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DİJİTAL EKONOMİNİN EKONOMİK ETKİLERİ

ECONOMIC EFFECTS OF DIGITAL ECONOMY

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ÖZET

Bu çalışmamızda endüstri 4.0 ve dijital ekononomi üzerindeki etkilerini araştırmayı amaçladık. Dijital ekonomi economi literatüründe internet ve genişbant internet kullanımının ekonomik ve sosyal hayatta etkileri artış gösterdikçe popüler bir konu olmaya başlamıştır. Evlerin, makinelerin, iş yapış şekillerinin dijitalleştiği ve geniş anlamda adijitla ekonomi ve dijitalleşme olarak isimlendirilen bir döneme girmekteyiz. Dijital ekonomi endüstri, tarım ve sizmet sektörünün hızlı bir şekilde dönüşümünü sağlamaktadır. Eğitim ve iş yapış şekillerinde kazanılan dijital yeteneklerin sürdürülebilir ekonomi için önemi büyüktür. Bu yetenekler büyük veri analitiği ve dijital imalat teknolojileri üzerinde yoğunlaşmaktadır.
Türkiye bilgi ve teknoolojiye dayanan dijital ekonomiyi potensiyeline erişerek kullanmalıdır. Dijital ekonomi KOBİ olarak adlandırılan tarım, sanayi ve hizmet sektöründe faaliyet gösteren küçük ve orrta ölçekli işletmeler için büyük fırsatlar sunmaktadır.
Anahtar Kelimeler: dijital ekonomi, telekominikasyon, endüstri 4.0

ABSTRACT

In this paper we aimed to explain industry 4.0 and its effects on digital economy. Digital economy has been expanded as a topic in economics since the rising of internet and broadband effects on the social and economic life. We are entering of an era where the digitalization of things like houses, business, machines and called as digital economy. Digital economy transforms industry, agriculture and services sector very rapidly. Digital skills in terms of education and businesses must be obtain for a sustainable economy. This skill contain digital competences focused on big data analytics and digital manufacturing technologies.
Turkey should exploit the full potential of the digital economy Which depends on technology and knowledge. The digital economy offers great opportunities for small and medium size firms in the manufacturing, agriculture and service sectors.
Keywords: digital economy, telecommunication, industry 4.0

1. INTRODUCTION

Social media, sharing economy, mobile technology, 3D printing, big data and many of the technological trends change the shape and operation of traditional economic activities which is called the digital economy. Digital economy has been expanded as a topic in economics since the rising of internet and broadband effects on the social and economic life. Digital Economy influences economic development via two channels. First channel is the production channel and second is consumption channel. Digital economy provides advantages to the firms which lessen the cost of production and increase the

production surplus. Digital economy provides advantages to the households which lessen the transaction cost for goods and services and increase the consumer surplus.

Digital economy especially reduces the transaction cost for goods and services though e commerce channels. Internet and mobile phone penetration rates has risen and many people had chance to shop online more cheaper than traditional commerce. People have chance to buy many different goods and services without any physical limits. Another way of reducing the transaction cost is sharing economy. Sharing economy which enables owners to rent out their cars, house, Office, bicycle or something they are not using is increasing the total transaction in the economy. Many of the sharing applications like Uber and Airbnb demolish all the intermediate agents between the buyer and seller.

2. HISTORY OF THE INDUSTRY 4.0

Industry 4.0 has started first time in Germany Hannover Fair. It is a high tech Project of Germany government (Çeliktaş et al., 2015). Before understanding of industry 4.0 we must evaluate the old industrial revolutions which has had been occurred before the fourth industrial revolution.

First industrial revolution has provided has transformation from hand power to machines. The invention of the steam by James Watt was very important for the factories which located only close to rivers or seas. (Snooks, 2012).

Figure 1. First Spinning Mule

Source: Wikipedia, Samuel Crompton.invention

Second industrial revolution had started with serial production after the Fordism production style. Edison had invented the electricity. Electricity had been used in the factories that lead to increase of output and prices had fallen after new invemtions. Oil had been used instead of the coal that provided with increase of the productivity (John, 2010).

Figure 2. Assembly Line, Fordism Production Style

Source: http://wangluowwra150.weebly.com/about-fordism.html

Third industrial revolution is called as automation which enabled machined and computers work in the mean time. Invention of World wide web (w.w.w) enabled fast communication and information technologies. PLC (A programmable logic controller) had decreased total cost of production. More automation lead to lower labor cost and more efficient output (Minister of Industry, 2018).

Figure 3: Internet of the Things

Source: https://www.nist.gov/el/cyber-physical-systems

3. CONCEPTUAL FRAMEWORK OF DIGITAL ECONOMY

The rapid change and globalization in information and communication technologies have affected both developed and developing countries. Since the 1990s, the process has led to changes in social and economic life. With the emerging new technologies, economic efficiency increased, new jobs emerged, and information sharing between people and institutions in different regions and countries increased. Nowadays, with these positive developments, technology development capacities are needed to ensure the continuation and continuity of the middle income trap and sustainable growth rates. The use of new communication and information technologies is expressed in terms of the Information Technology Revolution, Internet Age and Digital Economy in the economic literature. Worldwide, information economics, network economy, knowledge economy, weightless economy, digital economy and the new economy are referred to with concepts such as. As can be understood from this context, digital economy is a holistic concept that includes developments in communication, telecommunications and informatics. Digital economics in line with these explanations; Besides the sale of goods or services, it facilitates daily life by allowing both material and non-financial transactions to be made from anywhere in the world. In this way, barriers to access to the market decrease and everyone has equal access (Mastar Özcan, 2016: 74-75). With a general definition, Digital economy is the result of the transformation process of information and communication technology, which makes technologies stronger and more standardized, improves business processes and supports innovation in all sectors of the economy (OECD, 2015: 11).

With the effect of digital transformation, a concept called digital economy emerges. The digital economy is almost the economy itself as a result of digital transformation becomes. For this reason, instead of the separate economic field of digital economy, the current economy is digitalized as a whole. However, this situation is particularly uncertain in terms of taxation brings together. Because the current tax legislation is based on classical economic structure, it regulates institutions and rules according to this economic structure. Traditional economic structure on the taxation authority, as well as on the form and tax obligations the legislation is detailed and the taxpayer's follow-up is easier than the ratio. Whereas digital how the taxation should be taxed as much as taxpayer follow-up in economies in addition to the lack of national legislation on the in need. How digital economy is distributed in international taxation it has brought about a lot of discussions about what should be done. By OECD in 2013, "Adressing Base Erosion and Profit Shifting Profit (BEPS) it includes an action plan (Yüce and Akbulut, 2018: 106). There are basic features of digital economy. These features are as follows (OECD, 2015: 64-65).

- Trust data
- Mobility
- Multilateral business models
- Network effect
- Variability

• Slope of oligopoly or monopoly.

4. ECONOMIC EFFECT OF DIGITAL ECONOMY

Information and Communication Technologies has the potential to increase innovation by accelerating the distribution of information, by choosing the network among the companies and by enabling them. Closer links between businesses and customers, reduce geographic limitations and improve communication efficiency. In addition, the effects of diffusion from ICT use, they may be the source of efficiency gains, such as network economies. ICTs can also be seen as a source of innovation, as it allows closer links between businesses and suppliers. Customers, competitors and collaborative partners make businesses more responsive to innovation opportunities and provide significant productivity gains. In 2015, ICT investments in the OECD area represented 11% of total fixed investment and 2.3% of gross domestic product (GDP). Almost 60% of IT investments are computer software and databases. ICT investment among OECD countries has changed from 3.8% in the Czech Republic to less than 1.5% of GDP in Greece, Luxembourg and Hungary. These differences tend to reflect the differences in the position of each country in the sphere of expertise and the business cycle (OECD, 2017, 197).

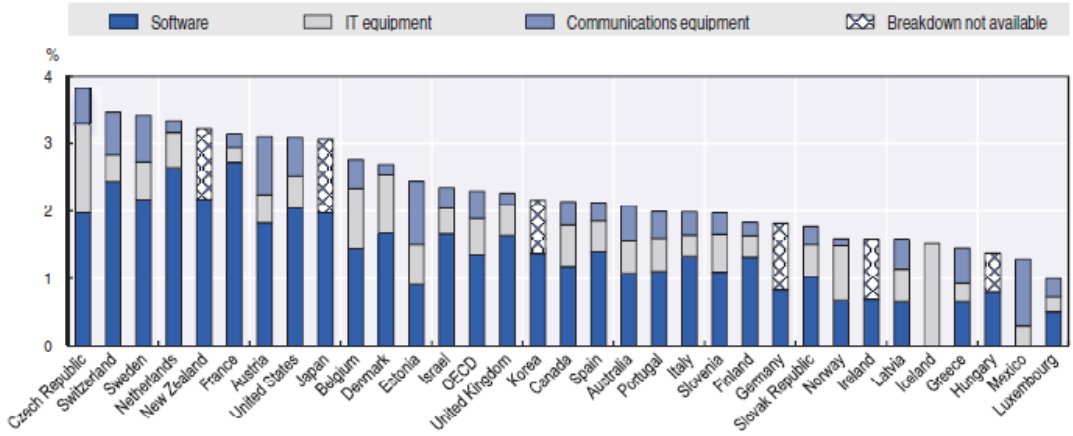

Figure 4: ICT Investment According to Capital Asset, 2015, % of GDP

Source: OECD, 2017: 198.

Developments in telecom infrastructure and internet access enhance the economic growth via lowering the transportation, logistic and total costs. Broadband internet access and e commerce provide middle size enterprises to sell more goods on global and local markets and increase their competitiveness. It is possible to produce a physical three-dimensional object using 3D printing for additive and prototype manufacturing. 3D printing could augment manufacturing productivity; the technology is most economical for small quantities of complex customized products. It provides flexible production style to the middle and medium sized enterprises.

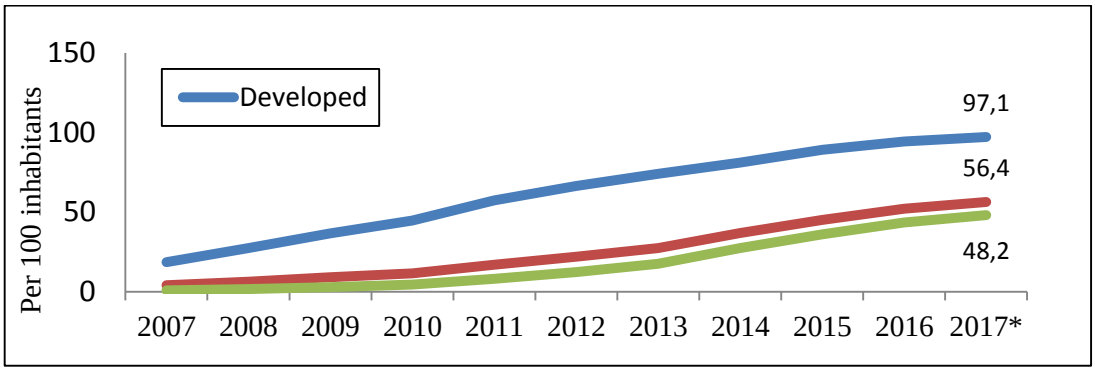

Figure 5: Active mobile-broadband subscriptions per 100 inhabitants, 2007-2017*

Source: ITU World Telecommunication /ICT Indicators database

The implications of information and communication technology will help the enhancing economic development in poor countries. On the other hand digital technologies could effect economic development negatively, technologies could be disruptive. Automation and robotic production may increase unemployment in many countries. Especially least developed countries have low skilled labor and this labor force will be replaced with high skilled labor or robots. Digital transformation increases greater inequality in the world. Because countries which has high tech export and production will benefit from digital economy, however countries which have low technology production will have technology deficit and income inequality.

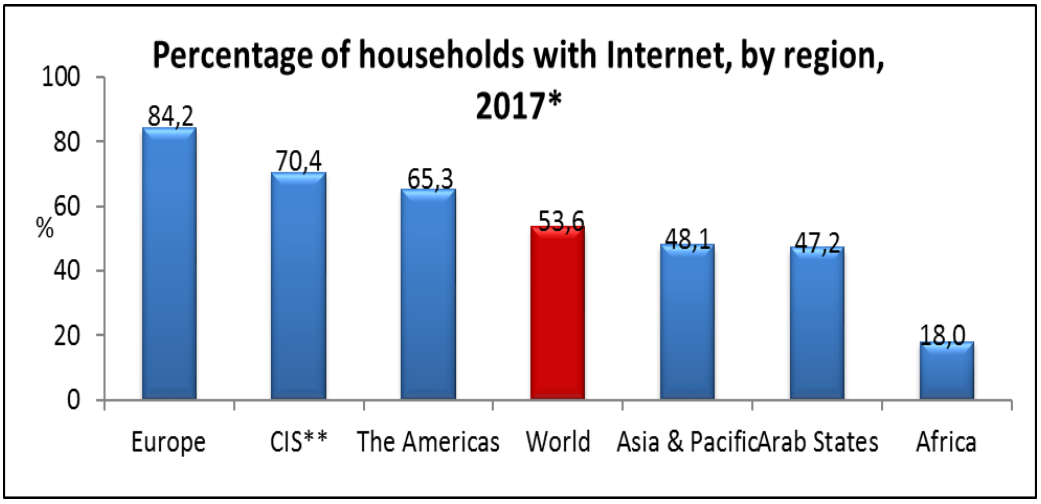

Figure 6: Percentage of Households with Internet, by region 2017

Source: ITU World Telecommunication /ICT Indicators database

Figure 7 shows the estimated effects of ICT investment on labor demand during 1995-2012 period. ICT increased labor demand from the mid-1990s to 2007 in most OECD countries, but in general led to a decline in labor demand. While the investment slowed down after the 2007 crisis, the effects of labor substitution from past ICT investments provided more than compensating for the increase in labor demand from new ICT investments (OECD, 2017: 226).

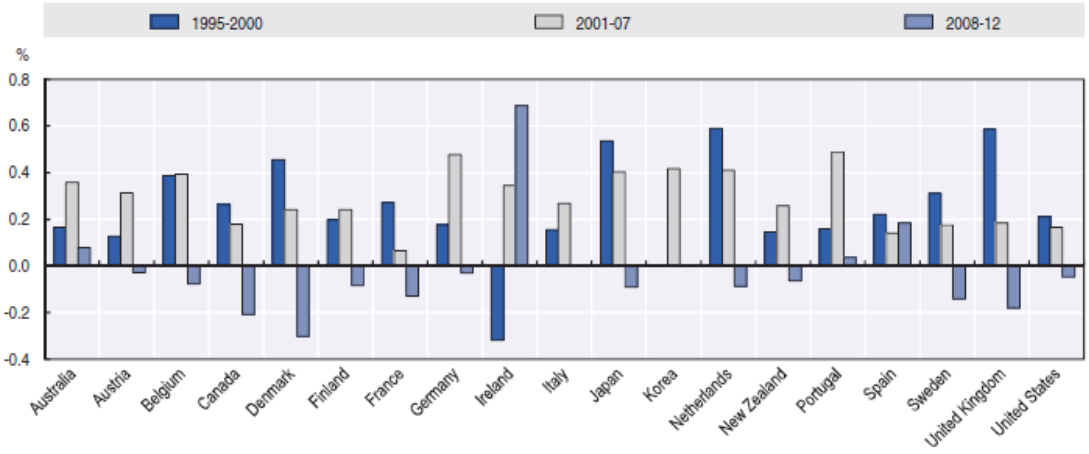

Figure 7: Estimated Employment Growth Due to Growth in ICT Capital (%)

Source: OECD, 2017: 227.

5. CONCLUSION

High speed internet access for individuals and SMEs is important for development of digital economy Governments must invest in the development of digital infrastructures to meet future demand and enhance their economic development. Digital economy and its applications in the public sector can improve e-government services; strengthen the performance of public institutions and improve transparency. McKay (2007) shows that digital technologies are improving healthcare, education, access to information, and that they are giving consumers the possibility of reduce transaction costs. The digital

economy has huge potential to enhance social welfare in terms of consumer surplus and poducer surplus. The 4th industrial revolution (Industrie 4.0) raises labor's productivity which makes income distrubiton more fairly.

REFERENCES

ATKINSON, R. D. and A. S. McKay (2007), "Digital prosperity: understanding the economic benefits of the information technology revolution", ITU World Telecommunication /ICT Indicators database

ÇELİKTAŞ, S. et al. (2015), Endüstiyel Devrimin Son sürümünde Mühendisliğin Yol Haritası, *Mühendis ve Makine Dergisi*, sayı 662, cilt 56.

JOHN, Richard (2010), *Network Nation: Inventing American Telecommunications* (2010) ve http://www.connected-earth.com/journeys/Firstgenerationtechnologies/Thetelegraph/ Thetelegraphicagedawns/index.htm, access: 21.09.2018

https://en.wikipedia.org/wiki/Spinning_mule, access: 25.04.2016.

http://wangluowwra150.weebly.com/about-fordism, access: 25.04.2016.

https://www.nist.gov/el/cyber-physical-systems, access: 25.04.2016.

MASTAR ÖZCAN, P. (2016). Dijital Ekonominin Vergilendirilmesinde Karşılaşılan Sorunlar: BEPS 1 No'lu Eylem Planı Kapsamında Bir Değerlendirme. Electronic Journal of Vocational Colleges, 73-82.

OECD (2015), OECD Science, Technology and Industry Scoreboard 2015, OECD Publishing, Paris,

OECD (2015). Addressing the Tax Challenges of the Digital Economy, Action 1, 2015 Final Report, Paris: OECD Publishing.

OECD (2017), Key Issues for Dıgıtal Transformatıon in the G20, OECD Publishing, Berlin Germany.

OECD (2017), *OECD Digital Economy Outlook 2017*, OECD Publishing, Paris.

SNOOKS, G. (2012). Was the Industrial Revolution Necessary? (1). London, US: Routledge, 2012.

T.C BİLİM SANAYİ VE TEKNOLOJİ BAKANLIĞI (2018) "İmalat Sanayinin Dijital Dönüşümü Raporu ve Yol Haritası" , https://www.sanayi.gov.tr/tsddtyh.pdf, access: 13.10.2018

YÜCE, M and AKBULUT, N. (2018). BEPS Eylemi Kapsamında Dijital Ekonominin Vergilendirilmesine Ilişkin Alınan Önlemler, *Akademik Bakış Dergisi*, Sayı: 68, 105-123.