

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

Country: Luxembourg

Date: August 2019

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 Dwellings by households:

Figures on gross fixed capital formation in dwellings are based on the following sources:

- Census on finished buildings. This census is executed annually by STATEC in order to collect data (type of building, size, value, period of construction, type of owner...) about all buildings completed during the reference year.
- Land registry: data about sales of dwellings, of other buildings and of land
- Structural business statistics: Sales margin from housing and property development businesses and turnover from construction activities.

Non-Financial Corporations, Financial Corporations, NPISH:

Dedicated investment survey done by Business Statistics in STATEC.

Central government:

Accounts of public bodies and institutions included in central government.

Local government:

Accounts and budgets of the 116 municipalities (income and expenditure by item of the chart of accounts for municipalities and by municipality) transmitted by the “Direction des Finances Communales” from “Ministère de l’Intérieur”.

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.

No initial capital stock assumption is being made but historical GFCF are backward estimated for the period 1870-1971 using historic series of investments in buildings, industrial equipment and transport equipment for different activities as proxy indicators.

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 transfer for land, for dwellings and for buildings other than dwellings are not covered by a data source. To obtain estimates for these costs of ownership transfer, the value of land, dwellings and buildings other than dwellings is multiplied by an average rate for costs of ownership transfer (notary, registry fees of the owner). This rate depends on the nature of the asset and it is only added to data from Land registry. For the other sources it is supposed that purchasing value includes costs of ownership transfer.

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 prices indices are taken from annual campaign data. Price data from foreign trade statistics is used to complete eventually missing data. The price index applied to the asset in question is identical across industries and institutional sectors. Currently, changes in quality are not taken into account.

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.

Census on finished buildings provides a typology of buildings but data is aggregated in non-residential buildings. The aggregated series can be broken down by industry and sector. A copy of the GNI inventory could be provided.

Concerning publication, GFCF (without product details) is published by sector in the sector accounts and by industry in SUT (uses):

SUT:

http://www.statistiques.public.lu/stat/TableViewer/document.aspx?ReportId=15850&IF_Language=fra&MainTheme=5&FldrName=2&RFPPath=24

ASA:

http://www.statistiques.public.lu/stat/TableViewer/document.aspx?ReportId=13135&IF_Language=fra&MainTheme=5&FldrName=2&RFPPath=24

worksheets: e2202,e2203,e2204,e2205,e2206,e2207.

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.

Gross fixed capital formation in non-residential buildings. _____

Figures on gross fixed capital formation in dwellings are based on following sources:

- Census on finished buildings. This census is executed annually by STATEC in order to collect data (type of building, size, value, period of construction, type of owner...) about all buildings completed during the reference year.
- Land registry: data about sales of dwellings, of other buildings and of land
- Structural business statistics: Sales margin from housing and property development businesses and turnover from construction activities.

Non-Financial Corporations, Financial Corporations, NPISH

Dedicated investment survey done by Business Statistics in STATEC

Central government:

Accounts of public bodies and institutions included in central government.

Local government:

Accounts and budgets of the 116 municipalities (income and expenditure by item of the chart of accounts for municipalities and by municipality) transmitted by the “Direction des Finances Communales” from “Ministère de l’Intérieur”.

Social Security:

Financial statements

Agriculture:

Almost all statistical information needed for the evaluation of gross fixed capital formation in Agriculture comes from the following sources (administrative sources):

- Annual STATEC census on farms structure
- Service d’Economie Rurale (SER)
- Institut Vitivinicole de l’Etat (IVV)
- Administration des services techniques de l’agriculture (ASTA)
- Office national du remembrement (ONR).

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.

No initial capital stock assumption is being made but historical GFCF are backward estimated for the period 1870-1971 using historic series of investments in buildings, industrial equipment and transport equipment for different activities as proxy indicators.

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 for land, for dwellings and for buildings other than dwellings are not covered by a data source. To obtain estimates for these costs of ownership transfer, the value of land, dwellings and buildings other than dwellings is multiplied by an average rate for costs of ownership transfer (notary, registry fees of the owner). This rate depends on the nature of the asset and it is only added to data from Land registry. For the other sources it is supposed that purchasing value includes costs of ownership transfer.

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.

Please refer to:

<https://statistiques.public.lu/fr/publications/series/indicateur-rapides/index.html>

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.

This detail is currently not available. The most finest detail are other construction work excluding buildings. The aggregated series can be broken down by industry and sector. A copy of the GNI inventory could be provided.

Concerning publication, GFCF (without product details) is published by sector in the sector accounts and by industry in SUT (uses).

SUT:

http://www.statistiques.public.lu/stat/TableViewer/document.aspx?ReportId=15850&IF_Language=fra&MainTheme=5&FldrName=2&RFPath=24

ASA:

http://www.statistiques.public.lu/stat/TableViewer/document.aspx?ReportId=13135&IF_Language=fra&MainTheme=5&FldrName=2&RFPath=24

worksheets: e2202,e2203,e2204,e2205,e2206,e2207.

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.

Non-Financial Corporations, Financial Corporations, NPISH:

Dedicated investment survey done by Business Statistics in STATEC

Central government:

Accounts of public bodies and institutions included in central government.

Local government:

Accounts and budgets of the 116 municipalities (income and expenditure by item of the chart of accounts for municipalities and by municipality) transmitted by the "Direction des Finances Communales" from "Ministère de l'Intérieur".

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.

No initial capital stock assumption is being made but historical GFCF are backward estimated for the period 1870-1971 using historic series of investments in buildings, industrial equipment and transport equipment for different activities as proxy indicators.

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)?

No costs of ownership transfer is added, as transfer of ownership is exceptional. This aggregate mainly concerns public infrastructure. If there is costs of ownership transfer, it will be included in the purchasing price as this is a cost factor for the purchaser and therefore it is part of value recorded in the accounts.

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.

Please refer to:

<https://statistiques.public.lu/fr/publications/series/indicateur-rapides/index.html>

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, in LU it is added to N112. The identifiable amounts for land improvements are quite low and mainly in agriculture. STATEC supposes that this expenditure is often included in other expenditures included as well in N112.

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.

Sources are the formerly mentioned sources for agriculture GFCF and the other sources when these expenditures are included in other type of expenditure and separately identifiable.

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?

Land improvements are merged with N112.

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.

Deflation is done after merging with N112.

N1131. Transport equipment

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

Gross fixed capital formation in non-residential buildings.

Figures on gross fixed capital formation in dwellings are based on following sources:

- Census on finished buildings. This census is executed annually by STATEC in order to collect data (type of building, size, value, period of construction, type of owner...) about all buildings completed during the reference year.
- Land registry: data about sales of dwellings, of other buildings and of land
- Structural business statistics: Sales margin from housing and property development businesses and turnover from construction activities.

Non-Financial Corporations, Financial Corporations, NPIS.

Dedicated investment survey done by Business Statistics in STATEC, completed with ITGS data and special sources like satellites.

Central government:

Accounts of public bodies and institutions included in central government.

Local government:

Accounts and budgets of the 116 municipalities (income and expenditure by item of the chart of accounts for municipalities and by municipality) transmitted by the “Direction des Finances Communales” from “Ministère de l’Intérieur”.

Agriculture:

Almost all statistical information needed for the evaluation of gross fixed capital formation in Agriculture comes from the following sources (administrative sources):

- Annual STATEC census on farms structure
- Service d’Economie Rurale (SER)
- Institut Vitivinicole de l’Etat (IVV)
- Administration des services techniques de l’agriculture (ASTA)
- Office national du remembrement (ONR).

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.

Transport equipment can be broken by different types (road, rail, air). This detail is however not published. Only aggregated data is published by sector and industry (see before). The total of transport equipment is transmitted to ESTAT.

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.

No initial capital stock assumption is being made but historical GFCF are backward estimated for the period 1870-1971 using historic series of investments in buildings, industrial equipment and transport equipment for different activities as proxy indicators.

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.

Please refer to:

<https://statistiques.public.lu/fr/publications/series/indicateur-rapides/index.html>

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?

No other sources as those mentioned already before. No split between N11321 and N11322 currently available. For publication, please refer to answers provided before.

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.

No initial capital stock assumption is being made but historical GFCF are backward estimated for the period 1870-1971 using historic series of investments in buildings, industrial equipment and transport equipment for different activities as proxy indicators.

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.

Please refer to:

<https://statistiques.public.lu/fr/publications/series/indicateur-rapides/index.html>

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?

No other sources than the sources mentioned before.

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.

No initial capital stock assumption is being made but historical GFCF are backward estimated for the period 1870-1971 using historic series of investments in buildings, industrial equipment and transport equipment for different activities as proxy indicators.

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.

Please refer to:

<https://statistiques.public.lu/fr/publications/series/indicateur-rapides/index.html>

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?

Sources data contains detail which is merged together for NA purposes. Only agriculture is concerned (S14 or S11).

Agriculture

Almost all statistical information needed for the evaluation of gross fixed capital formation in Agriculture comes from the following sources (administrative sources): Service d'Economie Rurale (SER) and Institut Vitivinicole de l'Etat (IVV).

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.

No initial capital stock assumption is being made but historical GFCF are backward estimated for the period 1870-1971 using historic series of investments in buildings, industrial equipment and transport equipment for different activities as proxy indicators.

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.

Please refer to:

<https://statistiques.public.lu/fr/publications/series/indicateur-rapides/index.html>

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 only aggregated R&D GFCF is estimated.

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.

Dedicated R&D survey in private industry, public sector and higher education.

Budget and accounts from central government.

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.

No back data before 1990; estimates of the oldest back data relies on estimates done through proxy indicators like employment and output of industries active in R&D.

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.

Average labor costs are used for deflation, which are taken from quarterly accounts. Only market and non-market R&D are distinguished. It is possible to assimilate this to differentiation between sectors.

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.

Not done. Probably quite relevant for historic series for iron mining. All mines closed in 1982.

Computer software and databases (N1173)

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.

Investment survey. Budget and accounts from general government, sometimes complemented by data from financial statements. Values from the survey, accounts or budget are used without any adjustment. The survey value is surely close to the values from financial statements.

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.

No initial capital stock assumption is being made but historical GFCF are backward estimated for the period 1950-1971 using historic series of investments in buildings, industrial equipment and transport equipment for different activities as proxy indicators.

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.

SPPI and labors costs are used to construct a deflator for GFCF for software. The GFCF deflator is a simple mean of the more detailed price indices. No differentiation between industries or sector is available.

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.

Only aggregate data is available.

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.

Investment survey. The survey value is surely close to the values from financial statements.

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 initial capital stock assumption is being made but historical GFCF are backward estimated for the period 1870-1971 using historic series of investments in buildings, industrial equipment and transport equipment for different activities as proxy indicators. Values before 1980 are close to zero.

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.

Please refer to:

<https://statistiques.public.lu/fr/publications/series/indicateur-rapides/index.html>