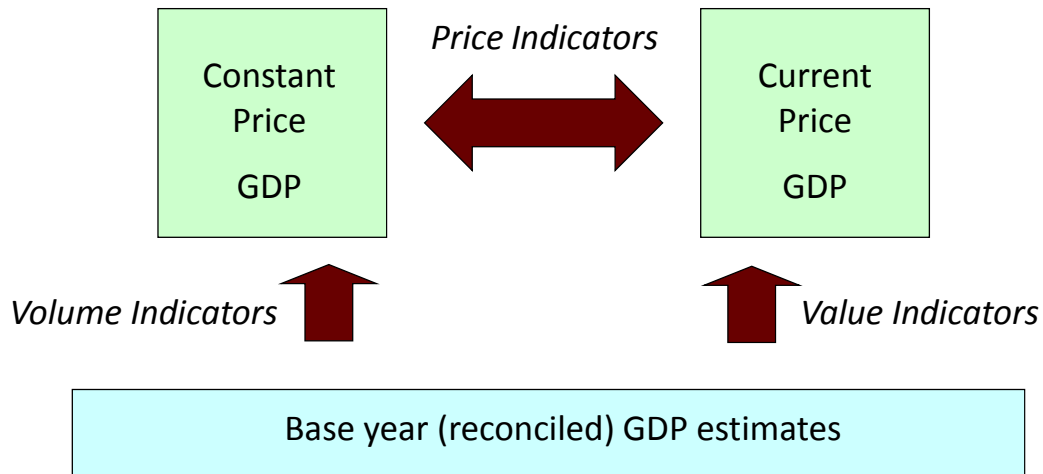# Gross Domestic Product

Services Statistics

www.singstat.gov.sg

Services Statistics

- Inherently difficult to measure
- Need timely and reliable proxy indicators
- Some short-term output indicators
  - Retail Sales Index
  - Wholesale Trade Index
  - Business Receipts Index

Use of Indicators for GDP Compilation

Price Indicators

| Constant Price GDP | ⟷ | Current Price GDP |

Volume Indicators ⬆   ⬆ *Value Indicators*

Base year (reconciled) GDP estimates

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Output-based GDP

- Services VA compiled based on these approaches:
  - (a) where output, sales or revenue are available, use them to proxy growth of the industries
  - (b) where output, sales or revenue are not available, we use input indicators e.g. employment

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Example on (a)

Industry	Output Indicator
Wholesale and Retail Trade	Wholesale Trade Index Retail Sales Index External Trade
Business Services	Business Receipts
Other Services	Number of students Number of outpatient visits

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Example on (b)

Industry	Input Indicator
Business Services	Employment Wage indices
Other Services	

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Annual Benchmarking

- What is benchmarking?
  - Process of aligning preliminary estimates based on indicators to the annual benchmarks
  - Applied when 2 sources of data for the same variable are at different frequencies
  - Corrects inconsistencies between the 2 different estimates
  - Aims to preserve short term movements of the indicator series

Denton Benchmarking Method

$$D4 \;:\quad \min \; \sum_t \left[\left(\frac{GVA_t}{I_t} - \frac{GVA_{t-1}}{I_{t-1}} \right) \right]^2$$

Subject to :

$$\sum_{t=4y-3}^{4y} GVA = AGVA_y \;, \qquad y \in \{1,2,\dots Y\}$$

where   D4 = proportional Denton

Challenges

- Suitability of proxy indicators; need to identify and develop more output indicators to replace input indicators
- Development of more services price indices
- Provision of more breakdown in the services industries
- Enhanced coverage of new, emerging services
- Revisions to GDP estimates
- Resource constraints and respondent burden

How to address challenges

- Similar challenges as other countries
- Use more administrative data
- Research on international best practices
- Participate in international discussion platforms

Thank You

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*A National Statistical System of Quality,
Integrity and Expertise*

Our Mission
*We provide Reliable, Relevant and
Timely Statistics to support Singapore's
Social and Economic Development*

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