



United Nations Economic Commission for Africa

E-Training on GDP Rebasing

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Session 3: Rebasing national accounts (Part I)

Economic Statistics and National Accounts Section
ACS, ECA

Content of the presentation

- Rebasing national accounts and its aim
- Periodic and annual rebasing
- GDP rebasing activities



Rebasing national accounts and its aim (1/5)

Revisions in national accounts

- As the structure of an economy evolves and as more or better data become available, revisions are needed in national accounts to realign them with economic reality.
- Generally, these revisions take place in the process of compiling national accounts at different points of time, or introducing a new national accounts series, depending upon the nature of revisions.
- Revisions can be broadly grouped under
 - routine revisions (carried out in the current series)
 - benchmark revisions (usually associated with base year revision)
 - methodological revisions (arising due to implementation of new standards, such as 2008SNA. Normally, undertaken alongwith next planned benchmark revision, rather than in between two benchmark revisions)



Rebasing national accounts and its aim (2/5)

Revisions in national accounts

- Routine revisions (or current revisions) encompass all changes in national accounts estimates for a particular period from the first to final estimate
 - These revisions are based on the availability of new information from data sources: and used to achieve full comparability with past data (final estimates of current year vs. final estimates of previous year)
- Benchmark revisions (or major regular revisions) incorporate new data sources and/or methods used for compilation of national accounts
 - These can affect GDP and cause discontinuity in time series.
- Methodological revisions (or major occasional revisions) are normally due to changes in principles of national accounting.
 - These revisions too result in major changes in national accounts



Rebasing national accounts and its aim (3/5)

Benchmark revisions

- The benchmark revisions in national accounts are associated with a benchmark year (usually, the base year of new national accounts series)
- The benchmark year refers to the year in which all transactions recorded in national accounts (production, input costs, consumption, capital formation, international trade, and taxes, etc.) are comprehensively measured, so that they accurately reflect the structure of the economy of that year.
 - the new measures generally incorporate changes in statistical methods, changes in concepts, definitions, and classifications, and availability of new data from censuses and long term surveys



Rebasing national accounts and its aim (4/5)

Base year of GDP

- refers to the year of the weights that are used to measure GDP at constant prices.
- provides the reference point to which future values of the GDP are compared.
- does not necessarily coincide with benchmark year.
 - When a country adopts the chain-linking approach, the base year is updated annually.



Rebasing national accounts and its aim (5/5)

Change of base year

- Consists two steps, (i) rebasing, i.e., the update of the weights used for the calculation of indices from base year; (ii) re-referencing (or rescaling) of the indices to the new reference period.
- Rebasing of GDP means replacing the old base year used for the compilation of constant price estimates with a new one, more recent.
- In principle, a change of base year in the national accounts implies:
 - changing the price and quantity base for the individual price and quantity relatives
 - updating the weights used in aggregating the individual quantity relatives into sub-indices and to aggregate these sub-indices into more aggregated indices
 - performing the aggregation from this detailed compilation level to obtain the national accounts aggregates.
- Usually, rebasing is carried out in conjunction with the incorporation of data from a new benchmark year.



Periodic and annual rebasing (1/4)

Periodic rebasing (1)

- Usually carried out at the time intervals of 5 or more years
- Prices of the base year are applied from *new base year onwards*.
- Volume measures of GDP *before new base year* were calculated using price structure of previous base year.
- The joint volume measures of GDP at new and previous base years, means that they are expressed in terms of the prices of a specific year (i.e., reference year) is known as linking (see chapter 4).
- Linking is done by extrapolating backward separately the volume measures of GDP and its components at the most detailed level possible at the reference year using the real growth rates of GDP and its components which are calculated using the previous base years.



Periodic and annual rebasing (2/4)

Periodic rebasing (2)

- The periodic rebasing is carried out taking into account the estimation methods of GDP planned in the revision
- Volume measurement of GDP is realised based on several methods (see chapter 1), and consists of the following actions:
 - *volume measures of transactions obtained by deflation*: the reference year of deflator is changed at most detailed level possible to new base year and the current-price values are deflated using the new deflators. Alternatively, the most detailed current-price value of transaction at new base year are extrapolated using the real growth rates of previous base year.
 - *volume measures of transactions obtained by quantity revaluation*: in this case, the prices for revaluation are replaced with those for new base year.
 - *volume measures of transactions obtained by volume extrapolation*: the year from which level is being extrapolated to new base year should be changed.



Periodic and annual rebasing (3/4)

Annual rebasing (1)

- *Annual rebasing* (annual chain-linking) means to update the base year (weights) every year. The 2008 SNA recommends this procedure.
- It has been shown on theoretical grounds that long time series of volume and price indices are best derived by being chained.
- When volume estimates are rebased, say every five or ten years, then it is typically the case that the growth rates are revised.
- If price and volume relativities have been changing rapidly, then the changes in the growth rates can be dramatic.
 - Such is usually the case for any aggregate in which computers have a significant share.
- With annual chaining history is only “rewritten” a little each year, not in one large jump every five or ten years.
- Annual chaining not only measures changes better, it is likely to increase confidence in the resulting national accounts volume indices.



Periodic and annual rebasing (4/4)

Annual rebasing (2)

- The steps for annual chaining, as for periodical rebasing of GDP, take into account the methods used for the volume measurement:
 - *volume measures of transactions obtained by deflation*: the reference year of deflators change annually. Alternatively, the extrapolated most detailed current-price value of transactions are at detailed level extrapolated using corresponding deflated value.
 - *volume measures of transactions obtained by quantity revaluation*: the prices for revaluation are changed annually.
 - *volume measures of transactions obtained by volume extrapolation*: the year from which level is being extrapolated is changed annually.



GDP rebasing activities (1/13)

- Since, rebasing impacts the levels in macroeconomic indicators, it involves a consultative and participatory process of various data producers, data suppliers and data users.
- The process is based on several datasets provided by different Ministries, Departments and other source agencies. In addition, stakeholder workshops should be organised to elicit information and also validate the output of the rebasing exercise.
- The preparatory work for the rebasing exercise commences much in advance before the actual release of rebased estimates.
- The duration of this period depends on the human and financial capacity of the statistical institute and the objectives of the new base year.
- The main activities of the rebasing process can be summarised under:
 - A1: Aims and objectives
 - A2: Collection of data
 - A3: Rebasing
 - A4: Dissemination



GDP rebasing activities (2/13)

A1: Aims and objectives (1/3)

- Rebasing exercise should include three major methodological pillars to improve national accounts
 - adoption of 2008 SNA version
 - adoption of latest international classifications, and
 - use of much accurate and recent source data.
- Based on this framework, the first stage of the rebasing activity is to establish aims and objectives.



GDP rebasing activities (3/13)

A1: Aims and objectives (2/3)

- The decision about which objectives a country wants to achieve should be based on an in-depth analysis of the current situation:
 - the country's statistical capacity for providing the data sources
 - availability of data sources and the possibility to carry out new surveys or to use new data sources
 - the human resources (number and level of knowledge) capable to carry out the process
 - the cooperation with other administrative institutions in order to access the available data
 - needs of national and international users for national accounts indicators.



GDP rebasing activities (4/13)

A1: Aims and objectives (3/3)

- The analysis of the current situation will help in identifying the objectives which can be, for example, either or all of the following:
 - only the reference period is changed
 - Including newly available data, and some changes in the methods
 - incorporates major methodological improvements, introduces new classifications and improved data sources
- These objectives presented are in order of increasing complexity:
 - the first requires the least amount of data,
 - The more complex the objectives become, the more data is required to compile them.
 - But, complex objectives give a realistic description of the socio-economic structure and development of a country, and they are more suitable for improvement of national accounts and for policy and analytical purposes.



GDP rebasing activities (5/13)

A2: Collection of data (1/3)

- Rebasing of GDP is a demanding task that requires important and constant resources.
- The objectives, established based on the institutional conditions of human and financial capacity, should be followed by concrete actions in order to obtain the necessary data for rebasing
- The collection of data has two main activities:
 - Step1: Organization of the data collection
 - Step 2: Collection of data
- In the process of data collection, it is important to have a permanent contact with the main stakeholders, to organise meetings and explain the reasons and benefits of rebasing GDP and their implications on economic analysis



GDP rebasing activities (6/13)

A2: Collection of data (2/3)

- *Step 1: Organization of the data collection consists of*
 - analysis of available data and methods used in compiling GDP
 - In this phase, available administrative and statistical sources are assessed in order to identify if they answer to established objectives
 - formulate a concrete data collection strategy to fill the gaps.
 - It, as results of the objectives established, could include the improvement of current surveys with additional information, carrying out new surveys or using additional administrative sources.



GDP rebasing activities (7/13)

A2: Collection of data (3/3)

- *Step 2: Collection of data*
 - Improved data from current surveys and censuses
 - carrying out new statistical surveys as decided
 - collection of additional administrative data.
- This represents an important activity and depends on the capacity of the statistical office and its relations with other institutions
 - data may be collected by a different department, such as a department of the statistical institute that is entrusted with the responsibility of conducting surveys (or if resources allow for a special department) or by national accountants themselves (it being for them an additional task to their usual workload).
 - Special formal relations based on agreements, protocols or memorandums with administrative institutions ensure access to their data.



GDP rebasing activities (8/13)

A3. Rebasing

- This phase is dedicated to the compilation of the estimates for the new base.
- Due to the strategy adopted, the rebasing could be
 - a simple process of changing the prices and volume indicators
 - used for the estimation of constant prices,
 - a complex activity
 - which results in the new estimates at current prices, in addition to those at constant prices.



GDP rebasing activities (9/13)

A4. Dissemination (1/4)

- The main objective of compiling national accounts is to provide comprehensive understanding of an economy and its structure.
- The dissemination of the results is an activity as important as the compilation of indicators.
- Presenting national accounts indicators to the public, adding an analysis, providing useful economic interpretations are an important part of national accounts compilation process.



GDP rebasing activities (10/13)

A4. Dissemination (2/4)

- This activity become more necessary when the indicators provided to the users change, due to a new base of calculations.
- It is necessary to explain to the users the key benefits of the rebasing exercise, means the fact that a more accurate set of economic statistics that is a truer reflection of current realities is provided.
 - For example, users can be informed that rebasing enables the government and policy makers to have a better understanding of the structure of the economy, an indication of GDP, of sectors where more efforts for development should be channelled in order to create jobs, improve infrastructure and reduce poverty



GDP rebasing activities (11/13)

A4. Dissemination (3/4)

- The dissemination of the results of rebasing exercise should be integrated into the general dissemination strategy of national accounts, having as its main objective to provide data of the expected quality for users.
- This should take into consideration:
 - the details of information disseminated according to target audience
 - presentation of results in a comprehensive structure
 - provision of all necessary methodological explanations, to help users understand the new estimates of GDP.



GDP rebasing activities (12/13)

A4. Dissemination (4/4)

- National accounts represent a special overview of the economy
- dissemination of data without economic analysis and interpretation of the results is not advised
- Even if this imposes additional work, it is recommended to disseminate the results along an economic analysis and an interpretation of data.
- This will help users not familiar with the rebasing process to understand the work done and the results obtained.



Suggested reading material

- The 2008 SNA (Chapter 15 – Price and volume measures) European Commission, IMF, OECD, UN, World Bank, 2009;
- Handbook on price and volume measures in national accounts- Eurostat, Office for Official Publications of the European Communities, Luxembourg 2016;
- The 2008 SNA - compilation in brief, World Bank, 2014
- National Accounts: A practical introduction, Studies in Methods, Serie F, No.85, UN 2003; chapter XV:Price and volume measurement;
- ESA 2010, Chapter 10 – Price and Volume Measures - Regulation (EU) No 549/2013 of the European Parliament and of the Council of 21 May 2013 on the European system of national and regional accounts in the European Union



THANKS / MERCI