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Revisiting the Nexus between Digital Economy and Economic Prosperity: Evidence from a Comparative Analysis

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JTDE - Vol 9, No 2 - June 2021 ^[6]

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Abstract

In this paper, we try to investigate the contribution of digitalization on economic growth in both developed and developing countries over the period 1990-2020. For this end, different econometric tools are applied on a panel dataset. Overall, we show that the digital technologies seem to significantly and positively affect economic growth in both groups of countries. The digitalization impact level tends to differ across countries. Our empirical results also display that the short- and long-term relationship between information and communication technologies and economic growth is well documented. Such results can be useful for policymakers to enhance the digital economy and provide novel channels to develop adequate policies and promote new institutions. So, benefits from digitalization can lead to realize substantial economic growth.

Introduction

By and large, overwhelmingly, the momentous evolution of the Internet has led to the emergence of the digital economy, which has increasingly changed the practices of production, distribution and consumption. The digital economy can be defined as a set of economic activities which employ digitized information and knowledge as crucial factors of production, new information networks as key activity space, and communication technologies to boost productivity growth (according to the World Economic Forum and the Group of Twenty). Indeed, individuals tend to frequently use mobile communication and social media to communicate, share information and even provide knowledge and services. Not only people rely on the transformational power of digital technologies, but also political authorities and entrepreneurs rush to use digital technologies for disclosing important information, providing services, and so on. Ben Youssef *et al.* (2020^[9]) report that digital technologies, including the Internet, smartphones and other applications, enable one to gather, store, treat and share information. They also reveal that such technologies play a transformational role in the worldwide economy. In this regard, the Information and Communication Technologies have enormously facilitated the creation of new entrepreneurship processes, jobs, products, market channels and marketing strategies. For instance, mobile banking helps individuals access to financial services (Myovella, Karacuka & Haucap, 2019^[10]). Digital technologies have also led to business transformations in the value chain of all sectors (Manyika & Roxburgh, 2011^[11]).

Most notably, the digital economy has increasingly contributed to boost economic growth Brynjolfsson & Collis, 2019^[12]; Curran, 2018^[13]; Gomber *et al.*, 2018^[14] by satisfying the demand for digital products, such as communication materials (Habibi & Zabardast, 2020^[15]), and enhancing productivity and investment in different economic sectors (Hofman, Aravena & Aliaga, 2016^[16]). In this respect, many researchers have investigated the relationship between the digital economy and economic development and have shown that the growing use of different digital technologies fosters economic growth (Bjorkroth, 2003^[17]; Roller & Waverman, 2001^[18]; Canning, 1999^[19]; Madden, 1998^[20]). For instance, Bukht & Heeks (2017^[21]) report that digitalization plays a crucial role in fostering economic prosperity. Nonetheless, there is a well-documented persistent digital divide between developed and developing countries even though digital technologies have been used around the world (Castells & Cardoso, 2006^[22]). Ward & Zheng (2016^[23]) report the nexus between the digital economy and economic growth can depend on the country's development level. Dewan & Kraemer (2000^[24]) argue that the improvement in digital infrastructure leads to more economic benefits to developed countries than to developing countries. However, Thompson & Garbacz (2011^[25]) show that the increasing development of broadband infrastructure tends to influence lower income countries more than higher income countries. The extent of such impact thus remains inconclusive even though digitalization is considered as a leading driver of economic growth.

Based on this crux, this paper attempts to examine the dynamic short- and long-term relationship between the digital economy and economic growth for different countries. More precisely, we analyze the contribution of digitalization to economic growth for developing and developed countries in the long and short term. The use of both groups of countries aims at gaining insight into whether such a nexus depends on the levels of development of the country. Herein, a panel dataset is used, consisting of 30 years from 1990 to 2020, for 28 developed and 27 developing countries. From a methodological standpoint, we perform cointegration analysis and use the generalized moments method to estimate the digital economy-economic prosperity nexus. Such econometric techniques allow us to overcome potential endogeneity issues and better explore the dynamic relationship between economic growth and infrastructure investment.

This paper is organized as follows. The following section presents a synopsis of empirical studies. The subsequent section reports methodology, data, descriptive statistics and empirical results. The final section is a conclusion.

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Cite this article as:

Nidhal Mgdmi, Wajdi Moussa, Azza Béjaoui, Tarek Sadraoui, Guachaoui Afef. 2021. *Revisiting the Nexus between Digital Economy and Economic Prosperity: Evidence from a Comparative Analysis*. JTDE, Vol 9, No 2, Article 384. <http://doi.org/10.18080/JTDE.v9n2.384>^[28]. Published by Telecommunications Association Inc. ABN 34 732 327 053. <https://telsoc.org>^[29]

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