

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

Country: France

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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

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 annual sectoral survey (ESA) on construction (except for general government and output for own final use). This survey gives a breakdown of the turnover by institutional sector and according to type of work and subcontracting (see more details <https://www.insee.fr/en/metadonnees/source/serie/s1269>).

The dwelling satellite account gives the breakdown between enterprises and public government for the residential buildings. The asset N111 includes a part of the products 41, 43, 68, 69 and 71.

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 start of the series is 1978.

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)?

Yes, they are included in GFCF and represent all the costs related to the acquisition of dwellings (notary, agency, analysis costs, etc.). These ownership transfers are treated separately, so we have a specific treatment for pure housing and one for related expenses. The housing asset of the nomenclature is the sum of the two. Thus, if the average life of dwellings is 25 years for a maximum duration of 90 years, those related expenses are respectively 5 and 10 years.

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 main index is the « Indice du coût de la construction (ICC) » (more details: <http://www.insee.fr/en/metadonnees/source/indicateur/p1626/description> and <https://www.insee.fr/fr/statistiques/3532708?sommaire=3530679&q=ICC>).

For the cost of construction, some BT indexes are used (https://www.ffbatiment.fr/federation-francaise-du-batiment/le-batiment-et-vous/en_chiffres/indices-index/Chiffres_IndexBT.html).

N1121. Buildings other than dwellings

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 sources provide series by asset categories (such as office buildings, industrial building, public building) that is not yet used for GFCF compilation.

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 main source is the annual sectoral survey (ESA) on construction (except for general government and output for own final use). This survey gives a breakdown of the turnover by institutional sector and according to type of work and subcontracting (see more details <https://www.insee.fr/en/metadonnees/source/serie/s1269>).

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 start of the series is 1978.

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 GFCF and represent all the costs related to the acquisition of buildings (notary, agency, analysis costs, etc.). These ownership transfers are treated separately, so we have a specific treatment for pure buildings other than dwellings and one for related expenses. The asset N1121 of the nomenclature is the sum of the two. Thus, if the average life of buildings other than dwellings is 25-30 years for a maximum duration of 70-90 years (function of the branch), those related expenses are respectively 5 and 10 years.

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 main index is the « Indice du coût de la construction (ICC) » (more details <http://www.insee.fr/en/metadonnees/source/indicateur/p1626/description> and <https://www.insee.fr/fr/statistiques/3532708?sommaire=3530679&q=ICC>). For the cost of construction some BT indices are used: https://www.ffbatiment.fr/federation-francaise-du-batiment/le-batiment-et-vous/en_chiffres/indices-index/Chiffres_IndexBT.html.

The IPEA is also used, for more details see: <https://www.insee.fr/en/metadonnees/source/indicateur/p1655/description> and <https://www.insee.fr/fr/statistiques/series/110289801>.

N1122. Other structures

1. 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 main source is the annual sectoral survey (ESA) on construction (except for general government and output for own final use, see more details: <https://www.insee.fr/en/metadonnees/source/serie/s1269>).

For NACE 42 (civil engineering), the annual survey of the Fédération Nationale des Travaux Publics (FNTP) on the activity of civil work companies gives the ratio: new/maintenance.

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 start of the series is 1978.

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.

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.

Index Travaux Publics (TP) (for more details see:
<https://www.insee.fr/en/metadonnees/source/indicateur/p1661/description> and
<https://www.insee.fr/fr/statistiques/serie/001711007>

N1123. Land improvements

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)?

No GFCF in land improvements.

N1131. Transport equipment

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

This is evaluated by the balancing in the supply and use table.

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.

Yes.

For 29.1 Motor vehicles: the main source is the Comité des Constructeurs Français d'Automobiles (CCFA) for vehicles.

For 30.3 Aeronautical and space construction: aircraft purchases by French airlines
www.airfleets.fr

General government also has series.

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 start of the series is 1978.

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.

PPI BtoAll when they exist:

<https://www.insee.fr/en/metadonnees/source/indicateur/p1639/description>

For construction of combat vehicles, we evaluate an index chained with the PPI index for the sector 30 of NACE. For aeronautical and space construction the index is estimated thanks to data from Airbus and from the survey EAP: <https://www.insee.fr/en/metadonnees/source/serie/s1193> for the other corporations (turnover/quantity).

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

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 source. This is evaluated by the balancing in the supply and use table.

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 start of the series is 1978.

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.

Computer hardware: IPC

<https://www.insee.fr/en/metadonnees/source/indicateur/p1653/description>

Telecommunication equipment: balancing of the use and supply tables (the IPC is used for final consumption and the PPI for output, exports and imports).

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

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 source. This is evaluated by the balancing in the supply and use table. The GFCF of agricultural machinery is evaluated thanks to data from RICA (Réseau d'information comptable agricole, <http://agreste.agriculture.gouv.fr/enquetes/reseau-d-information-comptable/donnees-en-ligne/>).

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 start of the series is 1978.

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.

It comes from the balancing of the supply and use tables after using the PPI BtoAll for output, BtoE for exportations and BtoI for importations.

Cultivated biological resources (N115)

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?

Two kinds of assets are considered: animals and plantations.

I. Animals :_The GFCF is calculated by the statistical service of the French department of agriculture._Detailed estimations are made for cattle, sheep and goats, pigs, equines.

The main data involved are the stocks of reproductive animals (including dairy cows) and the stocks of the stocks (which are animals to be slaughtered) given in quantity and in value at current and past prices, by the statistical service of the French department of agriculture, and obtained with by the Annual Agricultural Statistics survey. A description of the Annual Agricultural Statistics Survey is available here:

<http://agreste.agriculture.gouv.fr/donnees-de-synthese/statistique-agricole-annuelle-saa/>

Some figures for stocks and slaughtering, in quantity and in value at current prices:

<http://agreste.agriculture.gouv.fr/conjoncture/series-mensuelles-bulletin/article/bulletin-mensuel-8485>

Some figures for stocks of reproductive animals and dairy cows:

https://stats.agriculture.gouv.fr/disar-saiku/?plugin=true&query=query/open/RICA_METRO#query/open/RICA_METRO

II. Plantations :

The estimation is made by Insee, with detailed figures for orchards and wine. The main sources are those involved by the methodology: <https://www.insee.fr/fr/information/2571441>

The evaluation is mainly based on the estimations of surfaces of new plantings and replantation.

a) Orchards

Estimations for orchards are obtained by additions of the following categories : apricot trees, pear trees, apple trees, peaches trees, citrus, cherry trees, walnuts, plum trees, cider apple trees, kiwi.

The surfaces of new plantings and replantation are estimated with:

- for each of the above categories, a renewal rate of the surfaces calculated with the orchards structure surveys of 2006 (a description is available here : <http://agreste.agriculture.gouv.fr/enquetes/productions-vegetales-528/enquete-structure-des-vergers-en/> and is applied since; in addition to being calculated by categories, the renewal rate is obtained at a local level (corresponding to the French administrative department).
- for each of the above categories, the total surfaces are given each year by the Annual Agricultural Statistics survey, here again at a local level of the French department. They are directly given by the French department of agriculture.
- for each of the categories and at a local level, the surfaces of new plantings and replantations are obtained by multiplying the two figures above.

The prices for surfaces of new plantings and replantation are calculated with a cost which is estimated by considering several sub categories (labour costs, plantation costs). Each of those sub costs result from different indices (Agricultural Means of Production Purchasing Price Index:

<https://www.insee.fr/fr/statistiques/series/109144301>

b) Wine

Estimations for wine are obtained for different kinds of ""vineyards"" (Champagne, Bourgogne, Alsace, Loire Atlantique, Cognac, vineyards for other quality wines produced in determined areas) and vineyards for table wine. For each of the above categories, the area of new plantings and replantation are given each year by the statistical service of the French department of agriculture, at a local level.

The prices for surfaces of new plantings and replantation are calculated with a cost which is estimated by considering several sub categories (labour costs, plantation costs...). Each of those sub costs result from different indices (Agricultural Means of Production Purchasing Price Index:

<https://www.insee.fr/fr/statistiques/series/109144301>.

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 start of the series is 1978.

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.

I. Plantations (orchards and wine)

To understand the price indices used and the construction of the volume measures for GFCF, we first give some details of the methodology. For orchards and wine, the plantations cost are estimated in the same way. We distinguish different kinds of orchards and vineyards, and consider local levels. We calculate unitary plantation costs (cost by unit of surface) which are applied to the surfaces of plantings and replantation. We aggregate the results to obtain the total cost of the renewal surfaces at the current prices, or at the past prices .

a) The unitary plantation costs (by unit of surface)

The cost is calculated by considering different components :

- fertilizers and soil improvers
- plant protection products
- nursery plants
- equipment and small tools
- furnace seeds

b) GFCF in buildings

c) fuel

d) herbicides

e) water and irrigation

f) work costs, given by the minimum inter-professional wage of growth.

g) The cost of each component is calculated in evolution, from initial series available for different kind of vineyards and orchards.

i) The evolution of the above components are given by the corresponding Indices of Mean

Purchase Prices of Agricultural Products

<https://www.insee.fr/en/statistiques/series/109144301>

<https://www.insee.fr/fr/metadonnees/source/indicateur/p1652/description>

and for the work costs by the annual evolution of the inter professional minimum wage of growth
<https://www.insee.fr/fr/statistiques/serie/000077502#Tableau>

ii) In both cases (wine and orchards): the unitary costs are calculated for each type of wine or fruits. The above indices are applied to initial corresponding series of unitary costs provided by local agencies.

In the case of wine, the initial series were given by:

- Center of Management and Accountings for Gironde (1993 to 1999)
- Federation of vineyards of Anjou (1990 to 1994)
- Board of Agriculture of Haut Rhin (1994)
- National Inter professional Office of Wine for North Est (1995)
- General Syndicate of vine makers of Champagne (1990 to 1997)
- National Inter professional Desk of Cognac (1999)
- Board of Agriculture of Pyrénées Atlantique (2000).

In the case of orchards, the costs were given by the former CEMAGREF (now IRSTEA) until 1996.

b) The renewal surfaces: new plantings and replantation

The unitary plantation costs are applied to the renewal surfaces (new plantings and replantation). For each type of wine, the renewal surfaces are directly known : they are given by the statistical service of the French department of agriculture.

For each type of orchards, the surfaces of new plantings and replantation are estimated by multiplying a renewal rate by the corresponding surfaces :

- renewal rates of the surfaces were calculated with the orchards structure surveys of 2006 and are applied since : the renewal rates are obtained at local levels (corresponding to the French administrative department.
- for each of the above categories, the total surfaces are given each year by the Annual Agricultural Statistics, here again at a local level of the French department.

c) The indices of volume

The indices of volume are obtained : for each of the trees categories (apricot trees, pear trees, apple trees, peaches trees, citrus, cherry trees, walnuts, plum trees, cider apple trees, kiwi) and vineyards, we aggregate the renewal surfaces (N) valued at the prices of (N-1) and at the prices of (N).

By summation, we obtained the series Vol(N) and Val(N) which respectively correspond to the total valorisation of the surfaces at the prices of (N-1) and at the prices of (N). The index of volume is then $\text{Vol}(N)/\text{Val}(N-1)$.

II. Animals (cattle, sheep and goats, pigs, equines)

For each kind of animal, the statistical service of the French department of agriculture give the GFCF at prices (N-1) and (N). By summation, they obtain the values of the GFCF at current price and at

pat price. Quality improvements are not taken into account. At each disaggregated level, the indices of volume are indices of quantity.

Research and development (N1171)

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 detail by R&D asset type.

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.

In base 2010, GFCF is assumed to be equal to Intramural expenditures of R&D, derived from the Frascati manual survey. Important improvement should be implemented in the framework of the next benchmark revision.

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 start of the series is 1978. The annual survey of resources devoted to firms' R&D has been carried out since 1963 by the ministry in charge of research (MESRI).

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.

For purchased R&D, the price index is a proxy : SPPI(Services producer price index) for engineering. SPPI take normally quality improvement into account.

Mineral exploration and evaluation (N1172)

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

No.

Computer software and databases (N1173)

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

Yes : prepackaged, customised, and own-account software.

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.

The main sources are the DADS and the SBS survey (Esane).

DADS is an administrative source and must be completed by any company having employees. A macro approach is used to measure own account production of software for non-financial and financial companies. Own-account production is supposed to be equal to the sum of the costs with a mark-up. The net wages of occupations likely to develop software and databases are assessed with the DADS. The percentage of time spent is issued (with adjustments) from those proposed by the United Kingdom in its measure of own account output of software. The Profession et catégories socio-professionnelles PCS in French nomenclature are relatively close. Wages are multiplied by 2.1 to obtain the total payroll including social contributions and other wage costs.

Non-wage costs (intermediate consumption and gross operating surplus) are added. They represent 85% of wage costs (50% for intermediate consumption IC and 35% for gross operating surplus GOS). These ratio were in OECD task force report (2003). Purchased software and databases are measured with Esane.

The detailed breakdown of products sold by IT and data processing companies enable us to split between intermediate consumption and GFCF in the demand approach. All products related to standard software (58.29) are considered as GFCF. Consultancy activities (including hardware consultancy) are considered as GFCF because only the amount of consulting in information systems or software is asked in ESA survey. Development of software is also GFCF. But maintenance, facility management, unspecified computer activities and computer programming are considered as intermediate consumption. A matrix has been defined beforehand to breakdown the capitalised production into products by economic activities and for products.

The production for one final use is broken down by economic activities thanks to this matrix (see N7 /PAC to see the breakdown by economic activities).

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 start of the series is 1978. In base 95, estimations were made using data concerning acquisitions (fixed assets) of software in the annual survey of companies (EAE) in the IT industry. Estimates from a private firm (expert estimates) covering both acquisitions and expenses for own account were also used.

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.

SPPIs for purchased software (custom and standard software may differ).

Entertainment, literary and artistic originals (N1174)

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

Yes: GFCF in 90, 58.1(small amount), 59 (films), 60 both TV programs and music).

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.

We use capitalised output ("production immobilisée" in bookkeeping) declared by companies in their accounts.

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.

The start of the series is 1978.

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.

The same as those for production of the services (depending on the activity).