on their construction.**

In order to estimate GFCF in dwellings, we use a Price x Quantity approach. The estimate of GFCF in dwellings is subdivided into 4 parts:

1. The new dwellings in residential buildings, which are deflated by using the evolution of its average price
2. The transformations, which are deflated by using the evolution of its average price
3. The dwellings in non-residential buildings, which are deflated by using the evolution of its average price
4. The registration fees, which are deflated by using the information on sales of real estate (published by Statistics Belgium)

How are the corresponding average prices estimated? New dwellings in residential buildings: until 2009, the price/m<sup>2</sup> for the sale of new dwellings is derived from a specific survey of general building contractors (organized every two years and covering t-1). Based on information from the Association of Belgian Experts (ABEX), it is then possible, from the price per m<sup>2</sup> for the shell, to estimate a price for the various other components of the construction cost, i.e. finishing works and charges (architect's fees, fees covering the security and VAT). For the intermediate years, we use the evolution of the ABEX index. The value of new housing is then obtained by combining the price for the shell with the average total area and the price for finishing with the actual living area, by type of dwelling (statistics on building permits). After 2009, due to an insufficient response rate to the survey, the price/m<sup>2</sup> for the shell of new dwellings is extrapolated using ABEX. Transformations: prices are derived as a proportion of the average total price of new dwellings in residential buildings

Dwellings in non-residential buildings: it is assumed that a construction started in the course of that year, and that the construction cost of housing in non-residential buildings amounts to one third of the average building cost of a dwelling in a residential building.

## **N1121. Buildings other than dwellings**

**Question 1. Do you have specific GFCF series for detailed asset categories (e.g. office buildings, industrial buildings, public buildings, etc.)? Are your GFCF series broken down by industry and/or institutional sector? If your answer is yes to any of these questions, please describe and provide the link to available data and relevant documents.**

We do not have specific GFCF series for detailed asset categories but we do have series broken down by industry and institutional sector. This information is however not published.

**Question 2. What is/are the main source/s to estimate GFCF in buildings other than dwellings in your country? Please specify if sources differ across industries and/or institutional sectors.**

Three main sources are used to estimate gross capital formation: the annual accounts from the Central Balance Sheets Office of the National Bank of Belgium, the VAT declaration and the Structural Business Survey (SBS). A detailed description can be found in the GNI inventory. GFCF is estimated first in total by enterprise (industry/sector) and then broken down by asset with a repartition key based on information from the five-yearly detailed structural business survey, adapted for special transactions in the year estimated.

**Question 3. What is the length of the GFCF series? If long GFCF series are available (previous to 1995), how do you estimate historical data? Please, describe additional sources and/or methods, and specify if these differs across assets within this asset category, industries and institutional sectors.**

GFCF series are available in COP (2000 prices) since 1853. These are backwards calculations of GFCF based on: GFCF series from national accounts estimated directly in accordance with ESA 2010 (from 2010 onwards); GFCF series of national accounts in accordance with ESA 95 and converted to ESA 2010 (period 1995-2009); and, the evolution of GFCF series prepared by the Federal Planning Bureau for previous estimates of capital stock, combined with specific sector estimated of NBB for branches that are present in public as well as private sector (period 1853-1994).

**Question 4. Are costs of ownership transfer of buildings other than dwellings included in this GFCF series? How do you define them and treat them in the estimation of net capital stocks of buildings other than dwellings (e.g. treated equally to GFCF, or specific average service life/depreciation profile for these costs)?**

Yes, they are included, in particular the registration duties and associated notary costs. In estimating capital stock, they are treated equally to GFCF.

**Question 5. What price indices do you use to deflate GFCF in buildings other than dwellings, and how do you construct these indices? How do you account for quality improvements? Do you use specific price indices for detailed asset categories? Do these price indices differ across industries/institutional sectors? If they are available, please provide links to and/or relevant documents and metadata on their construction.**

For each product (SUTP\_Asset) a price index is computed based on production price indices and import price indices. The ratio between the two price indices per product is based on the import matrix

(IOT). Price indices for the same product are identical across industries/sectors.

### **N1122. Other structures**

**Question 1. Do you have specific GFCF series for detailed asset categories (e.g. roads, railways, bridges, etc.)? Are your GFCF series broken down by industry and/or institutional sector? If your answer is yes to any of these questions, please describe and provide the link to available data and relevant documents.**

We do not have specific GFCF series for detailed asset categories but we do have series broken down by industry and institutional sector. This information is however not published.

**Question 2. What is/are the main source/s to estimate GFCF in other structures in your country? Please specify if sources differ across industries and/or institutional sectors.**

Three main sources are used to estimate gross capital formation: the annual accounts from the Central Balance Sheets Office of the National Bank of Belgium, the VAT declaration and the Structural Business Survey (SBS). A detailed description can be found in the GNI inventory. GFCF is estimated first in total by enterprise (industry/sector) and then broken down by asset with a repartition key based on information from the five-yearly detailed structural business survey, adapted for special transactions in the year estimated.

**Question 3. What is the length of this GFCF series? If long GFCF series are available (previous to 1995), how do you estimate historical data? Please, describe additional sources and/or methods, and specify if these differs across assets within this asset category, industries and institutional sectors.**

GFCF series are available in COP (2000 prices) since 1853. These are backwards calculations of GFCF based on: GFCF series from national accounts estimated directly in accordance with ESA 2010 (from 2010 onwards); GFCF series of national accounts in accordance with ESA95 and converted to ESA 2010 (period 1995-2009); and, the evolution of GFCF series prepared by the Federal Planning Bureau for previous estimates of capital stock, combined with specific sector estimated of NBB for branches that are present in public as well as private sector (period 1853-1994).

**Question 4. Are costs of ownership transfer of other structures included in this GFCF series? How do you define them and treat them in the estimation of net capital stocks of other structures (e.g. treated equally to GFCF, or specific average service life/depreciation profile for these costs)?**

Yes, they are included if applicable (registration fees + associated notary costs) and treated equally to GFCF.

**Question 5. What price indices do you use to deflate GFCF in other structures, and how do you construct these indices? How do you account for quality improvements? Do you use specific price indices for detailed asset categories? Do these price indices differ across industries / institutional sectors? If they are available, please provide links to and/or relevant documents and metadata on their construction.**

For each product (SUTP\_Asset) a price index is computed based on production price indices and import price indices. The ratio between the two price indices per product is based on the import matrix

(IOT). Price indices for the same product are identical across industries/sectors. There are no explicit adjustments for quality improvements.

### **N1123. Land improvements**

**Question 1. Does GFCF in other buildings and structures (N112) reported in questionnaires 0102 (GDP identity from the expenditure side), 0302 (Capital formation) and 2200 (Cross-classification of gross fixed capital formation (GFCF) by industry and by asset (transactions)) include land improvements (N1123)?**

Estimates for GFCF in land improvements are not included.

**Question 3. Are costs of ownership transfer of land included in land improvements (N1123) and hence in the aggregate asset category other buildings and structures (N112) that you report in the national accounts questionnaires 0102, 0302 and 2200?**

Costs of ownership transfer of land are included in GFCF series for dwellings and other buildings and structures.

### **N1131. Transport equipment**

**Question 1. What is/are the main source/s to estimate GFCF in transport equipment in your country?**

GFCF series are estimated based on the total estimates by industry/sector and a repartition key based on detailed SBS data. We do not have specific GFCF series for detailed asset categories but we do have series broken down by industry and institutional sector. This information is however not published.

**Question 2. Do you have specific GFCF series for detailed asset categories (e.g. motor vehicles, ships, railway locomotives, aircrafts, etc.)? Are your GFCF series broken down by industry and/or institutional sector? If your answer is yes to any of these questions, please describe and provide the link to available data and relevant documents.**

We do not have specific GFCF series for detailed asset categories but we do have series broken down by industry and institutional sector. This information is however not published. For ships, estimates based on the totals and the repartition keys are corrected with data from the balance of payments. Similarly, all large known investments are checked.

**Question 3. What is the length of these GFCF series? If long GFCF series are available (previous to 1995), how do you estimate historical data? Please, describe additional sources and/or methods, and specify if these differ across assets within this category, industries and institutional sectors.**

GFCF series are available in COP (2000 prices) since 1853. These are backwards calculations of GFCF based on: GFCF series from national accounts estimated directly in accordance with ESA 2010 (from 2010 onwards); GFCF series of national accounts in accordance with ESA95 and converted to ESA 2010 (period 1995-2009); and, the evolution of GFCF series prepared by the Federal Planning Bureau for previous estimates of capital stock, combined with specific sector estimated of NBB for branches that are present in public as well as private sector (period 1853-1994).

**Question 4. What price indices do you use to deflate GFCF in transport equipment, and how do you construct these indices? How do you account for quality improvements? Do you use specific price indices for detailed asset categories? Do these price indices differ across industries/institutional sectors? If they are available, please provide links to and/or relevant documents and metadata on their construction.**

For each product (SUTP\_Asset) a price index is computed based on production price indices and import price indices. The ratio between the two price indices per product is based on the import matrix (IOT). Price indices for the same product are identical across industries/sectors. There are no explicit adjustments for quality improvements.

**ICT equipment (N1132): computer hardware (N11321) + telecommunications equipment (N11322)**

**Question 1. What is/are the main source/s to estimate GFCF in computer hardware (N11321) and telecommunications equipment (N11322) in your country? Do you have specific GFCF series for detailed assets within these categories (e.g. data processing machines, peripheral equipment, storage units, etc.) in different industries and/or institutional sectors?**

GFCF series are estimated based on the total estimates by industry/sector and a repartition key based on detailed SBS data. We do not have specific GFCF series for detailed asset categories but we do have series broken down by industry and institutional sector. This information is however not published.

**Question 2. What is the length of GFCF in computer hardware and telecommunications equipment? If long GFCF series are available (previous to 1995), how do you estimate historical data? Please, describe additional sources and/or methods, and specify if these differ across detailed assets within these asset categories, industries and/or institutional sectors.**

GFCF series are available in COP (2000 prices) since 1853. These are backwards calculations of GFCF based on: GFCF series from national accounts estimated directly in accordance with ESA 2010 (from 2010 onwards); GFCF series of national accounts in accordance with ESA 95 and converted to ESA 2010 (period 1995-2009); and, the evolution of GFCF series prepared by the Federal Planning Bureau for previous estimates of capital stock, combined with specific sector estimated of NBB for branches that are present in public as well as private sector (period 1853-1994).

**Question 3. What price indices do you use to deflate GFCF in computer hardware and telecommunications equipment, and how do you construct these indices? How do you account for quality improvements? Do you use specific price indices for detailed asset categories? Do these price indices differ across industries / institutional sectors? If they are available, please provide links to and/or relevant documents and metadata on their construction.**

For each product (SUTP\_Asset) a price index is computed based on production price indices and import price indices. The ratio between the two price indices per product is based on the import matrix (IOT). Price indices for the same product are identical across industries/sectors. There are no explicit adjustments for quality improvements.

**Other machinery and equipment and weapons systems (N110): Other machinery and equipment (N1139) + weapons systems (N114)**

**Question 1. What is/are the main source/s to estimate GFCF in other machinery and equipment and weapons systems in your country? Do you have specific GFCF series for detailed assets within these categories (e.g. electrical equipment, weapons, etc.) in different industries and/or institutional sectors?**

GFCF in other machinery and equipment are estimated based on the total estimates by industry/sector and a repartition key based on detailed SBS data. GFCF in weapon systems are estimated based on information from the government accounts. We do not have specific GFCF series for detailed asset categories but we do have series broken down by industry and institutional sector. This information is however not published.

**Question 2. What is the length of GFCF in other machinery and equipment and weapons systems? If long GFCF series are available (previous to 1995), how do you estimate historical data? Please, describe additional sources and/or methods, and specify if these differ across assets within each asset category, industries and/or institutional sectors.**

GFCF series are available in COP (2000 prices) since 1853. These are backwards calculations of GFCF based on: GFCF series from national accounts estimated directly in accordance with ESA 2010 (from 2010 onwards); GFCF series of national accounts in accordance with ESA 95 and converted to ESA 2010 (period 1995-2009); and, the evolution of GFCF series prepared by the Federal Planning Bureau for previous estimates of capital stock, combined with specific sector estimated of NBB for branches that are present in public as well as private sector (period 1853-1994).

**Question 3. What price indices do you use to deflate GFCF in other machinery and equipment and weapons systems, and how do you construct these indices? How do you account for quality improvements? Do you use specific price indices for detailed asset categories? Do these price indices differ across industries / institutional sectors? If they are available, please provide links to and/or relevant documents and metadata on their construction.**

For each product (SUTP\_Asset) a price index is computed based on production price indices and import price indices. The ratio between the two price indices per product is based on the import matrix (IOT). Price indices for the same product are identical across industries/sectors. There are no explicit adjustments for quality improvements.

**Cultivated biological resources (N115)**

**Question 1. What is/are the main source/s to estimate GFCF in cultivated biological resources in your country? Do you have specific GFCF series for detailed assets within these categories (e.g. orchards, crops, dairy cattle, etc.) in different industries and/or institutional sectors?**

GFCF in cultivated biological resources are estimated based on the total estimates by industry/sector and a repartition key based on detailed SBS data. We do not have specific GFCF series

for detailed asset categories but we do have series broken down by industry and institutional sector. This information is however not published.

**Question 2. What is the length of GFCF in cultivated biological resources? If long GFCF series are available (previous to 1995), how do you estimate historical data? Please, describe additional sources and/or methods, and specify if these differ across products within this asset category, industries and/or institutional sectors.**

GFCF series are available in COP (2000 prices) since 1853. These are backwards calculations of GFCF based on: GFCF series from national accounts estimated directly in accordance with ESA 2010 (from 2010 onwards); GFCF series of national accounts in accordance with ESA 95 and converted to ESA 2010 (period 1995-2009); and, the evolution of GFCF series prepared by the Federal Planning Bureau for previous estimates of capital stock, combined with specific sector estimated of NBB for branches that are present in public as well as private sector (period 1853-1994).

**Question 3. What price indices do you use to construct volume measures of cultivated biological resources, and how do you construct these indices? How do you account for quality improvements? Do you use specific price indices for detailed asset categories? Do these price indices differ across industries / institutional sectors? If they are available, please provide links to and/or relevant documents and metadata on their construction.**

For each product (SUTP\_Asset) a price index is computed based on production price indices and import price indices. The ratio between the two price indices per product is based on the import matrix (IOT). Price indices for the same product are identical across industries/sectors. There are no explicit adjustments for quality improvements.

### **Research and development (N1171)**

**Question 1. Do you estimate GFCF in R&D by detailed R&D asset type? If yes, please specify the detailed R&D asset breakdown.**

We do not have specific GFCF series for detailed asset categories.

**Question 2. What is/are the main source/s to estimate GFCF in research and development (R&D)? Please describe briefly the architecture of your estimation method and specify if these differ across different R&D assets (if a breakdown is available), industries and/or institutional sectors.**

The main sources used are the Belspo survey (Frascati manual), the balance of payments statistics and the annual accounts. A detailed description can be found in the GNI inventory p. 490 onwards + details on the revision here [https://www.nbb.be/doc/dq/e\\_method/m\\_rev19\\_e.pdf](https://www.nbb.be/doc/dq/e_method/m_rev19_e.pdf), p. 11.

**Question 3. What is the length of GFCF in R&D in your country? If long GFCF series are available (previous to 1995), how do you estimate historical data? Please, describe additional sources and/or methods, and specify if these differ across assets within this category, industries and institutional sectors.**



GFCF series on R&D start in 1981 and are based on survey data. Intramural expenditure is available and extrapolated based on the structure of R&D satellite accounts for the year 2000.

**Question 4. What price indices do you use to deflate GFCF in R&D and how do you construct these price indices? How do you account for quality improvements? Do you use specific price indices for detailed asset categories? Do these price indices differ across industries / institutional sectors? If they are available, please provide links to and/or relevant documents and metadata on their construction.**

"Owing to the difficulties in identifying R&D output units and as no unit value indices exist, Eurostat recommends using the input method to obtain volume measures of R&D. For the period 1995 onwards the two inputs taken into account for calculating the deflators are compensation of employees and intermediate consumption. To this end, the price indices of the two components have been calculated (with 2000 as base year) from a limited number of industries which have high R&D wage costs. The two indices have then been weighted to obtain an overall deflator for all industries. "

#### **Mineral exploration and evaluation (N1172)**

**Question 1. Do you estimate GFCF in mineral exploration and evaluation by detailed asset type? If yes, please specify the detailed asset breakdown.**

No, we consider that GFCF is zero for this asset type.

#### **Computer software and databases (N1173)**

**Question 1. Do you produce separate estimates of computer software? Tick all boxes that apply:**

Purchased software and own-account software.-

**Question 2. What is/are the main source/s to estimate GFCF in computer software and databases? Please describe briefly the architecture of your estimation method and specify if these differ across types of software (see previous question), industries and/or institutional sectors.**

To estimate purchased software SBS data on software acquisitions is used and extrapolated to the full population. Software produced for own account is estimated based on a sum of costs principle. A detailed description can be found on p. 510 of the GNI Inventory.

**Question 3. What is the length of this GFCF series? If long GFCF series are available (previous to 1995), how do you estimate historical data? Please, describe additional sources and/or methods, and specify if this differ across assets within this category, industries and institutional sectors.**

GFCF series are available in COP (2000 prices) since 1853. These are backwards calculations of GFCF based on: GFCF series from national accounts estimated directly in accordance with ESA 2010 (from 2010 onwards); GFCF series of national accounts in accordance with ESA 95 and converted to ESA 2010 (period 1995-2009); and, the evolution of GFCF series prepared by the Federal Planning Bureau for previous estimates of capital stock, combined with specific sector estimated of NBB for branches that are present in public as well as private sector (period 1853-1994).

**Question 4. What price indices do you use to deflate GFCF in computer software and databases and how do you construct these price indices? How do you account for quality improvements? Do you use specific price indices for detailed asset categories? Do these price indices differ across industries / institutional sectors? If they are available, please provide links to and/or relevant documents and metadata on their construction.**

For each product (SUTP\_Asset) a price index is computed based on production price indices and import price indices. The ratio between the two price indices per product is based on the import matrix (IOT). Price indices for the same product are identical across industries/sectors.

#### **Entertainment, literary and artistic originals (N1174)**

**Question 1. Do you estimate GFCF in entertainment, literary and artistic by detailed asset type? If yes, please specify the detailed asset breakdown.**

A distinction is made based on whether or not copyright and related rights generated by a work are collected or not via management societies.

**Question 2. What is/are the main source/s to estimate GFCF in entertainment, literary and artistic originals? Please describe briefly the architecture of your estimation method and specify if these differ across detailed products within this asset category, industries and institutional sectors.**

Where copyright and related rights generated by a work are collected mainly via management societies, the output of original works is estimated on the basis of the royalties paid by all the Belgian management societies to Belgian recipients. Where copyright and related rights are managed only partially or not at all by a management society, the production of original works is estimated on the basis of creation costs plus a net operating surplus. Creation costs comprise compensation of employees, intermediate consumption and fixed capital consumption.

**Question 3. What is the length of GFCF in entertainment, literary and artistic originals? If long GFCF series are available (previous to 1995), how do you estimate historical data? Please, describe additional sources and/or methods, and specify if this differ across assets within this category, industries and institutional sectors.**

GFCF series are available in COP (2000 prices) since 1853. These are backwards calculations of GFCF based on: GFCF series from national accounts estimated directly in accordance with ESA 2010 (from 2010 onwards); GFCF series of national accounts in accordance with ESA 95 and converted to ESA 2010 (period 1995-2009); and, the evolution of GFCF series prepared by the Federal Planning Bureau for previous estimates of capital stock, combined with specific sector estimated of NBB for branches that are present in public as well as private sector (period 1853-1994).

**Question 4. What price indices do you use to deflate GFCF in entertainment, literary and artistic originals and how do you construct these price indices? How do you account for quality improvements? Do you use specific price indices for detailed asset categories? Do these price indices differ across industries / institutional sectors? If they are available, please provide links to and/or relevant documents and metadata on their construction.**

For each product (SUTP\_Asset) a price index is computed based on production price indices and import price indices. The ratio between the two price indices per product is based on the import matrix (IOT). Price indices for the same product are identical across industries/sectors.