

MEASURING THE ICT THROUGH SATELLITE ACCOUNT: MALAYSIA'S EXPERIENCE

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Abstract

In the current scenario of globalisation, Information and Communication Technology (ICT) has driven the world without barriers and transformed the way of doing business. ICT is growing rapidly and enable businesses to expand at a faster pace in wider market. The importance of ICT to the economy has increased the interest to monitor its contribution to the nation. In realising the significant role of ICT, Department of Statistics, Malaysia (DOSM) took the initiative to embark on the compilation of ICT statistics through the framework of satellite account. This paper elaborates the established framework of Malaysia's Information and Communication Technology Satellite Account (ICTSA) and the obtained results. The ICTSA indicated that the contribution of ICT industry and e-Commerce to Gross Domestic Product (GDP) in 2013 was 11.9 per cent and 5.4 per cent respectively. Statistics pertaining to ICTSA has been included in this paper.

Keywords: ICTSA, e-Commerce, GDP

1. Introduction

In the current scenario of globalisation, ICT has driven the world without barriers and transformed the way of doing business. ICT is growing rapidly and enable businesses to expand at a faster pace in wider market. The importance of ICT to the economy has increased the interest to monitor its contribution to the nation. In realising the significant role of ICT, DOSM took the initiative to embark on the compilation of ICT statistics through the framework of satellite account. The development of ICTSA's framework was in line with Digital Malaysia, one of the national transformation programs that focus on Digital Economy.

ICTSA is the second satellite account developed by DOSM. The first one, Tourism Satellite Account (TSA) has been compiled since 2009. The sound experiences acquired from TSA makes DOSM's statisticians well-equipped to undertake the responsibility of producing ICTSA. ICTSA is a systematic statistical measurement that integrates all the statistics in ICT that cut across other industries or sectors by products. This account conforms to international standard on concepts, classifications and definitions which enables comparisons among countries. ICTSA consists of statistics on ICT and e-Commerce which are the key indicators identified under Digital Malaysia. It provides the detailed transaction of supply and use of ICT products to be analysed from economic perspective and allows the measurement of the direct contribution of ICT to GDP, investments, imports and exports. Besides, it also caters comprehensive information on ICT to facilitate the government in sound policy formation. The ICTSA of Malaysia made its debut in December 2014 and the first experimental report of ICTSA was published in December 2012 as limited circulation to stakeholders. It should be noted, Malaysia is among the few countries to spearhead the task in producing ICTSA on annual basis.

¹ The views expressed are solely the authors' and no responsibility for them should be attributed to the Department of Statistics, Malaysia.

2. Literature Review

Cited in the paper Takao Ito (2001), “the development of ICT in recent years is sometimes called the new Industrial Revolution, and the speed of its development is extremely rapid. ICT also spreads widely and influences deeply not only economic activities of businesses, households and governments but also various areas of people's daily life. On this account the preparation of official statistics related to ICT has been an urgent matter for national statistical offices of many countries and the needs of ICT statistics”.

According to Robert J. Shapiro and Aparna Mathur (2011), in 2009, ICT firms contributed about USD1 trillion to U.S. GDP, or 7.1 percent of GDP. This total includes nearly USD600 billion in direct contributions from their own operations and more than USD400 billion in indirect contributions through the benefits other sectors derived from the use of ICT. Furthermore, ICT companies accounted for 3,535,000 jobs in 2009 in USA. While total ICT employment declined since 2000, average compensation has risen sharply. The compensation of full-time ICT employees averaged USD107,229, 80.6 per cent higher than the average for all full-time workers. From 1991 to 2009, average compensation in the ICT industry increased 162 per cent, the fastest income gains of any U.S. industry.

3. The Establishment of ICTSA

Under the 10th Malaysia Plan 2011-2015, the share of ICT industry to GDP was targeted at 10.2 per cent by 2015. By establishing the ICTSA, the real contribution of ICT to GDP are obtainable and the linkages between goods and services of ICT within the industries are able to be distinguished.

In this regards, to accelerate the production of ICTSA, DOSM collaborated with other government agencies such as Ministry of Finance (MoF), Economic Planning Unit (EPU), Multimedia Development Corporation (MDeC) and Ministry of Communication & Multimedia Malaysia (KKMM) to set up an Inter Agency Technical Working Group. DOSM was entrusted to construct the methodology and produce primary indicators for ICTSA inclusive of e-Commerce, while EPU and MOF to provide non-monetary indicators for demand and supply of ICT. MDeC and DOSM were assigned to determine the definitions of ICT and e-Commerce.

Despite, the overwhelming progress in compiling the statistics on ICT, a comprehensive international framework, guidelines and manuals were left much to be desired to serve as ICTSA references. As a consequence, a workshop was organised in 2012 which encompasses government and private agencies to discuss, identify and to approve by consensus on the indicators, data gaps, concepts & definitions, methodology and classifications of ICTSA. During the workshop, consultants from Australian Bureau of Statistics enlightened the participants on their experiences in compiling and developing the ICTSA for Australia.

4. Concepts and Definitions

ICTSA has been prepared based on the concepts recommended by System of National Account 1993 and 2008, United Nations and adopted the guidelines of ICT as stipulated in the OECD Guide to Measuring the Information Society 2011 and Internet Economy Outlook 2012. The concepts and definitions are adapted to Malaysia's requirement to reflect the ICT industry in Malaysia holistically.

ICT refers to the technologies and services that enable information to be accessed, stored, processed, transformed, manipulated and disseminated, including the transmission or communication of voice, image and/or data over a variety of transmission media. **e-Commerce** transaction is the sale or purchase of goods or services, conducted over computer networks by methods specifically designed for the purpose of receiving or placing of orders.

5. Framework of ICTSA

The foundation in measuring the ICT in Malaysia was developed through satellite account that was constructed by using the framework of Supply and Use Tables (SUT). The GDP of Malaysia was compiled by using the commodity flow method since 1949 and in later years the compilation was transformed to SUT framework. SUT are updated every five years based on the availability of comprehensive information from economic census. Besides the SUT, DOSM increasingly endeavoured to exploit creatively the existing statistics or secondary data to produce the ICTSA annually. Knowledgeable and experienced compilers are crucial to ensure in producing robust estimates of ICT statistics.

DOSM introduced new survey of ICT Use and Access by Individuals and Households in 2013 to provide comprehensive information on the expenditure and income structure of ICT and e-Commerce. This survey conforms to the recommendations stated in the International Telecommunication Union manual. The existing annual surveys and censuses were also enhanced to accommodate ICTSA compilation by incorporating ICT module that provides data on e-Commerce value by establishments and sectors. e-Commerce information is essential to measure the overall performance of Digital Economy in Malaysia.

The measurement of e-Commerce value added is based on the recommendations by Internet Economy Outlook 2012, OECD. There are two recommended approaches, which are narrow and broad. Narrow approach takes into account the value added of wholesale and retail sectors. While, broad approach includes all industries across the economy. For Malaysia's case, the broad approach was applied in measuring the value added of e-Commerce. Currently, DOSM is in the midst of implementing new survey to capture e-Commerce transactions by categories of Business to Consumer, Business to Business and Business to Government. The survey enables us to break down the e-Commerce value by categories, and identify the providers and users of e-Commerce services.

6. Performance of ICT Industry

ICT contributed 16.3 per cent to the economy in 2013. This statistics is inclusive of 11.9 per cent share of ICT industry and 4.4 percent e-Commerce of non ICT industry. The Information and Communication Technology Gross Domestic Product (ICTGDP) recorded a growth of 7.4 per cent driven by ICT services and ICT manufacturing. The ICTGDP outperformed the GDP's growth and interestingly showed an increasing trend from 2012 to 2013 in contrast with the GDP performance.

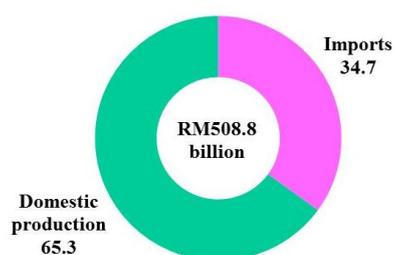
6.1. Performance of ICT industry, 2012-2013

| Annual percentage change | 2012 | 2013 | Percentage share of ICTGDP to GDP |
|------------------------------|------------|------------|-----------------------------------|
| ICT manufacturing industries | 4.1 | 5.7 | |
| ICT trade industries | 6.5 | 8.7 | |
| ICT services industries | 9.8 | 8.6 | |
| Content and media industries | 4.9 | 7.8 | |
| Other industries* | 1.3 | 6.4 | |
| Import duties | 16.9 | 5.7 | |
| ICTGDP | 7.1 | 7.4 | |
| GDP | 6.4 | 4.8 | |

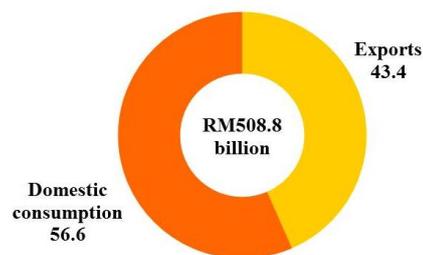
| Year | Percentage share |
|------|------------------|
| 2012 | 11.6 |
| 2013 | 11.9 |

Note: The value of ICTGDP inclusive of e-Commerce ICT industry

6.2. The percentage share of total supply and use, 2013



Supply of ICT



Use of ICT

Supply and use of ICT products constituted 16.3 per cent of total supply and use in the economy. Supply of ICT products consists of domestic production and imports. Domestic production registered a share of 65.3 per cent while imports were 34.7 per cent in 2013. Use of ICT products comprises of domestic consumption and exports. The domestic consumption contributed 56.6 per cent and the rest was led by exports.

6.3. Employment of ICT industry, 2012-2013

| Annual percentage change | 2012 | 2013 | Percentage share 2013 |
|------------------------------|--------------|------------|-----------------------|
| ICT manufacturing industries | (6.0) | 3.4 | |
| ICT trade industries | (1.3) | 10.6 | |
| ICT services industries | 3.4 | (5.5) | |
| Content and media industries | (8.4) | 1.1 | |
| Total | (3.0) | 2.6 | |

Employment in ICT industry for 2013 rebounded to 2.6 per cent and the highest employment was observed in ICT manufacturing industries. The employment in ICT industry contributed 5.9 per cent to the total employment of the country.

6.4. e-Commerce, 2012-2013

| Percentage share of e-Commerce to GDP | 2012 | 2013 |
|---------------------------------------|------------|------------|
| e-Commerce of ICT industry | 0.9 | 1.0 |
| e-Commerce of non ICT industry | 4.3 | 4.4 |
| Total e-Commerce | 5.2 | 5.4 |

e-Commerce activities contributed 5.4 per cent to GDP in 2013 and the biggest share was dominated by non ICT industry. Among the prominent activities under non-ICT industry were wholesale and retail, accommodation and air transport.

7. Conclusion

The compilation of ICTSA is vital in the perspective of gauging the performance of Digital Economy in Malaysia. It provides empirical evidence for policy makers to monitor, measure and formulating sound policies for the transformation digital programmes. DOSM reached another milestone in producing the ICTSA in the midst of the country's aspiration in achieving the high income nation. The experiences

garnered by DOSM in developing ICTSA are beneficial to be shared and used as reference to other counterparts that intends to produce ICTSA. The gained knowledge from this exercise will be useful in enhancing the existing concepts and methodology for ICTSA standard manuals and guidelines.

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