DMES TASK FORCE ON FIXED ASSETS AND ESTIMATION OF CONSUMPTION OF FIXED CAPITAL UNDER ESA 2010 FINAL REPORT 2023
Eurostat

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Background

- The Task Force was established in August 2020 by the EU Directors of Macroeconomic Statistics group (DMES) with a two-year mandate to improve the availability and quality of fixed assets data.

- The analysis and harmonisation efforts of the Task Force concentrated mainly on the Perpetual Inventory Method (PIM) - the most common method used to calculate capital stocks and CFC.

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Background
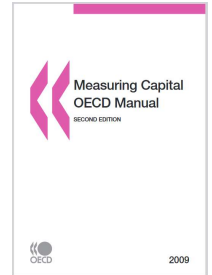
- The PIM cumulates flows of gross fixed capital formation (GFCF), adjusted for retirements and CFC, when direct information on fixed assets stocks is lacking. The OECD Manual "Measuring Capital" from 2009 details the theory and application of the PIM.

- Compilers make choices for key assumptions like retirement functions, depreciation rates, initial capital stocks, and price indices, impacting stocks and CFC estimates.

- Harmonizing these assumptions across countries is crucial, considering diverse assumptions made and policy interest in fixed asset statistics, however some cross-country diversity may be justified.

Background

- While countries may have unique factors influencing asset depreciation, harmonization aims to minimize arbitrary differences without eliminating justifiable ones.

- Changes to PIM assumptions are typically made periodically to smooth-out significant impacts on long time series of fixed capital stock and CFC, as well as key macroeconomic indicators like Government Final Consumption Expenditure and GDP.

- EU Member States will implement improvements – as necessary – to their statistics, based on the following recommendations, during the EU harmonised benchmark revisions of national accounts, scheduled for 2024.

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Recommendations - functions

The ESA 2010 allows both linear and geometric depreciation approaches. Some EU Member States use geometric approaches, but many use linear approaches. Within that context, two recommendations were drawn up:

1. Choice of retirement function:

   • Use of a bell-shaped retirement function is recommended (without preferring a specific bell-shaped function).

2. Choice of depreciation function:

   • Within the context set by ESA2010 regarding depreciation functions, the recommendation is limited to using a convex cohort depreciation function

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Recommendations – service lives

3. Service lives – recommendations for service lives (sometimes ranges), plus analysis/update at least every five years, in benchmark revisions:

- Dwellings (AN.111)

- Buildings other than dwellings (AN.1121)

- Other structures (AN.1122)

- Land improvements (AN.1123)

- Transport equipment (AN.1131)

- Computer hardware (AN.11321)

- Telecommunications equipment (AN.11322)

- Other machinery and equipment (AN.1139)

- Weapon systems (AN.114)

- Cultivated biological resources (AN.115)

- Research and Development (AN.1171)

- Mineral exploration and evaluation (AN.1172)

- Computer software and databases (AN.1173)

- Entertainment, literary or artistic originals (AN.1174)

- Other intellectual property products (AN.1179)

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Recommendations – initial capital stocks

4a. Estimating the initial capital stock:

- Where there is no obvious best method available (reliable valuations at a suitable point in time), two (or more) different methods may be tried, and the results cross-checked

4b. Two step approach:

- Backcasting GFCF series for as long as possible. Ideally, if the longest service life of a given asset is T and capital stocks need to be published from date t onwards, the corresponding GFCF series should start at date t-T (at least). This backcasting exercise should be based on national data sources.

- If additional assumptions are needed, finding a stable relationship with a reliable indicator which leads to converging results. A useful pragmatic approach is to back-estimate a few years more than are actually needed, then verify in detail the results (e.g. the ratio of CFC in relation to capital stock) for the first few years after the published initial capital stock estimate.

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Recommendations – other changes

5a. Other changes in volume of assets are only recorded for situations enumerated in ESA 2010 para. 6.01-6.25, with transactions in GFCF or CFC being recorded for other situations. Where there are significant amounts of other changes in volume of assets, it is helpful to clearly inform users through appropriate metadata.

5b. Other changes in the volume of assets:

- If geometric cohort depreciation function is used, follow Annex C of the OECD Manual Measuring Capital (a simpler method for capital measurement when the information basis is limited).

- Avoid using *Other changes in volume* if no clear conceptual rationale for doing so.

- Changes in classification and structure should be used only for statistical re-classifications, not for organizational restructuring (e.g. in the case of restructuring of balance sheets between existing units).

- Other changes in volume should not be used as a "balancing item" when reconciling stock and flow measures.

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Recommendations – price deflators

6a. Price indices for capital stocks and CFC:

- Ideally, the Supply and Use framework should be used for deflation. During the SUT balancing process, the deflators for GFCF should be checked for plausibility.

- It will be useful to make periodic cross-country comparisons of price indices, at least for some assets. An example could be ICT equipment, which is an asset type where significant differences in measured price changes have been observed in the past.

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Recommendations – price deflators

6b. For dwellings:

- If possible, Member States should use a construction price index (provided it has suitable coverage and takes account of quality changes), or – as a second best - the "Acquisition of dwellings" component of the Owner occupied housing price index (OOHPI).

- Member States should review how quality change is taken into account for dwellings, either in their price indices or PIM approach. It is important that the 'volume' element of dwellings (i.e. both the impact of composition changes in dwellings and quality changes in each type of dwellings) is clearly separated from the price (revaluation) effect.

- Member States should consider if the PIM approach should distinguish between different components of dwelling stocks when conducting revaluation, and if all of these components (major renovations, costs of ownership transfer etc) are covered.

- Use of headline house price index (HPI) should be avoided.

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Recommendations – price deflators

6c. For other asset types than dwellings:

- PIM experts should be informed at national level of what's being done in the general deflators project, and possible impacts on their work

- Application of price indices should be at most detailed product level possible

- Member States should improve their metadata describing how prices indices are applied

- Some remaining 'C methods' identified in Member States for price indices for GFCF should be replaced with better methods

- Some implicit price deflators in some countries to be investigated, where strong divergence is observed from development of prices of internationally-traded assets or unusually strong movements over period; notably for ICT assets for some countries

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Recommendations – harmonisation of data

7. Member States should review and, if necessary, improve county estimates in view of harmonization of:

- Composition of asset categories (by product), based on further clarifications by Eurostat

- Combinations of NACE x Asset breakdowns considering notably recommendations to:

  - Avoid pro-rata distributions for dwellings (AN.111) and cultivated biological assets (AN.115)

  - Ensure consistent treatment across tables for related estimates (GFCF, GVA, EMP)

- Transmission of data and use of flags

  - Especially review of zero, NaN#M and NaN#L values

  - Respecting SDMX definitions and recommended practices

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Cooperation with OECD, the Vienna Institute and non-European countries

- OECD and the Vienna Institute for International Economic Studies have valuably participated in the TF.

- Cooperation of Member States with the OECD's exercise on comparison of combined depreciation/retirement patterns.

- Detailed analysis by the Vienna Institute of cross-country comparisons, released to all Member States.

- Welcome presentation to the TF by Statistics Canada on their recent work.

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Thank you!

Questions?