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

#### **Country: Greece**

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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 <u>European System of Accounts 2010</u> (ESA 2010). While the questionnaire has a common structure, the level of detail of replies differs from one country to another and, therefore, only available country replies are shown here.

For easier cross-country comparison, users of GFCF data are invited to consult the tabular presentation of metadata on estimation of capital stocks by asset type, industry and institutional sector:

Capital Stock Metadata in Tabular Format

#### N111. Dwellings

Question 1. What is/are the main source/s to estimate GFCF in dwellings in your country, and which are the products or assets included under this asset category? Please specify if sources differ across industries and/or institutional sectors.

The method used for the calculation of GFCF of new dwellings is the price x quantity method. The quantity derives from the ELSTAT survey ""Private Legal Building Activity"" which is a census survey whose information is filled in by the Town Planning Offices according to building permits that are issued per month. The price of new dwellings is considered to be the sum of the following elements: intermediate consumption, compensation of employees, taxes and gross operating surplus. The evolution of the first three elements derives from price indices prepared by ELSTAT, while the movement of gross operating surplus is provided by civil engineers experts. GFCF for new dwellings is attributed to Sector S.14 and is relevant for NACE Rev.2 68.20 (Renting and operating of own or leased real estate) and product P4100-P4300 (Construction works).

## 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.

Historical data from 1948 are available at the National Accounts Division of ELSTAT, by industry, for sector S1.

### 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)?

So far, there was a single estimation of ownership transfers for all asset categories (by industry), that entered into the PIM calculations as GFCF, with a service life equal to 10 years. Then, the results, as a whole, were added and presented to the capital stocks of intellectual property products (N117), for each industry. According to the current changes planned, in the framework of the benchmark revision of 2020, there will be separate calculations for the ownership transfers of dwellings, by industry (industries 68 and 84). These refer to commissions to notaries/lawyers and to real estate brokers. The corresponding estimations of ownership transfers of dwellings will enter into the PIM calculations as GFCF, with a service life equal to 10 years. Then the results will be added to the capital stock of the asset "dwellings", by industry (industries 68 and 84).

Question 4. What price indices do you use to deflate GFCF in dwellings, and how do you construct these indices? How do you account for quality improvements? Do you use specific price indices for detailed asset categories? Do these price indices differ across industries / institutional sectors? If they are available, please provide links to and/or relevant documents and metadata on their construction.

Price indices on GFCF are estimated as weighted average price indices of Output price indices and Imports price indices (INTRA EU and EXTRA EU), with weights the measurement of the balanced Output and Imports INTRA EU and EXTRA EU at current prices (of the most recent available year, usually t-1). Price indices are estimated for the 130 NA products based on CPA 2008 classification. For "dwellings", output price indices are derived from Price Indices of Work Categories and Construction Cost Indices of New Residential Buildings (CSTO,CSTI) and imports price indices are estimated from "Total industry excluding MIG Energy". The resulting price index applies to all industries and sectors.

#### N1121. Buildings other than dwellings

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

No, there aren't any specific GFCF series for detailed asset categories.

### Question 2. What is/are the main source/s to estimate GFCF in buildings other than dwellings in your country? Please specify if sources differ across industries and/or institutional sectors.

The main sources to estimate GFCF in buildings other than dwellings in Greece are:

- Structural Business Survey (SBS)
- Administrative sources
- Specific National Accounts Survey
- Government Data.

### 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.

Historical data from 1948 are available at the National Accounts Division of ELSTAT, by industry, for sector S1. For Sector S13 data for years back to 1958. More specifically, there were available electronic files with data by industry and asset back to 1988. There were also publications with data for public investments by industry, for basic categories of assets, including buildings, for years 1958-1987, which were incorporated. All historic data were elaborated in order to correspond to NACE Rev.2 and we also took into consideration the reclassifications that had taken place in S13.

# 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)?

So far, there was a single estimation of ownership transfers for all asset categories (by industry), that entered into the PIM calculations as GFCF, with a service life equal to 10 years. Then, the results, as a whole, were added and presented to the capital stocks of intellectual property products (N117), for each industry. According to the current changes planned, in the framework of the benchmark revision of 2020, there will be separate calculations for the ownership transfers of buildings other than dwellings, by industry. These refer to commissions to notaries/lawyers and to real estate brokers. The corresponding estimations of ownership transfers of those buildings will enter into the PIM calculations as GFCF, with a service life equal to 10 years. Then the results will be added to the capital stock of the asset "buildings other than dwellings", by industry.

Question 5. What price indices do you use to deflate GFCF in buildings other than dwellings, and how do you construct these indices? How do you account for quality improvements? Do you use specific price indices for detailed asset categories? Do these price indices differ across industries/institutional sectors? If they are available, please provide links to and/or relevant documents and metadata on their construction.

Price indices on GFCF are estimated as weighted average price indices of Output price indices and Imports price indices (INTRA EU and EXTRA EU), with weights the measurement of the balanced Output and Imports INTRA EU and EXTRA EU at current prices (of the most recent available year, usually t-1). Price indices are estimated for the 130 NA products based on CPA 2008 classification.

For "buildings other than dwellings" output price indices are derived from Price Indices of Work Categories and Construction Cost Indices of New Residential Buildings (CSTO, CSTI) and imports price indices are estimated from "Total industry excluding MIG Energy". The resulting price index applies to all industries and sectors.

#### N1122. Other structures

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

Yes, ELSTAT has specific GFCF series for some asset categories. These are:

- Roads which are recorded in industry A840 and institutional sector S.13
- Railways which are recorded in industry A840 and institutional sector S.13.

### Question 2. What is/are the main source/s to estimate GFCF in other structures in your country? Please specify if sources differ across industries and/or institutional sectors.

The main sources to estimate GFCF in other structures in Greece are:

- Structural Business Survey (SBS)
- Administrative sources
- Specific National Accounts Survey
- Government Data.

### 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.

Historical data from 1948 are available at the National Accounts Division of ELSTAT, by industry, for sector S1. For Sector S13 data for years back to 1958. More specifically, there were available electronic files with data by industry and asset back to 1988. There were also publications with data for public investments by industry, for basic categories of assets, including other structures, for years 1958-1987, which were incorporated. All historic data were elaborated in order to correspond to NACE Rev.2 and we also took into consideration the reclassifications that had taken place in S13.

## 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)?

So far, there was a single estimation of ownership transfers for all asset categories (by industry), that entered into the PIM calculations as GFCF, with a service life equal to 10 years. Then, the results, as a whole, were added and presented to the capital stocks of intellectual property products (N117), for each industry. According to the current changes planned, in the framework of the benchmark revision of 2020, there will be separate calculations for the ownership transfers for other structures, by industry. These refer to payments for engineers/technical testing and analysis, by the local government. The corresponding estimations of ownership transfers of other structures will enter into the PIM calculations as GFCF, with a service life equal to 10 years. Then the results will be added to the capital stock of the asset "other structures", by industry.

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.

Price indices on GFCF are estimated as weighted average price indices of Output price indices and Imports price indices (INTRA EU and EXTRA EU), with weights the measurement of the balanced Output and Imports INTRA EU and EXTRA EU at current prices (of the most recent available year, usually t-1). Price indices are estimated for the 130 NA products based on CPA 2008 classification.

For "other structures" output price indices are derived from Price Indices of Work Categories and Construction Cost Indices of New Residential Buildings (CSTO,CSTI) and imports price indices are estimated from "Total industry excluding MIG Energy". The resulting price index applies to all industries and sectors.

#### 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, it is reported.

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

The main sources are:

- Structural Business Survey (SBS)
- Administrative sources
- Specific National Accounts Survey
- Government Data.

#### 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?

So far, there was no calculation of ownership transfer of land. ELSTAT created a methodology for estimating costs of ownership transfer of land which is planned to be implemented in the GFCF in September 2020. The corresponding estimations of ownership transfers of land will enter into the PIM calculations as GFCF, with a service life equal to 10 years. Then the results will be added to the capital stock of the asset "other structures", by industry (since land improvements are not presented separately and they are also included in other structures).

Question 4. What price indices do you use to deflate GFCF in land improvements, and how do you construct these indices? Do you use specific price indices for detailed asset categories? Do these price indices differ across industries / institutional sectors? If they are available, please provide links to and/or relevant documents and metadata on their construction.

Price indices on GFCF are estimated as weighted average price indices of Output price indices and Imports price indices (INTRA EU and EXTRA EU), with weights the measurement of the balanced Output and Imports INTRA EU and EXTRA EU at current prices (of the most recent available year, usually t-1). Price indices are estimated for the 130 NA products based on CPA 2008 classification.

For "land improvements" output price indices are derived from Price Indices of Work Categories and Construction Cost Indices of New Residential Buildings (CSTO,CSTI) and imports price indices are estimated from "Total industry excluding MIG Energy". The resulting price index applies to all industries and sectors.

#### N1131. Transport equipment

- Question 1. What is/are the main source/s to estimate GFCF in transport equipment in your country? The main sources to estimate GFCF in transport equipment in Greece are:
  - Structural Business Surveys
  - Administrative data
  - Specific National Accounts Survey
  - Government Data.

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.

Yes, ELSTAT has specific GFCF series for some asset categories. These are two asset categories: P29 (motor vehicles, trailers and semi-trailers) and P30 (other transport equipment), recorded to the relevant industries and sectors. For example:

- Ships which are recorded in industry A500 and institutional sector S.11
- Submarines which are recorded in industry A840 and institutional sector S.13.

## 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.

Historical data from 1960 are available at the National Accounts Division of ELSTAT, by industry, for sector S1. For Sector S13 data for years back to 1958. More specifically, there were available electronic files with data by industry and asset back to 1988. There were also publications with data for public investments by industry, for basic categories of assets, including transport equipment, for years 1958-1987, which were incorporated. All historic data were elaborated in order to correspond to NACE

Rev.2 and we also took into consideration the reclassifications that had taken place in S13.

Question 4. What price indices do you use to deflate GFCF in transport equipment, and how do you construct these indices? How do you account for quality improvements? Do you use specific price indices for detailed asset categories? Do these price indices differ across industries/institutional sectors? If they are available, please provide links to and/or relevant documents and metadata on their construction.

Price indices on GFCF are estimated as weighted average price indices of Output price indices and Imports price indices (INTRA EU and EXTRA EU), with weights the measurement of the balanced Output and Imports INTRA EU and EXTRA EU at current prices (of the most recent available year, usually t-1). Price indices are estimated for the 130 NA products based on CPA 2008 classification.

For "transport equipment" output price indices are derived from Producer Price Index (PPI) in Industry for the Domestic Market for "29-Manufacture of motor vehicles, trailers and semi-trailers" and for "30-Manufacture of other transport equipment" and imports price indices are estimated from Import Price Index in Industry (MPI), for the corresponding products (P29, P30). The resulting price index applies to all industries and sectors.

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

Question 1. What is/are the main source/s to estimate GFCF in computer hardware (N11321) and telecommunications equipment (N11322) in your country? Do you have specific GFCF series for detailed assets within these categories (e.g. data processing machines, peripheral equipment, storage units, etc.) in different industries and/or institutional sectors?

The main sources to estimate GFCF in computer hardware (N11321) and telecommunications equipment (N11322) in Greece are:

- Structural Business Surveys
- Administrative data
- Specific National Accounts Survey
- Government Data.

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.

Historical data from 1960, available at the National Accounts Division of ELSTAT, by industry, for sector S1. For Sector S13 there were available electronic files with data by industry and asset back to 1988. All historic data were elaborated in order to correspond to NACE Rev.2 and we also took into consideration the reclassifications that had taken place in S13.

Question 3. What price indices do you use to deflate GFCF in computer hardware and telecommunications equipment, and how do you construct these indices? How do you account for quality improvements? Do you use specific price indices for detailed asset categories? Do these price indices differ across industries / institutional sectors? If they are available, please provide links to and/or relevant documents and metadata on their construction.

Price indices on GFCF are estimated as weighted average price indices of Output price indices and Imports price indices (INTRA EU and EXTRA EU), with weights the measurement of the balanced Output and Imports INTRA EU and EXTRA EU at current prices (of the most recent available year, usually t-1). Price indices are estimated for the 130 NA products based on CPA 2008 classification.

For "ICT equipment" output price indices are derived from Producer Price Index (PPI) in Industry for the Domestic Market for 26-"Manufacture of computer, electronic and optical products" and imports price indices are estimated from Import Price Index in Industry (MPI), for the corresponding products (P26). The resulting price index applies to all industries and sectors.

### Other machinery and equipment and weapons systems (N11O): Other machinery and equipment (N1139) + weapons systems (N114)

Question 1. What is/are the main source/s to estimate GFCF in other machinery and equipment and weapons systems in your country? Do you have specific GFCF series for detailed assets within these categories (e.g. electrical equipment, weapons, etc.) in different industries and/or institutional sectors?

The main sources to estimate GFCF in Other machinery and equipment (N1139) + weapons systems (N114) in Greece are the structural business surveys and administrative data.

For other machinery and equipment there are data of GFCF for "16-Manufacture of wood and of products of wood and cork", "25-Manufacture of fabricated metal products except machinery and equipment", "27-Manufacture of electrical equipment", "28-Manufacture of machinery and equipment n.e.c.", "31-Manufacture of furniture", "33-Repair and installation of machinery and equipment".

For the weapon systems we have detailed information from the Ministry of Defence and they are incorporated in P25.

# 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.

Historical data from 1960 are available at the National Accounts Division of ELSTAT, by industry, for sector S1. For Sector S13 data for years back to 1958. More specifically, there were available electronic files with data by industry and asset back to 1988. There were also publications with data for public investments by industry, for basic categories of assets, including other machinery and data for military equipment, for years 1958-1987, which were incorporated. All historic data were elaborated in

order to correspond to NACE Rev.2 and we also took into consideration the reclassifications that had taken place in S13.

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.

Price indices on GFCF are estimated as weighted average price indices of Output price indices and Imports price indices (INTRA EU and EXTRA EU), with weights the measurement of the balanced Output and Imports INTRA EU and EXTRA EU at current prices (of the most recent available year, usually t-1). Price indices are estimated for the 130 NA products based on CPA 2008 classification.

For "other machinery and equipment and weapon systems" output price indices are derived from Producer Price Index (PPI) in Industry for the Domestic Market separately for "16-Manufacture of wood and of products of wood and cork", "25-Manufacture of fabricated metal products except machinery and equipment", "27-Manufacture of electrical equipment", "28-Manufacture of machinery and equipment n.e.c.", "31-Manufacture of furniture", "33-Repair and installation of machinery and equipment" and imports price indices are estimated from Import Price Index in Industry (MPI), for the corresponding products (P16-P25-P27-P28-P31). The resulting price index applies to all industries and sectors.

#### 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?

P01: products of agriculture, hunting and related services and P02: products of forestry, logging and related services, for industries 01-02, sector S1.

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.

Historical data from 1960, available at the National Accounts Division of ELSTAT, by industry, for sector S1. For Sector S13 there were available electronic files with data by industry and asset back to 1988. All historic data were elaborated in order to correspond to NACE Rev.2 and we also took into consideration the reclassifications that had taken place in S13.

Question 3. What price indices do you use to construct volume measures of cultivated biological resources, and how do you construct these indices? How do you account for quality improvements? Do you use specific price indices for detailed asset categories? Do these price indices differ across industries / institutional sectors? If they are available, please provide links to and/or relevant documents and metadata on their construction.

Price indices on GFCF are estimated as weighted average price indices of Output price indices and Imports price indices (INTRA EU and EXTRA EU), with weights the measurement of the balanced Output and Imports INTRA EU and EXTRA EU at current prices (of the most recent available year, usually t-1). Price indices are estimated for the 130 NA products based on CPA 2008 classification.

For "cultivated biological resources" output price indices are derived from "Output price indices in agricultural and livestock production", separately for crops and animals and imports price indices are estimated from "Total industry excluding MIG Energy". The resulting price index applies to all industries and sectors.

#### 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.

There is no estimation of GFCF in R&D by detailed asset type.

Question 2. What is/are the main source/s to estimate GFCF in research and development (R&D)? Please describe briefly the architecture of your estimation method and specify if these differ across different R&D assets (if a breakdown is available), industries and/or institutional sectors.

The main source to estimate GFCF in research and development is the relevant survey conducted by the National Documentation Center.

Question 3. What is the length of GFCF in R&D in your country? If long GFCF series are available (previous to 1995), how do you estimate historical data? Please, describe additional sources and/or methods, and specify if these differ across assets within this category, industries and institutional sectors.

The length of GFCF in R&D in Greece is from 1986 and onwards.

Question 4. What price indices do you use to deflate GFCF in R&D and how do you construct these price indices? How do you account for quality improvements? Do you use specific price indices for detailed asset categories? Do these price indices differ across industries / institutional sectors? If they are available, please provide links to and/or relevant documents and metadata on their construction.

Price indices on GFCF are estimated as weighted average price indices of Output price indices and Imports price indices (INTRA EU and EXTRA EU), with weights the measurement of the balanced Output and Imports INTRA EU and EXTRA EU at current prices (of the most recent available year, usually t-1). Price indices are estimated for the 130 NA products based on CPA 2008 classification. For "research and development" output price indices are derived from "Consumer Price Index (CPI)-National Index" and imports price indices are estimated from "Total industry excluding MIG Energy". The resulting price index applies to all industries and 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.

There isn't any estimation of GFCF in mineral exploration and evaluation in Greece.

#### 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.

Structural Business Survey. Specific methodology developed by National Accounts for estimating own-account software.

## 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.

Historical data from 1960 are available at the National Accounts Division of ELSTAT, by industry, for sector S1. For Sector S13 there were available electronic files with data by industry and asset back to 1988. All historic data were elaborated in order to correspond to NACE Rev.2 and we also took into consideration the reclassifications that had taken place in S13.

3. 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.

Price indices on GFCF are estimated as weighted average price indices of Output price indices and Imports price indices (INTRA EU and EXTRA EU), with weights the measurement of the balanced Output and Imports INTRA EU and EXTRA EU at current prices (of the most recent available year, usually t-1). Price indices are estimated for the 130 NA products based on CPA 2008 classification.

For "Computer software and databases" output price indices are derived from Producer Price Indices for Services "62-Computer programming, consultancy and related services" and "63-Information service on computers and related services" and imports price indices are estimated from "Total industry excluding MIG Energy". The resulting price index applies to all industries and sectors.

#### 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 sources are data from Collecting Societies which represent authors/creators (includes composers-lyrists, writers-publishers, photographers) and the related rights of beneficiaries (includes musicians, singers and performers, producers of phonograms), National Accounts estimates in division 59 of NACE Rev. 2 by occupation status (employees, self-employers), the employment results of SBS survey at the 4-digit level of NACE Rev. 2., Labour cost indices, employment data from LFS, Bank of Greece.

The production of originals (entertainment, literary, and artistic originals) is valuated, following two methods:

i. The production cost approach for Films and TV/Radio production:

The production of originals is valued at a macro-level as the sum of production costs. These costs are grouped into two parts: labour costs and non labour costs. It is calculated separately the originals production by employees in division 59 of NACE Rev. 2 and the same is implemented for the self-employers respectively.

ii. The net present value of future receipts approach based on a system of royalty flows (concerning industries covering musical, literary, photographic and imaging works):

For the estimation of present value of future receipts approach it is applied the following formula:  $Wj = Hj^* (1+rj-ij)$ , where:

Hj: is the sum of royalties paid in the total economy

rj: is the nominal growth rate of royalties compared with the previous year

ij: is the nominal interest rate used for discounting.

For the calculation of nominal growth rate of royalties, the change in the total royalties flows between two years is calculated. It started with calculation of the change between total flows for the reference years 1994-1995, continued with the change for 1995-1996 etc. and was completed with calculation of the change for the following years. The estimation of nominal growth rate for discounting was based on 10-year maturity interest rate from Bank of Greece.

3. What is the length of GFCF in entertainment, literary and artistic originals? If long GFCF series are available (previous to 1995), how do you estimate historical data? Please, describe additional sources and/or methods, and specify if this differ across assets within this category, industries and institutional sectors.

Data from 1995 onwards.

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.

Price indices on GFCF are estimated as weighted average price indices of Output price indices and Imports price indices (INTRA EU and EXTRA EU), with weights the measurement of the balanced Output and Imports INTRA EU and EXTRA EU at current prices (of the most recent available year, usually t-1). Price indices are estimated for the 130 NA products based on CPA 2008 classification.

For "Entertainment, literary and artistic originals" output price indices are derived from a combination of "Consumer Price Index (CPI)-National Index" for P59 and Producer Price Index for "7312-Media representation services" for P60 and imports price indices are estimated from "Total industry excluding MIG Energy". The resulting price index applies to all industries and sectors.