

# Workshop on the Methodological Review of Benchmarking, Rebasing and Chain-linking of Economic Indicators

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## A note on benchmarking of annual data

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### Purpose

1. For the purpose of national accounts compilation, basic statistics are normally collected in details for a benchmark year. For subsequent years only limited data are collected, which are used to create physical or volume indexes to move benchmark national accounts data to the subsequent years. Thus when a new set of benchmark basic statistics is collected, the new national accounts benchmark data do not match the previous estimates. Thus there is a need to make the previous series match new the benchmark figures.

### Methods

2. **Examination of data:** The discrepancy at the detail level may be due to two reasons. The first one is that the data used as proxies to create physical and volume indexes are not appropriate or deficient, thus requiring the re-examination of the data sources. The second one is that the technique used to create the indexes may be deficient, which also require review. The examination will be carried out at the detail level and case by case since there is no rule that can guide the adjustments.
3. **Mechanical benchmarking:** Application of this mechanical benchmarking is carried out after the examination of data is exhausted. Mechanical benchmarking of annual data is different from the

benchmarking of quarterly data. In the latter case, the sum of quarterly data must equal the annual value in current value. In the previous case, the rate of growth between the two benchmark years must equal the accumulation of annual growth over the years between the two benchmark years.

3. To implement the requirement set in paragraph 2, the annual rate of growth of the old series is multiplied by the annual incremental growth rate. The calculation is as follows:

$$\text{Accumulated incremental growth rate} = \frac{\text{New benchmark value}}{\text{Estimate for the same benchmark year}} = 1.083$$

$$\text{Annual incremental growth factor} = ig = \frac{1}{bg^{n-1}} = 1.083^{1/3} = 1.027$$

$$\text{New growth rate} = \text{Old growth rates} * \text{Annual incremental growth factor}$$

4. The table below shows the example and the results.

**Scheme for growth and value benchmarking of annual data**

Time period	1	2	3	4	Notes
Preliminary GDP	10	11	11.5	12	<b>Original values</b>
Preliminary growth index	100	110	115	120	Index with period 1=100
Preliminary growth rates		1.1	1.045	1.043	Index with previous period =1
Actual benchmark value				13	
Actual benchmark growth index				130	Compared 13 to 10
Accumulated incremental growth rate				1.083	Compared 13 to 10
Annual incremental growth factor equally distributed to each year				1.027	(1.083)^(1/3)
New growth rates		1.13	1.074	1.072	Preliminary growth rates*Incremental growth
New growth index	100	113	121.3	130	New growth rate applied to period 1 = 100
New value	10	11.3	12.13	13	New growth index applied to base year value