Digital Supply and Use Tables

Statistics Canada
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Digital SUTs

- Reference years: 2017-2019, published on April 20, 2021
- Canada level SUTs but some provincial aggregates on GDP and jobs.
- Experimental product
  - Revisions are expected: refinement of methods, feedback from users, and international discussions and comparisons
- Based on benchmark 2017 SUTs. Advanced 2018-2019 SUTs.
  - Revisions due to benchmark 2018-2019 SUTs
- Indirectly releasing advanced Canadian SUTs (2018-2019)
  - Nominal output and GDP by industry not fully integrated with other published industry volume measures. Users are used to integrated industry measures

OECD framework for digital economy indicators: digital SUTs

- Expanding current detail (in scope for Canadian digital SUTs)
  - Current industry and product classifications do not show relevant details or aggregates for digital economy
  - Requires a breakdown of information already in the SUTs

- Additional information (out of scope for Canadian digital SUTs)
  - Beyond SNA 2008: value of data and free digital services
  - Work continues on value of data independently of the digital SUTs (in income and expenditure accounts)

- Change in methods from previously released digital economy satellite account
  - Experimenting with different approaches

OECD framework for digital economy indicators: digital SUTs

- Canada playing a leading role

- Likely the first country to submit digital SUTs to the OECD

- Developing methods will help other compilers internationally
  - Methodology paper to UNECE in May

- Help motivate other agencies

Measurement issues

- Differentiating industry production functions: digital vs non-digital

- Refine allocation of digitally-ordered by use category

- Likely some increase to the online activity as ongoing research expands the frame

- Currently focused on business sector market activities.

  - Missing measures of digitalization in public administration, education and health.

  - Missing a conceptual measurement framework and data sources

- Extending the time series back in time may be difficult due to lack of source data and small, diminishing values in some areas. Under experimentation

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Overview

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2   Measurement of digital industries and products

3   Measurement of digitally ordered products

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5   Considerations and next steps

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OECD framework for digital SUTs Implementation in Canada

OECD framework - digital SUTs

- Digital industries (digital only firms)
- Digital products and products significantly affected by digitalization
- Digitally ordered and digitally delivered products

Digital SUTs, Canadian implementation

- Adopt general OECD framework
  - Apply to 2017 benchmark national SUTs
  - Experimental estimates to help flag data gaps and data needs internally and discuss compilation methods with other compilers internationally
  - Version 1: based on Canadian classifications and valuations. Targets Canadian users and integration with source data and other MEA programs
  - Version 2: convert to OECD classifications and valuations (pure basic prices). International comparability.

- Medium term
  - Apply to 2018 advanced SUTs
  - Extend the digital industries to provincial dimension
  - Add jobs by industry (requires part-time, full-time, precariousness)
  - Add investment (FCF) by industry (quality concerns for smaller slivers)

Measurement of digital industries and products

Digital industries

- Digitally enabling industries (ICT industries) ☺
  - Largest component; mostly a simple mapping with some minor industry splits based on survey data
- Digital intermediary platforms charging a fee
  - Taxis and delivery from tax data ☺
  - Short-term accommodation: Airbnb based on 2018 published paper (AirDNA data source) ☺
  - Researching advertising intermediaries. Not incorporated yet. ☹
- Data and advertising driven digital platforms (currently missing) ☹
  - Outstanding
- Firms dependent on intermediary platforms
  - Taxis and delivery from tax data ☺
  - Difficulties with finding short term accommodation ☐
- E-Tailers ☺
  - Available from survey data
- Digital only firms providing finance and insurance services ☐
  - Work-in-progress: examining Fintech frame. Difficulties in distinguishing "purely" digital units.
- Other producers only operating digitally ☹
  - Outstanding

Digital industries

- Focus is on splitting main industry outputs
- Inputs and GVA components are derived based on average industry coefficients.

Digital products

- ICT goods ☺
  - Simple mapping

- Cloud computing ☺
  - Split output of software and data processing and hosting into cloud vs non-cloud based on review of annual reports of largest firms.
  - Assume imports and uses are equivalently split.

- Digital intermediary services 😐
  - Aligns with the industry concept and measures. Same issues.

- Priced digital services except cloud and digital intermediaries ☺
  - Residually derived for relevant products

Non-digital products significantly affected by digitalization

Simple mapping exercise 😊

- Land transport services and transport services via pipelines
- Accommodation services
- Food and Beverage serving services
- Motion picture, video and television programme production services, sound recording and music publishing
- Financial and insurance services
- Advertising and market research services
- Travel agency, tour operator and other reservation services
- Education services
- Gambling and betting services
- Publishing services

Measurement of digitally ordered products

Digitally ordered products – OECD framework

Each product across all supply and use categories is broken down into:

A	Digitally ordered	
	a1	Direct from a counterparty
	a2	Via a resident digital intermediary
	a3	Via a non-resident digital intermediary
B	Not digitally ordered	

- Conceptual difficulty in the OECD framework for goods digitally ordered through domestic retailers.
- Should only the supply and use of the retail margin appear as digitally ordered (a1)? If so, then the share of digitally ordered expenditures would be lost.
- If the output and imports of the product being retailed appear under (a1), then this would be confusing, especially when analyzing the shares of digitally ordered industry outputs for non-retailers.

Digitally ordered products – Statcan framework

- In the Canadian digital SUTs, goods digitally ordered through domestic distributors are shown as digitally ordered by consumers and their output and imports are shown as digitally ordered through distributors. A new digitally ordered category (a4) is added to identity these products. The digitally ordered retail margin output and the equivalent portion of the expenditure remain under (a1).

A	Digitally ordered
a1	Direct from a counterparty
a2	Via a resident digital intermediary
a3	Via a non-resident digital intermediary
a4	Via a resident retailer or wholesaler
B	Not digitally ordered

E-commerce – excluding domestic retailers

- Output based on e-commerce modules from annual business surveys.

- Imports based on customs imports for large non-resident ecommerce sites and a proportion of small-valued courier shipments.

- Proportionally allocate outputs and imports to uses. Outputs are apportioned based on class of customer modules from annual business surveys.

- The derived uses will have associated transportation margins, taxes etc. Allocate these margins to domestic producers.

E-commerce – domestic retailers

- Margin output based on ecommerce modules from business surveys.

- Proportionally allocate margin output to uses. Outputs are apportioned based on class of customer modules from business surveys.

- From margin uses derive consumption expenditures based on sales / margin ratios.

- Allocate other margins associated with these expenditures back to domestic producers as related to digitally ordered products.

Measurement of digitally delivered products

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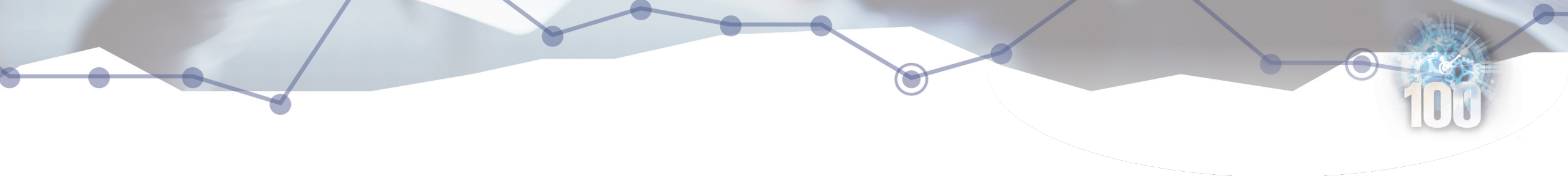
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Digitally delivered products

- Based on listing of SUPCS from the Canadian Digital Economy Account
    - Some splits: books, newspapers, …
    - Missing education (important in 2020), government services (e.g., StatCan)
- Aggregate supply and trade are broken down into digitally delivered vs non-digitally delivered based on the proportion of digitally delivered products:

    - Total output of digital industries
    - Total output of non-digital industries
    - Imports and exports
    - Total supply (basic and purchasers' prices)

Considerations and next steps

Canadian digital SUTs, considerations

- Priority to generate experimental 2017 tables in order to garner feedback on estimation methods and data quality from other compilers: domestic and international.

- Automated system that uses allocation factors. Easy to refine allocation factors and regenerate digital tables.

- Timeliness vs integration: will not necessarily align with other data products (NEAD estimates of household expenditures on international ecommerce, IATD digitally delivered trade, etc.)

- Aligning with the OECD framework will cause some differences from the NEAD and BEA Digital Economy Satellite Accounts.

- Time series will be limited for now. Can update to 2018 (and possibly 2019) based on experimental advanced SUTs.

- Prior years can be difficult. Ecommerce modules not available in surveys and lack of consistent time series of SUTs.

Canadian digital SUTs, considerations

- Areas of current interest: HFCE on e-commerce imports; digital trade; government digitally ordered and delivered (education in 2020); online services imports and platform services imports.

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