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

Country: Hungary

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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 to estimate GFCF dwellings comes from the survey "Detailed data of final occupancy of dwellings and holiday homes" OSAP 1078. There are GFCF data in S11, S13 and S14 sectors in NACE 68 (and in 84 in S.13).

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.

Length of the GFCF series for dwellings are from 1995 to 2018.

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)?

Cost of ownership transfer are partly included in GFCF. In capital stock estimation, this data is treated equally to GFCF.

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.

Price index of GFCF in dwellings comes from another Department. Quarterly housing price indices are weighted by the quarterly investment data of dwellings. Price indices are not different by institutional sectors but differ by industries.

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.

Data of N.1121 and N.1122 are calculated together. GFCF data are broken down by industry and institutional sector.

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.

Annual investment survey, OSAP 2240 is the main source in general. In S.15, also the non-profit surveys (OSAP 1156, OSAP 1658) are used.

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.

Length of the GFCF series is from 1995 to 2018.

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)?

Costs of ownership transfer are included in GFCF. In capital stock estimation this data is 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.

Price index of GFCF is in AN.1121 and AN.1122 Buildings other than dwellings and other structures come from another Department. Quarterly price indices are weighted by the quarterly investment data of the given asset category. Price indices are not different by institutional sectors but differ by industries.

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.

See N1121. Buildings other than dwellings, question 1.

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.

See N1121. Buildings other than dwellings, question 2.

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.

See N1121. Buildings other than dwellings, question 3.

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)?

See N1121. Buildings other than dwellings, question 4.

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.

See N1121. Buildings other than dwellings, question 5.

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)?

Yes, land improvements are included in other buildings and structures.

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.

Annual investment survey, OSAP 2240 is the main source.

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.

Price index of GFCF in Land improvements comes from another Department. Average quarterly price indices of the given asset category are used. Price indices are not different by institutional sectors but differ by industries.

N1131. Transport equipment

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

Annual investment survey, OSAP 2240 is the main source.

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, we do not have any detailed asset categories. All of the GFCF data are broken down by industry and institutional sector.

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.

Length of the GFCF series for transport equipment is from 1995 to 2018.

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.

Price index of GFCF in Transport equipment comes from another Department. Average quarterly price indices of the given asset category are used. Price indices are not different by institutional sectors but differ by industries.

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?

Annual investment survey, OSAP 2240 is the main source. We do not have any detailed asset categories. All of the GFCF data are broken down by industry and institutional sector.

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.

Length of the GFCF series for ICT equipment is from 2005 to 2018.

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.

Price indices of other machinery and equipment are used. These price indices come from another Department. Annual price indices are calculated from the quarterly price index weighted by the quarterly investment value of the given asset category. Price indices are not different by institutional sectors but differ by industries.

Other machinery and equipment and weapons systems (N11O): 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?

The annual investment survey, OSAP 2240 is the main source for other machinery and equipment. The survey OSAP 2262 is the main source for data on weapons systems. Data coming from the Ministry of Defense is accounted in the S.13 Government sector.

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.

Length of the GFCF series for other machinery and equipment and weapons systems is from 1995 to 2018.

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.

Other machinery and equipment price indices come from another Department. Annual price indices are calculated from the quarterly price index, weighted by the quarterly investment value of the given asset category. Price indices are not different by institutional sectors but differ by industries.

<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?

Annual investment survey, OSAP 2240.

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.

Length of the GFCF series for cultivated biological resources is from 1995 to 2018.

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.

Price index of cultivated biological resources are used. These price indices come from another Department. Annual price indices are calculated from the quarterly price index, weighted by the quarterly investment value of the given asset category. Price indices are not different by institutional sectors but differ by industries.

<u>Research and development (N1171)</u>

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 a separate estimation by detailed R&D asset type.

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.

For the sectors S11 and S15, the main data sources are the Frascati questionnaires, which are collecting detailed data about the production costs and the financing structures of the R&D activities of the performers. The starting point of our estimation is the intramural expenditures defined by the "Frascati Manual", that are corrected by the necessary items based on the "Manual on measuring Research and Development in ESA 2010" which is one of the main methodological guideline of our estimations. The ultimate owner of the final R&D product will be the funder of the R&D activity, thus using the financing information of the Frascati questionnaires, we allocate the R&D GFCF performed in the economy to the original funder. For the sector S13 data on R&D come from budgetary reports of government units.

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.

Data are available from 1995 onwards.

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.

We construct special price indices to deflate GFCF in R&D. These price indices are the weighted average of three price index component:

- personal costs - deflated by the wage index of the branch NACE 72

- costs of services - deflated by the software price index

- material costs - deflated by the price index of investments of domestic machinery.

The weights are different for the individual sectors (S11 and S15) based on the cost structure of the R&D activity for the specific sector. No adjustment is made to correct for productivity growth or quality change.

<u>Mineral exploration and evaluation (N1172)</u>

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.

Direct investment data for mineral exploration and evaluation come from the annual investment survey (OSA2240). The figure of the sampled part of the survey is grossed up. No supplementary estimation is made for possible investments for non-observed small units. Survey data, after basic data checks, are directly applied in the estimation process and there is no specific method to adjust them.

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.

Length of the GFCF series for mineral exploration and evaluation is from 1995 to 2018.

Direct investment data for mineral exploration and evaluation come from the investment survey. The figure of the sampled part of the survey is grossed up. No supplementary estimation is made for possible investments for non-observed small units. Survey data, after basic data checks, are directly applied in the estimation process and there is no specific method to adjust them.

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.

Software price indices are used. Price indices are not different by institutional sectors but different by industries.

<u>Computer software and databases (N1173)</u>

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

Purchased 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.

Data of annual investment survey (OSAP 2240) and administrative data are used for own account software. Data for purchased software comes from the investment survey (OSAP2240).

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.

Length of the GFCF series is from 1995 to 2018.

The total labour cost of the own-account software and databases production is derived by multiplying staff numbers by the average wages and adjusted by 50%. This adjustment factor came from the Task Force proposals, considering that the staff does not spent the full time on software development.

For own-account software: non-labour cost is generated from the gross operating surplus (GOS) and intermediate consumption (IC) of 62.01 NACE. The ratio of GOS and IC elements per employee involved in developing software is calculated for this branch. This average cost per employee is applied to the total number of software and database professionals by industries. The value of output of own-account software and databases GFCF by industries (NACE) is the sum of the labour and non-labour cost components (including mark-up).

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.

There are the following indices: an intangible assets price index, which calculate to use the American software price index; a stationery price index and a wage price index. They are not different in institutional sectors but differ in all industries.

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.

We estimate entertainment, literary and artistic originals by the following types:

- TV programme
- Radio programme
- Films
- Books
- 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.

The main data source is different for the different asset types:

- For TV and Radio programmes, we use the OSAP questionnaire "1174 Report of media services". The main variables used for the estimation are the production/purchase costs of the relevant program types, which fulfill the capitalization criteria. Flow programmes (e.g. news and sport programmes, advertisements) are excluded.
- For Books and Musical works, we use the relevant data collected and published by the Association of Hungarian Publishers and Association of Hungarian Record Companies. The main variables used are the turnover of the relevant Literary and Musical works and the royalty ratios for which the different owners of the originals are entitled.

- For Films, we use the production cost data provided by the National Media and Info Communications Authority of Hungary.

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.

Data are available from 1995 onwards.

The used methods were established taken into account the recommendations from the GNP Committee (GNIC/010 and GNIC/022). The valuation of TV and Radio stock programmes and the films are based on the production costs (including mark-up), while the books and musical works are measured by the net present value of royalty flows, using the recommended formula Wj=Hj*(1+rj-ij). (with j=index of year, W=present value, H=sum of royalties paid, r=growth rate of royalties, i=interest rate). It is used to estimate the discounted net present value of future receipts. The interest rate (ij) is the average base rate of the Hungarian National Bank for every single year, as well as the growth rate of the royalties (rj).

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.

Software price indices were used to deflate GFCF in entertainment, literary and artistic originals. We do not make an adjustment to correct for productivity growth or quality change.