Measuring Digital Trade and Trade in Services by Mode of Supply

SESRIC online training course
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Ying Yan, WTO
Handbook on Measuring Digital Trade
second edition

Author

IMF, OECD, UNCTAD and WTO

Background

A revision to the first Handbook, published in 2019

First statistical definition of digital trade based on the nature of the transaction

- “digital trade is all international trade that is digitally ordered and/or digitally delivered”.

- Established a conceptual framework for measurement

- Provided initial compilation guidance on digital trade transactions
Overview

- **Unchanged**
  - Conceptual framework
  - Accounting principles

- **Clarified**
  - Definition of digitally delivered trade
  - Relationship between digital trade and modes of supply
  - Delineation of DIPs, e-tailers, other producers only operating digitally
  - Recording of intermediation fees

- **Expanded**
  - Compilation guidance for digitally ordered trade and digitally delivered trade
  - Detailed case studies
  - A new reporting template with practical recording examples for compilers
Structure

- Chapter 1. Introduction
- Chapter 2. Conceptual framework
- Chapter 3. Measuring digitally ordered trade
- Chapter 4. Measuring digitally delivered trade
- Chapter 5. Digital intermediation platforms (DIPs)
- Chapter 6. Case studies (China, Jamaica, Spain, Türkiye)
Conceptual framework

- **Nature (How)**
  - Digitally ordered
  - Digitally ordered and delivered
  - Digitally delivered

- **Product (What)**
  - Services
  - Goods

- **Actors (Who)**
  - Corporations
    - DIPs
    - E-tailers
    - Other producers only operating digitally
    - Other corporations
  - Governments
  - Households
  - Non-profit institutions serving households

- **Digital Trade**
  - (included in conventional trade statistics)

- **Non-monetarv digital flows**
  - (not included in conventional trade statistics)
Defining digitally ordered trade

“the international sale or purchase of a good or service, conducted over computer networks by methods specifically designed for the purpose of receiving or placing orders”

Covers goods and services

Ordering methods include

- electronic data interchange system (EDI)
- own website
- third party website or app
- digital intermediation platforms (DIPs)

Digitally ordered trade = international e-commerce
Compiling digitally ordered trade

Survey sources
- Business surveys
- Household surveys
- Government and NPISH surveys

Non-survey sources
- Card payment data
- De minimis trade estimates
- Customs records

Recommendations
Defining digitally delivered trade

“all international transactions that are delivered remotely over computer networks”
Compiling digitally delivered trade

- Identify services items which can be delivered remotely through computer networks
  - Total for (most) digitally deliverable services can be aggregated from existing trade statistics of these items to provide an upper bound estimates for digitally delivered services

- Focus on Mode 1 (cross-border) supply to yield a reasonable estimate for digitally delivered trade
  - Recommended to add questions to ITS or ICT surveys to distinguish digital/remote delivery
  - Add questions on digitally delivered products to Travel/Border (Mode 2) surveys
## Table 4.1 Digitally deliverable services

<table>
<thead>
<tr>
<th>Digitally deliverable services supplied cross border (Mode 1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insurance and pension services</td>
</tr>
<tr>
<td>Financial services</td>
</tr>
<tr>
<td>Charges for the use of intellectual property n.i.e.</td>
</tr>
<tr>
<td>Telecommunications, computer, and information services</td>
</tr>
<tr>
<td>Research and development services</td>
</tr>
<tr>
<td>Professional and management consulting services</td>
</tr>
<tr>
<td>Architectural, engineering, scientific and other technical services</td>
</tr>
<tr>
<td>Trade-related services</td>
</tr>
<tr>
<td>Other business services n.i.e.</td>
</tr>
<tr>
<td>Audio-visual and related services</td>
</tr>
<tr>
<td>Health services</td>
</tr>
<tr>
<td>Education services</td>
</tr>
<tr>
<td>Heritage and recreational services</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Digitally deliverable services consumed abroad (Mode 2)</th>
</tr>
</thead>
</table>

Digital intermediation platforms (DIPs)

DIPs are defined as ‘Online interfaces that facilitate, for a fee, the direct interaction between multiple buyers and multiple sellers, without the platform taking economic ownership of the goods or rendering the services that are being sold (intermediated)

A fee charged for digital intermediation services provided by a DIP should be separately recorded from the value of transaction undertaken through the DIP

- Fees can be invoiced to the producer, to the consumer or both
- if not separately invoiced, it is assumed to be paid by the producer

Intermediation services to be classified in EBOPS 2010 trade-related services (for both goods and services)

ITS surveys and household surveys as data source
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second edition

DIP

Producer (seller)

Consumer (buyer)

Supply of product being intermediated

Payment for product (rerouted)

Supply of intermediation service

Payment for intermediation service

Supply of intermediation service
# Reporting Template

<table>
<thead>
<tr>
<th>#</th>
<th>Description</th>
<th>Total exports</th>
<th>Total imports</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Total Digital Trade</strong></td>
<td>2+3 minus 4</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td><strong>Digitally ordered trade</strong></td>
<td>2.1+2.2</td>
<td></td>
</tr>
<tr>
<td>2.1</td>
<td>Goods</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1.a</td>
<td><em>of which: via DIPs</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.2</td>
<td>Services</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.2.a</td>
<td><em>of which: via DIPs</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td><strong>Digitally delivered trade</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.a</td>
<td><em>of which: via DIPs</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td><strong>Digitally ordered and digitally delivered trade</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.a</td>
<td><em>of which: digital intermediation services</em></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Addendum items

<table>
<thead>
<tr>
<th>#</th>
<th>Description</th>
<th>Total exports</th>
<th>Total imports</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.1</td>
<td>Digital trade in services</td>
<td>2.2+3 minus 4</td>
<td></td>
</tr>
<tr>
<td>A.2</td>
<td>Digitally deliverable services</td>
<td>&gt;3</td>
<td></td>
</tr>
</tbody>
</table>
Trade in Services by Mode of Supply

Mode 1: Cross-border

COUNTRY A

BOP commercial services (excl. travel, manufacturing serv., repairs and construction)

The service crosses the border

Consumer

COUNTRY B

Service supplier

Mode 2: Consumption abroad

COUNTRY A

BOP travel + manufacturing serv. + repairs etc. + part of transportation

The consumer is abroad

Consumer

COUNTRY B

Service supplier

Mode 3: Commercial presence

COUNTRY A

FATS + BOP construction

Consumer in C

Controlled affiliate

Establish commercial presence

$ $ $ $

Direct investment

Company

COUNTRY B

$ $ $ $
Trade in Services by Mode of Supply

Mode 4: Presence of natural persons

COUNTRY A

BOP commercial services (excl. travel)

Consumer

Temporarily

Mode 3 supply

COUNTRY B

A self-employed goes to country A

Natural person

An employee is sent by a company of country B

intra-corporate transferee

Juridical person

Controlled affiliate
Trade in Services by Mode of Supply

Building TiSMoS dataset

- Existing BOP data
- Existing FATS data

- Estimation of missing information
- Adjustments
- Mode allocation
- Refinement of individual economies
- Final TiSMoS dataset

Additional data sources (tourism, TEC, STEC...)

MSITS simplified allocation table

EBOPS-NACE bridge table
Trade in Services by Mode of Supply

BOP – Mode 1, 2, 4

- **Starting point: WTO-UNCTAD annual services dataset**
  - Imports and exports for 200+ reporter countries, with partner world
  - From the year 2005 and 66 services sectors

- **Complete dataset by imputing missing data**
  - Estimate partially missing breakdowns
  - Estimate completely missing breakdowns

- **Remove goods in the travel item**
  - Goods component estimated using tourism consumption statistics

- **Adjust the construction item**
  - Identifying goods is not yet possible
  - Keep only cross-border transactions

- **Estimate distribution services**
  - Estimate value of goods traded with Trade by Enterprise characteristics (TEC) statistics
  - Estimate trade margin with Structural Business Statistics (SBS) statistics
### Trade in Services by Mode of Supply

#### Compilers guide table 6.2:
**Recommended default allocation by mode of supply**

<table>
<thead>
<tr>
<th>Level</th>
<th>Category</th>
<th>EBOPS 2010 Category description</th>
<th>Mode type (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>ISS</td>
<td>International supply of services (including distribution services)</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>S</td>
<td>Services</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>SA</td>
<td>Manufacturing services on physical inputs owned by others</td>
<td>100</td>
</tr>
<tr>
<td>2</td>
<td>SB</td>
<td>Maintenance and repair services n.i.e.</td>
<td>90</td>
</tr>
<tr>
<td>3</td>
<td>SC</td>
<td>Transport</td>
<td>90</td>
</tr>
<tr>
<td>2</td>
<td>SD</td>
<td>Travel</td>
<td>100</td>
</tr>
</tbody>
</table>

**Travel – Alternative 1: By product (preferred option)**

<table>
<thead>
<tr>
<th>Level</th>
<th>Category</th>
<th>EBOPS 2010 Category description</th>
<th>Mode type (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>SD1</td>
<td>Goods (to be removed from travel)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>SD2</td>
<td>Local transport services</td>
<td>100</td>
</tr>
<tr>
<td>3</td>
<td>SD3</td>
<td>Accommodation services</td>
<td>100</td>
</tr>
<tr>
<td>3</td>
<td>SD4</td>
<td>Food-serving services</td>
<td>100</td>
</tr>
<tr>
<td>3</td>
<td>SD5</td>
<td>Other services</td>
<td>100</td>
</tr>
<tr>
<td>2</td>
<td>SI</td>
<td>Telecommunications, computer, and information services</td>
<td>80</td>
</tr>
<tr>
<td>3</td>
<td>SI1</td>
<td>Telecommunications services</td>
<td>100</td>
</tr>
<tr>
<td>3</td>
<td>SI2</td>
<td>Computer services</td>
<td>75</td>
</tr>
</tbody>
</table>
Trade in Services by Mode of Supply

FATS - Mode 3

- Mode 3 can be approximated by FATS
- Foreign-controlled enterprises & majority-owned affiliates of resident enterprises
- Classification according to primary activity (not product)
- Output / production value vs sales / turnover
- Double-counting of trade flows on services supplied to non-residents
- Goods vs services
Trade in Services by Mode of Supply

FATS - Mode 3

- **Assess data availability & derive all possible values**
  - Merge existing FATS data: Eurostat, OECD, national sources
  - Exploit mirror data
  - Impute zeroes when FDI stocks are null

- **Develop a complete dataset for countries with partial data**
  - Back/forecasting and interpolation
  - Gravity models to estimate missing sectors

- **Develop a complete dataset for countries without data**
  - Gravity models to predict bilateral sales
  - Derive partner world by summing up the values for all partners

- **Isolate output sold locally**

- **Balancing of inward and outward flows**
## Trade in Services by Mode of Supply

**Merging the data sets using a bridge table**

<table>
<thead>
<tr>
<th>EBOPS-like code</th>
<th>Description</th>
<th>NACE CODE</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA</td>
<td>Manufacturing services on physical inputs owned by others</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SB</td>
<td>Maintenance and repair services not included elsewhere</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC</td>
<td>Transport</td>
<td>H</td>
<td>Transport and Storage</td>
</tr>
<tr>
<td>SDB1SK21</td>
<td>Health services</td>
<td>Q</td>
<td>Human health and social work activities</td>
</tr>
<tr>
<td>SDB2SK22</td>
<td>Education services</td>
<td>P</td>
<td>Education</td>
</tr>
<tr>
<td>SDASDB3</td>
<td>Tourism and business travel</td>
<td>I</td>
<td>Accommodation and food service activities</td>
</tr>
<tr>
<td>SE</td>
<td>Construction</td>
<td>F</td>
<td>Construction</td>
</tr>
<tr>
<td>SFSG</td>
<td>Insurance and financial services</td>
<td>K</td>
<td>Financial and insurance activities</td>
</tr>
<tr>
<td>SH</td>
<td>Charges for the use of intellectual property n.i.e.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SISK1</td>
<td>Telecommunications, computer, information and audiovisual services</td>
<td>J</td>
<td>Information and Communication</td>
</tr>
<tr>
<td>SJXSJ34</td>
<td>Other business services (excluding trade-related)</td>
<td>L+M+N</td>
<td>Real estate, Professional, scientific and technical activities, Administrative and support service activities.</td>
</tr>
<tr>
<td>SK23</td>
<td>Heritage and recreational services</td>
<td>R</td>
<td>Arts, entertainment and recreation</td>
</tr>
<tr>
<td>SK24</td>
<td>Other personal services</td>
<td>S</td>
<td>Other service activities</td>
</tr>
<tr>
<td>SWSJ34</td>
<td>Trade-related services (Distribution)</td>
<td>G</td>
<td>Wholesale and retail trade; repair of motor vehicle and motorcycle.</td>
</tr>
</tbody>
</table>