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

**Country: Romania**

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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.**

The main source is the Constructions survey by financing sources and types of property, and the prices of real estate.

**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.**

The GFCF is primarily compiled to be included in the Supply-Use/ Input-Output Tables by products (the homogenous branch concept is applied), which are further re-grouped in the categories of assets. SUT/IOTs based on ESA 2010 are not available before 1995, thus no data on Dwellings are available before 1995.

**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)?**

According to the Structural business survey (SBS) methodology, the costs of ownership transfer are included in the valuation of purchased new GFCF assets. These cannot be differentiated from the purchase price.

**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.**

The construction cost indices for residential dwellings are used for deflation.

The construction cost index measures the evolution of the costs used for construction works performed during a certain period as against a reference period. The main nomenclatures used in the calculation of the construction cost index are the nomenclature of construction works by main categories of works and main construction objects. Cost indices in construction are calculated per total construction branch (NACE Rev.2 - F section), by structure elements (new construction works, capital repairs and maintenance works and current repairs) and by construction type (residential buildings, non-residential buildings and engineering construction). For more methodological information, please see http://www.insse.ro/cms/sites/default/files/field/publicatii/buletin_statistic_de_preturi_nr08_2019_1.pdf ,page.13

For dwellings, no different price indices are used by industry/sectors.

**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.**

No separate data are available for N1121. The GFCF series is broken down by industry only for N112 Other buildings and structures.

**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.**

The data sources for N112 Other buildings and structures are:

- From Structural business survey (SBS): Major repairs constructions, Construction works, Geological works, Production of tangible assets (S11 and S12).

- From Balance of agricultural products/Economic Accounts for Agriculture: Construction works;

- Government statistics: Construction works, Land improvement, Major repairs constructions

- GFCF from non-exhaustiveness adjustments estimates by destinations for S14 and Major repairs in constructions (S14)

- From Balance sheets of non-profit organizations (S15): entries by assets.

**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.**

The GFCF is primarily compiled to be included in the Supply-Use/ Input-Output Tables by products (the homogenous branch concept is applied), which are further re-grouped in the categories of assets. SUT/IOTs based on ESA 2010 are not available before 1995, thus no data on N112 Other buildings and structures are available before 1995.

**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)?**

According SBS methodology, the costs of ownership transfer are included in the valuation of purchased new GFCF assets. These cannot be differentiated from the purchase price.

**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.**

The construction cost indices are used. For more details on their compilation see the answer to N111 - question 4. In principle, the price indices for construction, based on the construction cost indices, do not differ when are initially included in the compilation system. But, during the balancing process within input-output table in current and constant prices, these indices could slightly differ among the industries/institutional 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.**

No separate data are published for N1122 GFCF. The GFCF series is broken down by industry only for N112 Other buildings and structures. For general government institutional sector, separate data for infrastructure assets are compiled.

**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.**

The data sources for N112 Other buildings and structures are:

- From Structural business survey: Major repairs constructions, Construction works, Geological works, Production of tangible assets (S11 and S12).

- From Balance of agricultural products/Economic Accounts for Agriculture: Construction works;

- Government statistics: Construction works, Land improvement, Major repairs constructions

- GFCF from non-exhaustiveness adjustments estimates by destinations for S14 and Major repairs in constructions (S14)

- From Balance sheets of non-profit organizations: entries by assets.

**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.**

The GFCF is primarily compiled to be included in the Supply-Use/ Input-Output Tables by products (the homogenous branch concept is applied), which are further re-grouped in the categories of assets. SUT/IOTs based on ESA 2010 are not available before 1995, thus no data on N112 Other buildings and structures are available before 1995.

**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)?**

According SBS methodology, the costs of ownership transfer are included in the valuation of purchased new GFCF assets. These can not be differentiated from the purchase price.

**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.**

Construction cost indices are used. See more details in answer to N.1121 question 5.

**<u>N1123. Land improvements</u>**

**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)?**

Yes.

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

The main data sources are:

- SBS;

- Balance of agricultural products/Economic Accounts for Agriculture;

- Government statistics.

**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?**

Yes.

**Question 4. What price indices do you use to deflate GFCF in land improvements, and how do you construct these indices? 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.**

We use a resultant index for construction, based on the indices used for assets N.111, N.1121, N.1122.

**N1131. Transport equipment**

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

The data sources are:

- SBS;

- Government statistics;

- Agricultural accounts.

**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.**

No.

**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.**

The GFCF is primarily compiled to be included in the Supply-Use/ Input-Output Tables by products (the homogenous branch concept is applied), which are further re-grouped in the categories of assets. SUT/IOTs based on ESA 2010 are not available before 1995, thus no data on Transport equipment are available before 1995.

**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.**

The Industrial production price indices for manufacturing of transport equipment are used for deflation.

The industrial production price index measures the overall evolution of prices for industrial products/services manufactured and delivered during the first marketing stage by domestic producers during a certain period (called current period) as against a previous period (called basic or reference period). The coverage of the industrial production price index is represented by the products manufactured and sold (on the domestic and/or non-domestic market) by economic operators whose main activity is included in the CANE Rev.2 divisions 29-30 (for transport equipment).

For more methodological information, please see: http://www.insse.ro/cms/sites/default/files/field/publicatii/buletin_statistic_de_preturi_nr08_2019_1.pdf , page.10.

In general, the price indices do not differ across industries for transport equipment.

**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?**

The data sources for ICT equipment are:

– From SBS – Machinery, Other investments, Production of tangible assets, Major repairs machines, Leasing (S11);

– Estimations for small tools (S11)

– From SBS – Machinery, Other investments(S12);

– Government statistics - Other machinery, Other investments, Weapons, Major repairs machines (S13);

– Agricultural accounts(S11,S14).

**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.**

The GFCF is primarily compiled to be included in the Supply-Use/ Input-Output Tables by products (the homogenous branch concept is applied), which are further re-grouped in the categories of assets. SUT/IOTs based on ESA 2010 are not available before 1995, thus no data on ICT equipment are available before 1995.

**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.**

The Industrial production price indices for manufacturing of computer, electronic and optical products are used for deflation.

The coverage of the industrial production price index is represented by the products manufactured and sold (on the domestic and/or non-domestic market) by economic operators whose main activity is included in the NACE Rev.2 divisions 26 . In general, the price indices do not differ across industries for N1132.

**<u>Other machinery and equipment and weapons systems (N11O): Other machinery and equipment (N1139) + weapons systems (N114)</u>**

**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?**

The data sources for Machinery and equipment are:

– From SBS – Machinery, Other investments, Production of tangible assets, Major repairs machines, Leasing (S11);

– Estimation small tools (S11)

– From SBS – Machinery, Other investments(S12);

– Government statistics - Machinery, Other investments, Weapons, Major repairs machines (S13);

– Agricultural accounts(S11,S14)

–GFCF for Weapons Systems is captured in data of General government statistics in execution of consolidated budget. The data are provided by Ministry of National Defense (S13).

**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.**

The GFCF is primarily compiled to be included in the Supply-Use/ Input-Output Tables by products (the homogenous branch concept is applied), which are further re-grouped in the categories of assets. SUT/IOTs based on ESA 2010 are not available before 1995, thus no data on Other machinery and equipment and weapon system are available before 1995.

**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.**

The Industrial production price indices for manufacturing of machinery and equipment products are used for deflation. The coverage of the industrial production price index is represented by the products manufactured and sold (on the domestic and/or non-domestic market) by economic operators whose main activity is included in the NACE Rev.2 divisions 28 . In general, the price indices do not differ across industries for N11O.

**<u>Cultivated biological resources (N115)</u>**

**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?**

A special division of National Institute of Statistics compiles the Economic accounts from agriculture and we use the GFCF estimation for agriculture (new plantations and livestock) in order to estimate GFCF.

**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.**

The GFCF is primarily compiled to be included in the Supply-Use/ Input-Output Tables by products (the homogenous branch concept is applied), which are further re-grouped in the categories of assets. SUT/IOTs based on ESA 2010 are not available before 1995, thus no data on Cultivated biological resources are available before 1995.

**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.**

The aggregated indices are obtained from the Economic Accounts for Agricultural. The price indices do not differ across industries.

**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.**

No.

**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 data sources used in the process of capitalisation of R&D are the annual business survey on enterprises and balance of payments. the market output of R&D is estimated based on the data from the annual business survey (NACE div. 72). For estimating the own account production of R&D the data source used is the Annual statistical survey on R&D and innovation activities (Frascati). The survey covers specialized units (with main activity) in R&D, economic and social units having research-development staff, agricultural production and research institutes and stations, higher-education unit and university clinics which have research-development structures, non-profit organizations which carried out research-development activity.

Data on current expenditure (labour and materials and services cost) are used to estimate the value of own-account R&D for non-financial corporations. The data sources used in the process of capitalisation of R&D are the accounts of General Government and estimates made for the consumption of fixed capital using PIM method.

The Annual Statistical survey on R&D and innovation activities is being used for estimating the R&D on own-account for Non-profit institutions (S15). Data on current expenditure (labour and materials and services cost) are used to estimate the value of own-account R&D.

**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.**

The GFCF is primarily compiled to be included in the Supply-Use/ Input-Output Tables by products (the homogenous branch concept is applied), which are further re-grouped in the categories of assets. SUT/IOTs based on ESA 2010 are not available before 1995, thus no data on R&D are available before 1995.

**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.**

Consumer price indices in services are used.

**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.

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

Data sources used for the estimation of mineral exploration are from SBS chapter 4.2 - geological and drilling works.

**Question 3. What is the length of GFCF in mineral exploration and evaluation? 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.**

The GFCF is primarily compiled to be included in the Supply-Use/ Input-Output Tables by products (the homogenous branch concept is applied), which are further re-grouped in the categories of assets. SUT/IOTs based on ESA 2010 are not available before 1995, thus no data on Mineral exploration and evaluation are available before 1995.

**Question 4. What price indices do you use to deflate GFCF in mineral exploration and evaluation 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.**

Consumer price indices of services are used.

**Computer software and databases (N1173)**

**1. 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.**

The data sources is SBS for customized software.

The estimation of software (especially own-account software) is based on an indirect estimation performed based on the number of employees involved in software and databases development from the statistical survey on salaries in October. (The objective of the survey is to estimate the number of employees by groups of basic salaries and average gross salaries earned, of gross average earnings by gender, economic activity and groups of occupations).

The occupations selected from the Survey for the estimation were:

- System analysts

- Software developers

- Web and multimedia developers

- Applications programmers

- Software and applications developers and analysts not elsewhere classified

- Database designers and administrators.

The number of persons involved in production of own-account software was determined as a difference between the persons involved in software from total economy and those from div. 62+63: computer programming, consultancy and related activities, information service activities. The assumption that those persons working in other industries than computer programming, consultancy and related activities, information service activities involved in software production are in fact producing software on own-account.

The estimation performed based on the number of employees involved in software and databases development from the Statistical survey on salaries in October was improved in 2015 by considering that only 50% of the time worked by the software specialists was spent for own-account software development This recommendation was applied for all NACE divisions, except for div. 62 and 63. Separate estimates were made for Non-financial and financial enterprises (S11+S12) and General Government (S13). The GFCF was distributed by sector (S11 and S12) based on the number of persons involved in this activity.

A similar method was applied, separately, for General government sector, based on the number of persons and the wages for div. 84, 85 and 86.

**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.**

The GFCF is primarily compiled to be included in the Supply-Use/ Input-Output Tables by products (the homogenous branch concept is applied), which are further re-grouped in the categories of assets. SUT/IOTs based on ESA 2010 are not available before 1995, thus no data on Computer software and databases are available before 1995.

**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.**

Consumer price indices of services for NACE Rev.2 Div.62 and 63.

**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.**

GFCF in entertainment, literary and artistic originals is compiled by : films, television and radio programmes, books and musical works.

**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.**

To estimate the capitalization of literary, artistic and entertaining works, the data from Collective collection societies dealing with copyright for authors, artists, musicians etc. were used. The main data provider is Romanian Copyright Office (RCO). This is the single regulatory authority which records through national registers, supervises, issues licenses, and offers technical-scientific arbitration in the field of copyright and related rights.

For movies, RCO provides information on the production costs to be used in the estimation. The royalties for music are included in the value of movies. From the RCO we obtained the information that the royalties for music represent around 4% from the production costs of the movies. Using this information, we have deducted the music from the production costs in order to avoid double counting. A mark-up for operating surplus was estimated. The mark-up was calculated by using the ratio between gross operating surplus and output for div. 59 NACE Rev.2. The consumption of fixed capital was also added to the production cost.

For television and radio programs, books and musical works we estimate GFCF from the value of copyrights.

**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.**

No data before 2007 is available from the authorities in charge.

**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.**

Consumer price indices in services are used.