Measuring Digital Economy: Perspective from Chinese Taipei

Submitted by: Chinese Taipei

Measuring Digital Economy:

Perspective from Chinese Taipei

Connie Chang

National Development Council

Chinese Taipei

March 6, 2019

Digital economy is the main driving force of economic growth and transformation

- Internet Economy: Internet infrastructure, ICT industry

- Digital Economy: Digital platforms, Digital transactions

Its measurement has become a topic of much discussion

- OECD (2017) proposed a framework for a satellite account for measuring digital economy

- The United State Bureau of Economic Analysis (BEA) (2018) produced the first exploratory estimates on the digital economy that are created within the OECD framework

APEC "Background Paper: Digital Society"(ISOM, Dec. 2018)

**"evaluation of current and future state of digital economy
is needed to guide policy-making"**

Chinese Taipei: not only taking notes but also taking actions

Currently, we have …

① GDP by ICT industry

- from 1981 to 2017
- macroeconomic accounts
  (according to 2008SNA)

② Sales by E-Commerce

- from 2015 to 2017
- Industry and Service Census
  (conducted every 5 years) and
  Special Project Surveys

③ Digital Economy

- from 2008 to 2015
- estimated by production approach

Scope of Digital Economy

Digital Economy

Digital Sector

E-Commerce

Chinese Taipei
(Policy-making agent definition)

Digital Economy

- Digital Manufacturing
  – Electronic Parts and Components Manufacturing
  – Information and Communication Products Manufacturing

- Digital Services
  – Information and Communication Products Retails and Equipment Maintenance
  – Broadcasting
  – Telecommunications
  – IT-related Services ...

- E-Commerce
  – Internet B2C Retail Trade
  – Agriculture E-commerce
  – E-finance
  – Online Travelling-related Services
  – E-learning Services ...

Source: Board of Science and Technology, the Cabinet, Chinese Taipei

Methodology of Chinese Taipei

Digital Economy

- **Digital Manufacturing**
  - Manufacture of Electronic Parts and Components
  - Manufacture of Information and Communication Products

- **Digital Services**
  - *Information and Communication Products Retails and Equipment Maintenance*
  - *Broadcasting*
  - Telecommunications
  - IT-related Services ...

- **E-Commerce**
  - Internet B2C Retail Trade
  - Agriculture E-commerce
  - E-finance
  - Online Travelling-related Services
  - E-learning Services ...

ICT Industry

- **ICT Manufacturing**
  - Manufacture of Electronic Parts and Components
  - Manufacture of Computers, Electronic and Optical Products

- **ICT Services**
  - Telecommunications
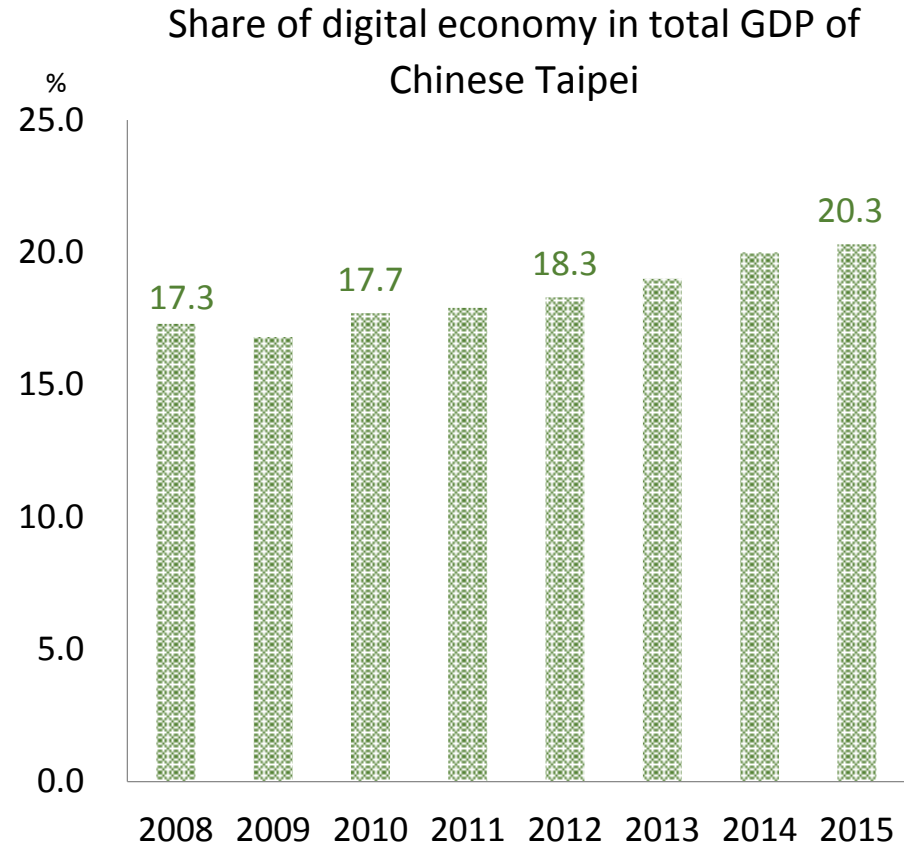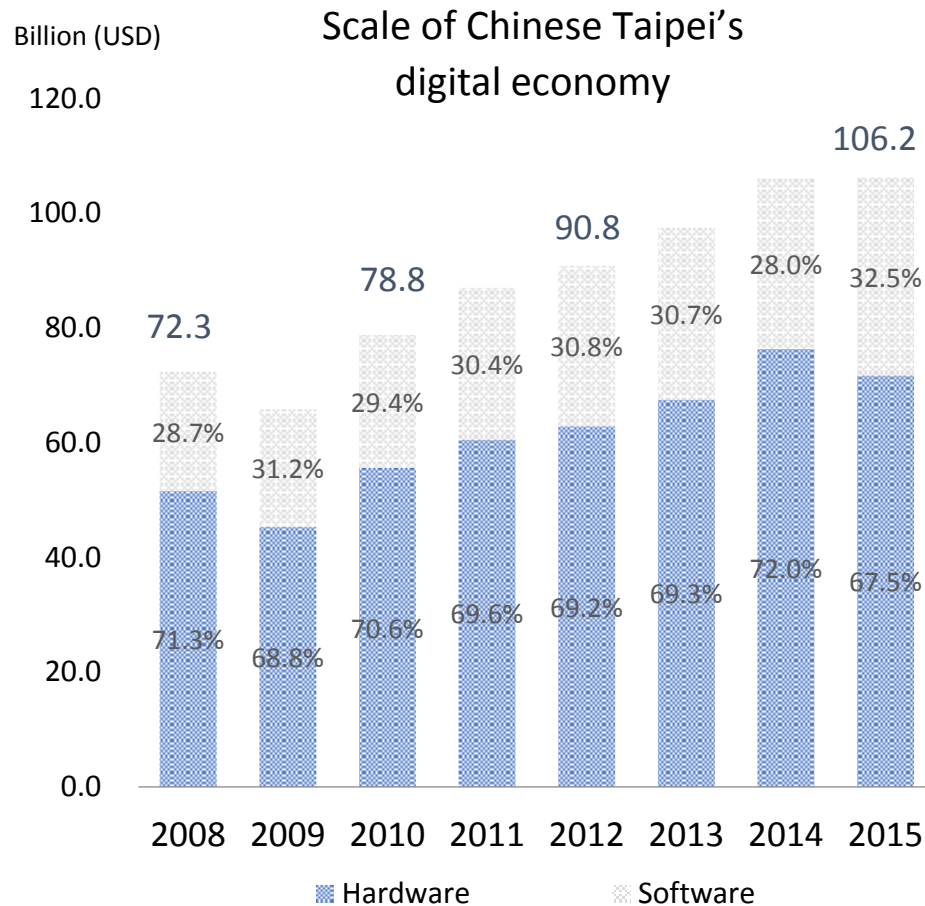 - IT and Other

- **E-Commerce**
  - *B2B*
  - B2C

  Note: Lack of Data onP2P

Source: Directorate-General of Budget, Accounting and Statistics, the Cabinet, Chinese Taipei

Source: Board of Science and Technology, the Cabinet, Chinese Taipei

Chinese Taipei's annual compound growth rate of nominal digital economy is **6.4%** between 2008-2015

Scale of Chinese Taipei's digital economy

Billion (USD)

Year	Hardware	Software	Total
2008	71.3%	28.7%	72.3
2009	68.8%	31.2%	
2010	70.6%	29.4%	78.8
2011	69.6%	30.4%	
2012	69.2%	30.8%	90.8
2013	69.3%	30.7%	
2014	72.0%	28.0%	
2015	67.5%	32.5%	106.2

■ Hardware   ▨ Software

Share of digital economy in total GDP of Chinese Taipei

%

Year	Share
2008	17.3
2010	17.7
2012	18.3
2015	20.3

Source: Board of Science and Technology, the Cabinet, Chinese Taipei

Comparison

Chinese Taipei's share of digital economy in total GDP is higher than that of the US, Malaysia or Thailand ...

Chinese Taipei

20.3%
(2015)

↑

20.0%
(2014)

the US
6.3%
(2015)

↑

6.1%
(2014)

Malaysia
18.2%
(2016)

↑

17.8%
(2015)

Thailand
16.6%
(2017)

↑

14.4%
(2016)

Source: 1. Board of Science and Technology, Executive Yuan, Chinese Taipei

2. Bureau of Economic Analysis, Department of Commerce, the US

3. Malaysia Digital Economy Corporation, Malaysia

4. The Centre for Economic and Business Forecasting, University of the Thai Chamber of Commerce, Thailand

Does the difference of the share of digital economy in total GDP truly reflect the performance of digital economy in each economy?

different definition?

incomplete value assessment?

Definition Gap

Chinese Taipei	The US
Digital Economy	**Digital Economy**

Chinese Taipei — Digital Economy

- **Digital Manufacturing**
  - Manufacture of Electronic Parts and Components
  - Manufacture of Information and Communication Products

- **Digital Services**
  - Information and Communication Products Retails and Equipment Maintenance
  - Broadcasting
  - Telecommunications
  - IT-related Services ...

- **E-Commerce**
  - Internet B2C Retail Trade
  - Agriculture E-commerce
  - E-finance
  - Online Travelling-related Services
  - E-learning Services ...

The US — Digital Economy

Infrastructure
- Hardware
- Software
- Support Services
- Telecommunications

E-Commerce & Digital Media
- E-Commerce
  - B2B
  - B2C
- Digital Media
  - Data Streaming
  - Online Publishing
  - Broadcasting

Value Assessment

WEF (2019)

There is a growing debate on the range of options for rethinking economic value in the 4th industrial revolution

- Identify & account for a range of **new intangible assets**

- Adapt or complement GDP to account for **digitally-derived value**

- Adapt measures of **consumer welfare**, **well-being** & **societal value**

- Focus new metrics on **distribution** & **disaggregated data**

- Rethink the **fundamental definition of value**

IMF (2018)

The need to measure economic *welfare* in the digital age is clear. The question then becomes, *what* to measure, and *how*

- **GDP-Plus**
  by David Lipton (2018)
  – captures the **positive welfare effects** from the digital economy

- **GDP-B (GDP-Benefit)**
  by Erik Brynjolfsson et al. (2018)
  – provides an approximate adjustment to traditional GDP growth for **new and free goods**

Hurdles to measuring and comparing the digital economy

- the absence of a generally agreed definition of the digital economy
- the absence of industry and product classification for digital platforms and associated services

It is challenging but necessary for policy-making purpose to ...

- include free digital services in the definition of GDP
- develop new indicators for welfare created by free digital products

Recommendation

- **APEC :** **guidelines and recommendations** are to be developed on measuring digital transactions and digital economy

- **Each APEC member economy:** **classification systems** be updated for digital activities and products to support measurement improvements

  - **Provide domestic statistical offices with sufficient resources** to measure digital activities and products and to develop indicators of welfare effects of digitalization

  - **Expand the use of new data sources** linked to digitalization, such as "Big Data" and **promote data sharing** through **public-private partnership**