Digital Economy Review

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Abstract

China's economic development is at a critical stage of transformation, and the development of the digital economy has undoubtedly promoted the process of economic transformation. This paper studies the connotation of the digital economy and the calculation method of the digital economy.

Keywords

Digital economy, definition of meaning, measurement method.

1. Introduction

The rapid development of cloud computing, big data, artificial intelligence, and industrial Internet has spawned a new form of economic and social development that is different from the traditional agricultural economy and industrial economy at the expense of non-renewable resources and the environment. The digital economy is based on digital knowledge and information as the key production factors. This development model is conducive to ensuring the sustainable development of the city's digital economy. At the same time, the government also attaches great importance to the development of the city's digital economy. In 2017, the digital economy was first written into the work report of the National People's Congress and the government, and clearly stated that “promoting the growth of the digital economy”. In 2019, the government reports of the National People's Congress and the National People's Republic of China reported on the digital economy. Called "the growth of the digital economy."

2. The connotation of the digital economy

Since the 1940s, the rapid spread of electronic computer inventions, communication equipment, and information networks has triggered dramatic changes in technology and social economy. It is called the "digital revolution," also known as the third industrial revolution. The third technological revolution. Correspondingly, the pattern of social and economic development has also undergone tremendous changes. Following the agricultural economy and the industrial economy, a modern information and communication technology is used, and the network, especially the Internet, is used as a carrier to realize resource production, distribution, exchange and The new economy of consumption, the digital economy, has begun to become the focus of global attention.

At present, the digital economy has not yet formed a unified definition, but the expression of the G20 Hangzhou Summit is generally followed. According to the G20 Hangzhou Summit, the digital economy refers to the use of digital knowledge and information as a key production factor, the use of modern information networks as an important carrier, and the effective use of information and communication technologies as an important driving force for efficiency improvement and economic structure optimization. A series of economic activities. Driven by a new generation of information technology such as cloud computing, Internet of Things, and artificial intelligence, the extension of the digital economy has continued to expand, from a narrow digital industrialization to a broad-based industrial digitalization. The industries involved are traditional basic telecommunications and electronic information manufacturing. Information services, the Internet and other information industries have penetrated into other non-information industries, and they play an important role in smart manufacturing, modern agriculture, and "Internet +". From the trace of the digital economy, it

was officially proposed in the mid-1990s. At that time, the United States was in the Clinton administration. The economy continued to grow for nearly 10 years, and GDP growth was stable at around 4%. It has become the longest period of economic expansion in the United States since the economic cycle. This outstanding performance is also called "new". economic". Behind the new economy, knowledge and technological innovation are considered to be the direct driving force for the development of the new economy, and the rapid development of modern information and communication technologies has played a key role. During this period, the Internet entered a stage of rapid development, and the development of networks, search engines and e-commerce was noticeable. The digital economy has also been raised in this context and has attracted widespread attention.

In 1995, Canadian scholar Don Tapscott first proposed the concept of "digital economy"[1]. Since the information in the new economy is presented digitally, they are stored in bytes in a computer and spread at the speed of light in the network. With binary code, all information and transmissions can be represented and completed with two numbers 0 and 1, so it is called the digital economy. Since then, the discussion about the digital economy has gradually increased. For example, Negroponte believes that due to the promotion and promotion of the digital economy, human development has shifted from an atomic process to an information processing process[2]. Mesenburg divides the digital economy into three components: e-commerce infrastructure (hardware, software, telecomm unications, networks, human capital, etc.), e-commerce (business practices through computer networks), and electronic commerce (transactions of goods, such as , online book sales, etc.)[3]. With the gradual deepening of the use of information technology, the connotation and extension of the digital economy are also expanding. In addition to traditional e-commerce, social media and search engines are gradually included in this field.

Under the sweep of the "digital revolution", the digital economy has been widely recognized as the driving force for world economic innovation and inclusive growth. Countries have begun to seize the high point of the digital economy and have introduced a series of digital economic development strategies. In 1997, the Ministry of International Trade and Industry of Japan began to use the term “digital economy”. In 1998, the US Department of Commerce released the "Digital Economy in the Emerging", and in the following years, a series of reports were launched, and the digital economy was deeply interpreted, which caused great repercussions in the world. Since the outbreak of the financial crisis in 2008, the global economic recession, the digital economy is regarded as the future direction of industrial development, and is highly valued by all countries.

3. Digital economic measurement method

At present, the measurement of the digital economy by academics and government departments generally falls into two categories: First, the direct method, that is, under the defined scope, statistics or estimates of the scale of the digital economy in a certain region (DEBA, 2018[4]; China Institute of Information and Communications (2018)[5]; The second is the comparison method, which is based on indicators of multiple dimensions, comparing the development of digital economy between different regions, and obtaining the relative situation of digital economy or specific field development (OECD, 2017; ITU, 2015[6], etc.).

3.1 International calculation method

The EU Digital Economy and Society Index is a composite index that describes the degree of development of the digital economy in EU countries. The index is based on 31 major aspects of the EU's five aspects, including broadband access, human capital, Internet applications, digital technology applications and digital public services. The secondary indicators are calculated. Most of the indicator data of this indicator system comes from special statistical surveys such as EU household ICT survey and enterprise ICT survey, which has sufficient research accumulation and data support.

The US Department of Commerce proposes a four-part framework for measuring the digital economy: first, the degree of digitization in various economic sectors, such as enterprises, industries, and households; and second, the impact of digitization in economic activities and output, such as search

costs, consumer surplus, and supply. Chain efficiency, etc.; third, the combined effects of economic indicators such as real GDP and productivity; and fourth, monitoring emerging digital fields. The US Department of Commerce (BEA, 2018) proposes three steps in the digital economics estimate: one is to establish a conceptual interpretation of the digital economy; the other is to identify which goods and services are relevant to measuring the digital economy within the framework of supply-use. The third is to use the supply-use framework to identify relevant industries that produce goods and services, and to estimate output, value added, employment, subsidies, and other factors in related economic activities.

At the conceptual level, the OECD also conducted a preliminary study of the digital economy from the perspective of direct law, and proposed six areas in which new measurement standards should be focused on: First, improving investment in ICTs and their macroeconomic performance. The ability to measure the relationship; the second is to define and measure the skills needs of the digital economy; the third is to develop relevant indicators to measure security, privacy and consumer protection; the fourth is to improve the ability to measure the social impact of ICT social goals and the digital economy The fifth is to improve measurement capabilities by establishing a comprehensive and high-quality data infrastructure; the sixth is to build a statistical quality framework that can use the Internet as a data source. The indicator system mainly includes four primary indicators: investment intelligence infrastructure, empowerment society, innovation capability, ICT to promote economic growth and increase employment, including 40 secondary indicators.

Since 2002, the World Economic Forum has published the Network Readiness Index, which focuses on the rankings, main experiences and practices of leading countries and regions in the global informationization. The Network Readiness Index is quite authoritative in the international evaluation of information technology. The first and second indicators of the index system are very concise and scientific, and there are more three-level indicators (53). In terms of dynamic mechanism, the network readiness index believes that information preparation, application and the environment together constitute the driving force for development and have economic and social impacts. Compared with other indexes, the index focuses on the information technology field, but the informationization ability is a precondition for the development of the digital economy. Therefore, the indicators selected in the field of informationization and the impact mechanism on the economy are worthy of reference.

The ICT Development Index released by the United Nations International Telecommunication Union includes 176 economies in the world and is widely used by governments and departments. The index sets 11 indicators for ICT access, use and skills that can be compared across countries and time periods. Although it measures less economically relevant content, it has a comprehensive measure of infrastructure construction, industrial applications, and human capital in areas related to ICT.

3.2 Domestic measurement method

The Digital Economic Index of China Information and Communication Research Institute is a prosperity index, including the leading index, the consistent index and the lagging index. It can reflect the economic prosperity of different periods by comparing with the base period. The advantage of this index over other indexes is that it fully considers the basic conditions necessary for the development of the digital economy, digital industrialization, industrial digitalization, and the impact of the digital economy on macroeconomic society, and has selected many Chinese characteristics and eras. The characteristic indicator is a relatively large and comprehensive index.

CCID Consulting China's Digital Economy Index divides the digital economy into basic, resource-based, technology-based, convergent and service-oriented, taking into account the assessment of the provinces and the evaluation of the five-dimensional digital economy sub-index, and the use of Internet companies. User data reflects the penetration of the digital economy in the service sector and is somewhat innovative.

Tencent "Internet +" digital economy index contrasting method, under the foundation, industry, innovation and entrepreneurship, the wisdom of the people's livelihood four sub-indices, covering a total of 14 level indicators, 135 secondary indicators, covering social, news, video, cloud computing,

three industries in 17 major sub-sectors, based on mobile Internet innovation and entrepreneurship, the wisdom of the people's livelihood, directly reflect the "Internet +" digital economy in 31 provinces (autonomous regions and municipalities) and landing 351 cities.

Institutions such as Caixin Think Tank released the China Digital Economy Index using a comparative method, focusing on the ability of the digital economy to improve the efficiency of the entire society, including production capacity, degree of integration, number of spillover capabilities, and the ability of the whole society to use. As a media-initiated indicator system, China's Digital Economy Index and Tencent's "Internet+" digital economy index are both innovative and prominent, and have the characteristics of the times, reflecting the current market dynamics and development of key areas.

4. Conclusion

This paper has a better understanding of the digital economy through the definition of the digital economy and the analysis of the indicator system of the digital economy by international and domestic organizational structures. At present, most of the research on the digital economy is still at the theoretical level, and it is rarely studied in specific regions or perspectives. Therefore, the digital economy can be refined in the future.

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