

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

Country: Spain

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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.

We use available data sources to estimate GFCF in dwellings. They come from the Ministry of Public Works: Dwellings statistics like surface area to be built, value assessed and number and value of transactions; and the Construction Industry Structure Survey. In addition, Statistics on Products in the Services Sector (module for architectural and engineering activities, technical testing and analysis) from INE is also used. According to the CPA 2.1 classification, the products that are included in this asset are F41001+F41003, F43,L68, M69 and M71. There are no data sources to estimate dwellings across industries.

Once estimates of GFCF in dwellings of the national economy (S.1) are fixed, estimates on the GFCF of institutional sector are compiled:

- Estimates for S.12 come from financial statements of financial institutions.
- Estimates for S.13 are provided by the Audit Office, as responsible for the compilation of GFS data and S.13 accounts.
- Estimates for S.15 are obtained by breaking down the total GFCF aggregates by asset according to historical hypothesis used in former accounting series.
- Estimates of GFCF in dwellings of S.14 is carried out as aggregation of different components: value of acquisitions less disposals of new and second-hand dwellings by households to other sectors

according registered by notary's offices; estimates of taxes associated with transfers (applying the current tax rules); expenditure in rehabilitations and reforms of dwelling, according to the HBS data; and finally estimates on own-account production of construction branch of activity made by households.

- Estimates for S.11 are obtained residually (difference between S.1 and the rest of sectors).

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 length of the GFCF series for dwellings is 72 years, which is the maximum service life used for this asset (calculated as $1.2 * \text{average service life}$) to estimate its stocks through the Perpetual Inventory Method. Historical data have been estimated by a mathematical method of retropolation applied to data of former bases. The mathematical method is similar across industries and institutional sectors.

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 of dwellings are included in GFCF. As they are not separable, they are treated equally to GFCF in the estimation of capital stocks of dwellings.

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.

As there is no price index that fits this asset appropriately, it is constructed as a weighted average from the price indices of the different products that compose the asset. The price indices used are:

- i) F41001+F41003: Housing Price Index
- ii) F43: Construction Cost Index for rehabilitations
- iii) L68: Consumer Price Index, subclass 04110
- iv) M69: Services Sector Price Index, Sector 69.1+69.2
- v) M71: Services Sector Price Index, Sector 71.

Price indices do not differ across industries or institutional sectors, because there are no available data sources.

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.

We do not have specific GFCF series for detailed asset categories. GFCF series are not broken down by industry. Once estimates on the GFCF of the national economy (S.1) is fixed, estimates on the GFCF of institutional sector are compiled:

- In case of S.12, the total amount of GFCF come from financial statements of financial institutions provided by supervisors (Central Bank, Stock Market Commission and Insurance and Pension Funds Directorate of the Ministry of Economy and Business). Breakdowns by assets using historical hypothesis.

- In case of S.13, data are provided by the Audit Office (additional breakdowns using historical hypothesis).

- In case of S.15, total GFCF come from financial accounts of a representative sample of units (breaking down by asset according to historical hypothesis used in former accounting series).

- The rest of the GFCF in every branch of activity are split between S.14 and S.11 according to SBS data of acquisition of fixed assets by legal nature of purchaser.

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.

We use the data sources available to estimate GFCF in buildings other than dwellings. They come from the Ministry of Public Works (surface area to be built by non-residential building type and number and value of transactions and the Construction Industry Structure Survey) and from Instituto Valenciano de la Edificación (basic module Building). In addition, it is also used the Statistics on Products in the Services Sector (SPSS module for architectural and engineering activities, technical testing and analysis) from INE. The asset is estimated for the total economy and then broken down by industry.

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 length of the GFCF series for buildings other than dwellings is 48 years, which is the maximum service life used for this asset (calculated as $1.2 * \text{average service life}$) to estimate its stocks through the Perpetual Inventory Method.

Historical data have been estimated by a mathematical method of retropolation applied to data of former bases. The mathematical method is similar across industries and institutional sectors.

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 of buildings other than dwellings are included in this GFCF series. As they are not separable, they are treated equally to GFCF in the estimation of capital stocks of buildings other than dwellings.

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.

As there is no price index that fits this asset appropriately, it is constructed as a weighted average from the price indices of the different products that compose the asset. The price indices used are:

- i) F41001+F41003: Housing Price Index
- ii) F41002+F41004: General Construction Cost Index for non-residential buildings
- iii) F43: General Construction Cost Index for rehabilitations
- iv) L68: Consumer Price Index, subclass 04110
- v) M69: Services Sector Price Index, Sector 69.1+69.2
- vi) M71: Services Sector Price Index, Sector 71.

Price indices do not differ across industries or institutional sectors, because there are no available data sources.

N1122. Other structures

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

We do not have specific GFCF series for detailed asset categories. GFCF series are not broken down by industry. Once estimates on the GFCF of the national economy (S.1) is fixed, estimates on the GFCF of institutional sector are compiled:

- In case of S.12, the total amount of GFCF come from financial statements of financial institutions provided by supervisors (Central Bank, Stock Market Commission and Insurance and Pension Funds Directorate of the Ministry of Economy and Business). Breakdowns by assets using historical hypothesis.

- In case of S.13, data are provided by the Audit Office (additional breakdowns using historical hypothesis).

- In case of S.15, total GFCF come from financial accounts of a representative sample of units (breaking down by asset according to historical hypothesis used in former accounting series).

- The rest of the GFCF in every branch of activity are split between S.14 and S.11 according to SBS data of acquisition of fixed assets by legal nature of purchaser.

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.

We use the data sources available to estimate GFCF in other structures come from the Ministry of Public Works: Construction Industry Structure Survey. In addition, it is also used the Statistics on Products in the Services Sector (SPSS module for architectural and engineering activities, technical testing and analysis) from INE. The asset is estimated for the total economy and then broken down by industry.

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 length of the GFCF series for other structures is 66 years, which is the maximum service life used for this asset (calculated as $1.2 * \text{average service life}$) to estimate its stocks through the Perpetual Inventory Method. Historical data have been estimated by a mathematical method of retropolation applied to data of former bases. The mathematical method is similar across industries and institutional sectors.

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)?

Costs of ownership transfer of other structures are included in this GFCF series. As they are not separable, they are treated equally to GFCF in the estimation of capital stocks of other structures.

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.

As there is no price index that fits this asset appropriately, it is constructed as a weighted average from the price indices of the different products that compose the asset. Price indices used are:

- i) F42: General Construction Cost Index for civil works
- ii) F43: General Construction Cost Index for rehabilitations
- iii) M71: Services Sector Price Index, Sector 71.

Price indices do not differ across industries or institutional sectors, because there are no available data sources.

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)?

Yes.

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 to estimate GFCF in land improvements come from Ministry of Agriculture, Food and Environmental Affairs: Capital account of agriculture and Economic accounts for forestry. To estimate the costs of transfer of ownership of land and other expenditure data (notary, agency, real estate services), we use data from General Council of the Notariat (land transactions).

Sources do not differ across industries for the costs of transfer of ownership of land, while the agriculture and forestry industries use their own data sources for land improvements.

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.

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.

As there is no price index that fits this asset appropriately, it is constructed as a weighted average from the price indices of the different products that compose the asset. The price indices used are:

- i) A02: Production Price Index for industry A02
- ii) F43: General Construction Cost Index for rehabilitations

Price indices do not differ across industries or institutional sectors, because there are no available data sources.

N1131. Transport equipment

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

The main data sources to estimate GFCF in transport equipment are the Structural Business Survey, the Industrial Products Survey (both elaborated by INE), the Foreign Trade Statistics from the Tax Agency and the statistics about the number of registrations and property transfers of vehicles from the General Directorate of Traffic. Once estimates on the GFCF of the national economy (S.1) is fixed, estimates on the GFCF of institutional sector are compiled:

- In case of S.12, the total amount of GFCF come from financial statements of financial institutions provided by supervisors (Central Bank, Stock Market Commission and Insurance and Pension Funds Directorate of the Ministry of Economy and Business). Breakdowns by assets using historical hypothesis.

- In case of S.13, data are provided by the Audit Office (additional breakdowns using historical hypothesis).

- In case of S.15, total GFCF come from financial accounts of a representative sample of units (breaking down by asset according to historical hypothesis used in former accounting series).

- The rest of the GFCF in every branch of activity are split between S.14 and S.11 according to SBS data of acquisition of fixed assets by legal nature of purchaser.

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, this asset is divided into five categories:

- i) AN.11311: motor vehicles
- ii) AN.11312: ships
- iii) AN.11313: railway locomotives
- iv) AN.11314: aircrafts
- v) AN.11315: other transport equipment.

GFCF series are not broken down by industry and/or institutional sector.

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 length of the GFCF series in transport equipment is for each category its maximum service life:

- i) AN.11311: 12 years

- ii) AN.11312: 29 years
- iii) AN.11313: 27 years
- iv) AN.11314: 30 years
- v) AN.11315: 12 years.

Historical data have been estimated by a mathematical method of retropolation applied to data of former bases. Sources and methods do not differ across products within this asset category, industries and institutional sectors.

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.

As there is no price index that fits this asset appropriately, it is constructed as a weighted average from the price indices of the different products that compose the asset. Price indices used are:

- i) C291: Industrial Price Index, group 291
- ii) C292+C293: Industrial Price Index, groups 292+293
- iii) C301: Industrial Price Index, group 301
- iv) C302: Industrial Price Index, group 302
- v) C303: Industrial Price Index, group 303
- vi) C304+C309: Industrial Price Index, groups 304+309
- vii) C33: Industrial Price Index, division 33.

Price indices do not differ across industries or institutional sectors, because there are no available data sources.

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?

The main data sources to estimate GFCF in ICT equipment are the Structural Business Survey, the Industrial Products Survey (both elaborated by INE) and the Foreign Trade Statistics from the Tax Agency. Nevertheless, the data sources to estimate this asset are limited and not complete. We do not have specific GFCF series for detailed asset categories. Once estimates on the GFCF of the national economy (S.1) is fixed, estimates on the GFCF of institutional sector are compiled:

- In case of S.12, the total amount of GFCF come from financial statements of financial institutions provided by supervisors (Central Bank, Stock Market Commission and Insurance and Pension Funds Directorate of the Ministry of Economy and Business). Breakdowns by assets using historical hypothesis.

- In case of S.13, data are provided by the Audit Office (additional breakdowns using historical hypothesis).

- In case of S.15, total GFCF come from financial accounts of a representative sample of units (breaking down by asset according to historical hypothesis used in former accounting series).

- The rest of the GFCF in every branch of activity is split between S.14 and S.11 according to SBS data of acquisition of fixed assets by legal nature of purchaser.

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 length of the GFCF series in computer hardware is 6 years and in telecommunications equipment is 10 years. Historical data have been estimated by a mathematical method of retropolation applied to data of former bases. Sources and methods do not differ across industries and institutional sectors.

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 price index is constructed as a weighted average from the price indices of the different products that compose the asset. The price indices used are:

i) C261: Industrial Price Index, group 261

ii) C262: Industrial Price Index, division 26

iii) C263+C264+C265+C266+C267+C268: Industrial Price Index, groups C263+C264+C265+C266+C267+C268

iv) S95: Consumer Price Index, subclasses 03220+05330.

Price indices do not differ across industries or institutional sectors, because there are no available data sources.

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?

The main data sources to estimate GFCF in Other machinery and equipment are the Structural Business Survey, elaborated by INE and the Foreign Trade Statistics from the Tax Agency. GFCF series are not broken down by industry and/or institutional sector. Once estimates on the GFCF of the national economy (S.1) is fixed, estimates on the GFCF of institutional sector are compiled:

- In case of S.12, the total amount of GFCF come from financial statements of financial institutions provided by supervisors (Central Bank, Stock Market Commission and Insurance and Pension Funds Directorate of the Ministry of Economy and Business). Breakdowns by assets using historical hypothesis.

- In case of S.13, data are provided by the Audit Office (additional breakdowns using historical hypothesis).

- In case of S.15, total GFCF come from financial accounts of a representative sample of units (breaking down by asset according to historical hypothesis used in former accounting series).

- The rest of the GFCF in every branch of activity is split between S.14 and S.11 according to SBS data of acquisition of fixed assets by legal nature of purchaser.

GFCF in Weapons systems come from the Audit Office, based on budgetary data provided by the Ministry of Defence. Weapon systems asset is divided into five categories:

- i) AN.1141: armoured vehicles
- ii) AN.1142: ships
- iii) AN.1143: ICT equipment
- iv) AN.1144: aircrafts
- v) AN.1145: other weapons systems.

The asset N114 belongs to the General government sector.

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 length of the GFCF series in Other machinery and equipment is 20 years, which is the

maximum service life used for this asset (calculated as 1.2 * average service life) to estimate its stocks through the Perpetual Inventory Method.

AN for each category of Weapons systems its maximum service life:

- i) AN.1141: 24 years
- ii) AN.1142: 29 years
- iii) AN.1143: 10 years
- iv) AN.1144: 30 years
- v) AN.1145: 18 years.

Historical data have been estimated by a mathematical method of retropolation applied to data of former bases. Sources and methods do not differ across products within this asset category, industries and institutional sectors.

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 price indices are constructed as a weighted average from the price indices of the different products that compose the assets. The price indices used are:

- i) C13: Industrial Price Index, division 13
- ii) C15: Industrial Price Index, division 15
- iii) C16: Industrial Price Index, division 16
- iv) C222: Industrial Price Index, group 222
- v) C231: Industrial Price Index, group 231
- vi) C232+C233+C234: Industrial Price Index, groups 232+233+234
- vii) C24: Industrial Price Index, division 24
- viii) C25: Industrial Price Index, division 25
- ix) C263+C264+C265+C266+C267+C268: Industrial Price Index, groups C263+C264+C265+C266+C267+C268
- x) C271+C272+C273+C274+C279: Industrial Price Index, groups 271+272+273+274+279
- xi) C275: Industrial Price Index, group 275
- xii) C28: Industrial Price Index, division 28
- xiii) C301: Industrial Price Index, group 301

- xiv) C303: Industrial Price Index, group 303
- xv) C304+C309: Industrial Price Index, groups 304+309
- xvi) C31: Industrial Price Index, division 31
- xvii) C32: Industrial Price Index, division 32
- xviii) C33: Industrial Price Index, division 33
- xix) M69: Services Sector Price Index, Sector 69.1+69.2

Price indices do not differ across industries or institutional sectors, because there are no available data sources.

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?

The main data sources to estimate GFCF in cultivated biological resources come from the Capital Account of the Agriculture (GFCF in animals and GFCF in plantations) and Economic Accounts for Forestry. We do not have specific GFCF series for detailed assets within these categories in different industries.

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 length of the GFCF series in cultivated biological resources is 18 years, which is the maximum service life used for this asset (calculated as $1.2 * \text{average service life}$) to estimate its stocks through the Perpetual Inventory Method. Historical data have been estimated by a mathematical method of retropolation applied to data of former bases. Sources and methods do not differ across products within this asset category, industries and institutional sectors.

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 Capital Account of the Agriculture provides data at prices from the previous year. The current value for product A02 (forestry) is deflated with the Production Price Index for industry A02, and then it is added to data from Capital Account of the Agriculture, obtaining the asset at prices from the previous year. So the price index for this asset is constructed by dividing data at current prices by data at prices from the previous year. We do not use specific price indices for detailed asset categories. Price

indices do not differ across industries or institutional sectors, because there are no available data sources.

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.

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.

GFCF in market R&D: the main data sources to estimate it come from the Statistics on R&D activities from INE.

GFCF in market R&D is estimated as described in the Manual on measuring Research and Development in ESA 2010. Own-final-use market R&D is estimated as a sum of costs plus a mark-up for the surplus. The rest of R&D is estimated by the purchases of R&D services, except for the R&D industry (NACE 72), whose purchases are considered as intermediate consumptions.

GFCF in non-market R&D: R&D activities carried out by General Government are assessed as sum of all costs. In case of public universities and hospitals, Statistics on R&D activities (performed by INE) provide the information about costs required for R&D production. In case of public research organisations, the information of costs is provided by the Audit Office.

We do not have specific GFCF series for detailed assets within these categories in different industries.

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 length of this GFCF series is 12 years, which is the maximum service life used for this asset (calculated as $1.2 * \text{average service life}$) to estimate its stocks through the Perpetual Inventory Method. Historical data have been estimated by a mathematical method of retropolation applied to data of former bases. Sources and methods do not differ across assets within this category, industries and institutional sectors.

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.

The price index for this asset is constructed as a linear combination of the price indices of market and non-market R&D GFCF. The price index of market R&D is calculated as a weighted average of the indices of the different components of the asset. The indices used are:

- i) Compensation of employees: Variation Index of the average compensation of employees
- ii) Current expenditures: Intermediate Consumption Price Index for industry M72
- iii) Purchases of R&D services: Production Price Index for industry M72.

The price index of non-market R&D is calculated by deflating each component of the estimate separately, using specific price indices for compensation of employees, intermediate consumption, CFC or market sales. We do not use specific price indices for detailed asset categories. Price indices do not differ across industries or institutional sectors, because there are no available data sources.

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.

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.

The main data source to estimate GFCF in mineral exploration and evaluation is Structural Business Survey, elaborated by INE. The own-account mineral exploration and evaluation is estimated as a sum of costs (applying ratios to intermediate consumptions and compensation of employees of the industries B) plus a mark-up for surplus (another ratio over the sum of costs). The rest of the asset is estimated as a proportion of the turnover of the industry B09, which is supposed to be the only industry that sells this kind of service. The estimation method does not differ across detailed assets within this asset category, industries.

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 length of the GFCF in mineral exploration is 18 years, which is the maximum service life used for this asset (calculated as $1.2 * \text{average service life}$) to estimate its stocks through the Perpetual Inventory Method. Historical data have been estimated by a mathematical method of retropolation applied to data of former bases. Sources and methods do not differ across assets within this category, industries and institutional sectors.

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.

The price index to deflate this asset is the price index of the corresponding product B08+B09: the Industrial Price Index, division 08. We do not use specific price indices for detailed asset categories.

Price indices do not differ across industries or institutional sectors, because there are no available data sources.

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 main data source to estimate GFCF in computer software and databases are the Statistics on Products in the Services Sector (SPSS module for computer services) and the International Trade in Services Statistics (ECIS), both elaborated by INE. Nevertheless, available data sources are insufficient to properly estimate this asset.

The asset estimate is the sum of own-account software and the rest of software and databases. The own-account software estimation follows the method described in the document GNIC/010 rev.1. For the rest of the software and databases the estimate consists in the sum of the national output (from the SPSS data), imports (from the ECIS) and taxes (VAT from non-taxable industries).

The estimation method does not differ across detailed assets within this asset category, industries.

2. 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 length of this GFCF series is 5 years, which is the maximum service life used for this asset (calculated as $1.2 * \text{average service life}$) to estimate its stocks through the Perpetual Inventory Method. Historical data have been estimated by a mathematical method of retropolation applied to data of former bases. Sources and methods do not differ across assets within this category, industries and institutional sectors.

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.

The price index is constructed as a weighted average from the price indices of the different products that compose the asset. The price indices used are:

- i) J58: Consumer Price Index, ECOICOP group 09
- ii) J62: Services Sector Price Index, Sector 62

We do not use specific price indices for detailed asset categories. Price indices do not differ across industries or institutional sectors, because there are no available data sources.

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.

No.

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 sources to estimate GFCF in entertainment, literary and artistic originals are the Statistics on Products in the Services Sector (SPSS module for Audiovisual services), the International Trade in Services Statistics (ECIS), both elaborated by INE, and statistics of payed royalties from the Ministry of Culture and Sports. Nevertheless, available data sources are insufficient to properly estimate this asset.

The main estimate consists of the sum of the national output (from the SPSS data), imports (from the ECIS) and taxes (VAT from non-taxable industries). The part which could not be calculated in the former way, is estimated from payed royalties data as described in the document GNIC/015 rev.1.. The estimation method does not differ across detailed assets within this asset category, industries. Once estimates of the GFCF of the national economy (S.1) are fixed, estimates on the GFCF of institutional sector are compiled:

- In case of S.12, the total amount of GFCF come from financial statements of financial institutions provided by supervisors (Central Bank, Stock Market Comission and Insurance and Pension Funds Directorate of the Ministry of Economy and Business). Breakdowns by assets using historical hypothesis.

- In case of S.13, data are provided by the Audit Office (additional breakdowns using historical hypothesis).

- In case of S.15, total GFCF come from financial accounts of a representative sample of units (breaking down by asset according to historical hypothesis used in former accounting series).

- The rest of the GFCF in every branch of activity is split between S.14 and S.11 according to SBS data of acquisition of fixed assets by legal nature of purchaser.

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 length of GFCF in entertainment, literary and artistic originals is 9 years, which is the maximum service life used for this asset (calculated as $1.2 * \text{average service life}$) to estimate its stocks through the Perpetual Inventory Method. Historical data have been estimated by a mathematical method of retropolation applied to data of former bases. Sources and methods do not differ across assets within this category, industries and institutional sectors.

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.

As there is no price index that fits this asset appropriately, it is used the Consumer Price Index, ECOICOP group 09. We do not use specific price indices for detailed asset categories. Price indices do not differ across industries or institutional sectors, because there are no available data sources.