A STRUCTURED APPROACH TO PRICE AND VOLUME MEASURES IN THE NATIONAL ACCOUNTS

Presentation to the Regional Seminar on Developing a Programme for the Implementation of the 2008 SNA in the Pacific Region

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20-21 August 2013
Apia, Samoa

OUTLINE

- Motivation
- Volume measures in Australian System of National Accounts (ASNA)
  - Structure of volume measures
  - Available indexes
- Linking price indexes and volume measures
- Key messages

MOTIVATION FOR PRICE & VOLUME MEASURES

- Price indexes inform on economic pressures
  - On businesses
  - On households
- Price indexes guide policy setting
  - Indexation
  - Wage and salary movements
- Volume measures guide understanding of
  - Levels of consumption
  - Understanding of relationships between production and consumption
  - Productivity, efficiency and capacity
- International comparison of growth and levels of prices (PPP)

VOLUME MEASURES IN THE ASNA

- GDP (E)
  - Household consumption
  - Government consumption
  - Capital formation
    - Dwellings and other buildings
    - Equipment and computers
    - Inventories
  - Exports & Imports

- GDP(P)
  - Output measures by industry
  - Intermediate consumption
  - Double deflation method for value added

VOLUME MEASURES IN THE ASNA

- GDP(E) volume measures compiled quarterly because price indexes available quarterly.
  - Time series back to 1959-60
  - 5 yearly rebasing until 1994-95 then annual weighting
  - All movements linked together (chained) to provide consistent time series
  - Quarterly measures benchmarked to annual balanced volume measures from constant price supply and use tables
  - Reference year (i.e. year equal to 100), moves forward one year each year to always be in t-1.

VOLUME MEASURES IN THE ASNA

- GDP(P) annual volume measures have been double deflated (deflated output less deflated inputs) since introduction of supply-use benchmarking in 1994-95

- GDP(P) quarterly volume measures first published in 1990 based on output volume measures for each industry
  - Weights based on annual nominal industry value-added derived from GDP(I) : COE + GOS
  - Large developments over time as improvements in coverage of price indexes for services
  - Strong benefits in estimating GDP(P) to confront GDP(E) – independent of supply-use balancing

VOLUME MEASURES IN ASNA

- Capital stock
  - Need volume measures and price indexes of capital formation to derive capital stock measures because need to value stock at replacement cost not historical cost
  - Capital stock system is the basis for measures of consumption of fixed capital (depreciation)
- Balance sheets
  - Volume measures for natural resources
- Real income measures
  - Use aggregate price measures to derive real gross national income and real gross domestic income (GDP adjusted for terms of trade)

AVAILABLE PRICE INDEXES

- CPI
- PPI
  - Output price indexes
    - Includes machinery and equipment (computers)
  - Materials used price indexes
  - Construction industry
  - Service industries
- International trade price indexes (ITPI)
  - Export price index
  - Import price index
- Wage price indexes

LINKING PRICE INDEXES WITH ASNA

- Connection by recognising that all price indexes price a product (good, service, labour)
  - No direct price index for an industry
  - Thus one price index can be relevant for both GDP(E) and GDP(P)
  - Develop links using product classifications
- Start from structure of economy in national accounts and find appropriate price indexes
  - Importance of understanding and aligning scope and concept of national accounts and price indexes
  - Consider significance of
    - Weights and relative importance
    - Varying rates of price change
  - Consider quantity revaluation for volume measures

WEIGHTING AND REBASING

- Regular updating of weights important
- Frequency required depends on extent of substitution between items being weighted together
  - Frequency of re-weighting varies at different levels
- Focus on big areas of expenditure and industry and key drivers of inputs and outputs
  - Is the composition / share changing in nominal terms?
  - Is the relationship between output and input changing in nominal terms?
  - Are there significant items with different rates of quality change or price change?

KEY MESSAGES

- Maintain time series
- Extend system coverage over time
- Benefits in populating a complete GDP measure even if using less than ideal indicators
- Need coherent and comprehensive nominal measures
- Create “aggregation trees” based on relative importance and nature of price change and then link to available price indexes
- Record and reassess assumptions about relationships

ACKNOWLEDGEMENTS

- This and other contributions are made possible by funding from Australian Aid (AusAID)
- The Australian Bureau of Statistics and AusAID are partners in the WAVES program, playing a particular role with the implementation of the SEEA in the Asia-Pacific.

Australian Government
AusAID

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