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DIGITAL DIVIDE IMPACT ON INTERNATIONAL BUSINESS

Abstract:
This article discusses the findings of a study on the influence of various factors on the ease of doing business in countries with different income levels. The results indicate that the model with fixed two-way effects is the most effective in all cases, emphasizing the importance of considering both country-specific factors and comparing experiences with similar income level countries. The study confirms the negative influence of the digital divide on business efficiency and highlights the heterogeneity between different income levels.

Key words:
Digital transformation, global economies, business ease, labor market, digital divide, income levels, international business, e-commerce.

In recent years, digital transformation has become a major force shaping economies around the world. The integration of digital technologies into various industries has led to significant changes in the way businesses operate and has had a profound impact on the labor market. One of the key issues related to digital transformation is its gap among countries with different income levels and its im-pact on doing business in the field of information technology. This gap can have serious consequences for businesses operating internationally, affecting their ability to attract customers, conduct transactions and compete in global markets [5].

Analyzing the above problem, it was decided to conduct a theoretical study and econometric analysis based on the studied factors. One of the key factors was the introduction of cloud ERP solutions, that is, software for managing company resources hosted and accessible via the Internet, which became possible thanks to ICT and cloud technologies.

The term "digital divide" gained popularity in the context of entrepreneurial activity even before it was given attention in scientific research on a wide range of disciplines. Scientific research on the digital divide began to appear in the early 1990s [15].

Special attention is paid to such issues as the global penetration of the Internet into countries, the productivity of ecosystem enterprises, the level of digitalization of countries, policy trends, public financing, the level of education of citizens and the quality of the workforce, etc., which can significantly affect the efficiency of doing business in countries with different income levels.

ICT tools are important for evaluating the effectiveness of products, sales, marketing and promotion, which are essential components of global enterprise growth, so the digital divide issue can have an impact on international ICT companies in terms of market access, customer reach and overall competitiveness, potentially limiting their growth and profitability in underserved regions. The research also notes that in high-income countries, where access to ad-vanced technologies and high-speed Internet is widespread, companies can use innovative solutions to increase productivity, optimize business processes and im-prove the quality of products or services. Such companies can easily make management decisions based on data and analytics, which allows them to be more competitive in the market.

However, in low-income countries, the digital divide can become an obstacle to doing business effectively. Insufficient availability of technology and the Internet, low literacy rates and limited opportunities for learning in the field

of information technology can hinder business development in this area. In addition, outdated systems and the lack of digital infrastructure can slow down processes and increase costs for companies[1].

Ranbir Das in his study about ICT application in international business management (2019) has found that ICT plays a crucial role in international business management, aiding in product evaluation, sales, marketing, and promotion. Nonetheless, the study didn't get accurate results because of such research gaps as lack of ICT technologies in low income level countries, influence of political, economic, technological, and demographic factors and serial autocorrelation problems, heteroscedasticity, and contemporary correlation [14].

The study of Hazem Marashdeh, Charilaos Mertzanis, RimEl Khoury about the impact of digital services through ICT on business creation around the world (2023) examined the impact of digital services on entrepreneurial activity in 153 countries during 2006-2019 have found the following results: digital services, measured by the volume of services delivered over ICT networks, particularly digital marketing, have a direct effect on new business opportunities therefore digital divide makes large troubles for international business; encouraging digital entrepreneurship through ICT infrastructure and digitization policies is crucial for promoting entrepreneurial activity [8].

Despite the significant advancements in digital technologies and the increasing prominence of e-commerce globally, the digital divide remains a pressing issue for BRICS countries. These nations face challenges in bridging the gap in digital infrastructure and access, hindering their ability to fully capitalize on the benefits of digital transformation in international business [17].

The statistical analysis was carried out using the R programming language. The data was collected from the website of the International Financial Organization World Bank. The sample presents indicators for 27 countries for the period from 2008 to 2021, divided by income groups. Information about the variables analyzed in the study is presented in Table 1, which contains the variable name, description, units of measurement and data sources.

Table 1 – Description of variables

	Designation	Variable	Unit of measurement		Data source
Dependent variable	EDB	Ease of doing business score	%		worldbank
Independent variables	ICTDI	ICT development index	index		UNCTAD,khoema
	ICTINF	ICT infrastructure	index		worldbank
	SK	Frontier technology readiness index of human hard skills	index		UNCTAD
	RAD	Frontier technology readiness index of research and development	index		UNCTAD
	AF	Frontier technology readiness index of access to finance	index		UNCTAD
	GDP	GDP growth	%		worldbank
	GEP	Government Effectiveness: Percentile Rank	%		worldbank
	ICTGE	ICT goods exports	%		worldbank
	ICTSE	ICT service exports	%		worldbank
	NBD	New business density (new registrations per 1,000 people)	%		worldbank

Panel data were selected as the data format to observe the dynamics of changes in indicators depending on the level of technological development of the country and its impact on business efficiency.

The ease of doing business score (EDB) is taken as a dependent variable – this is the indicator which shows actual situation according to the external factors such as politics, culture, features of mentality ect, where 0 = lowest performance to 100 = best performances among countries.

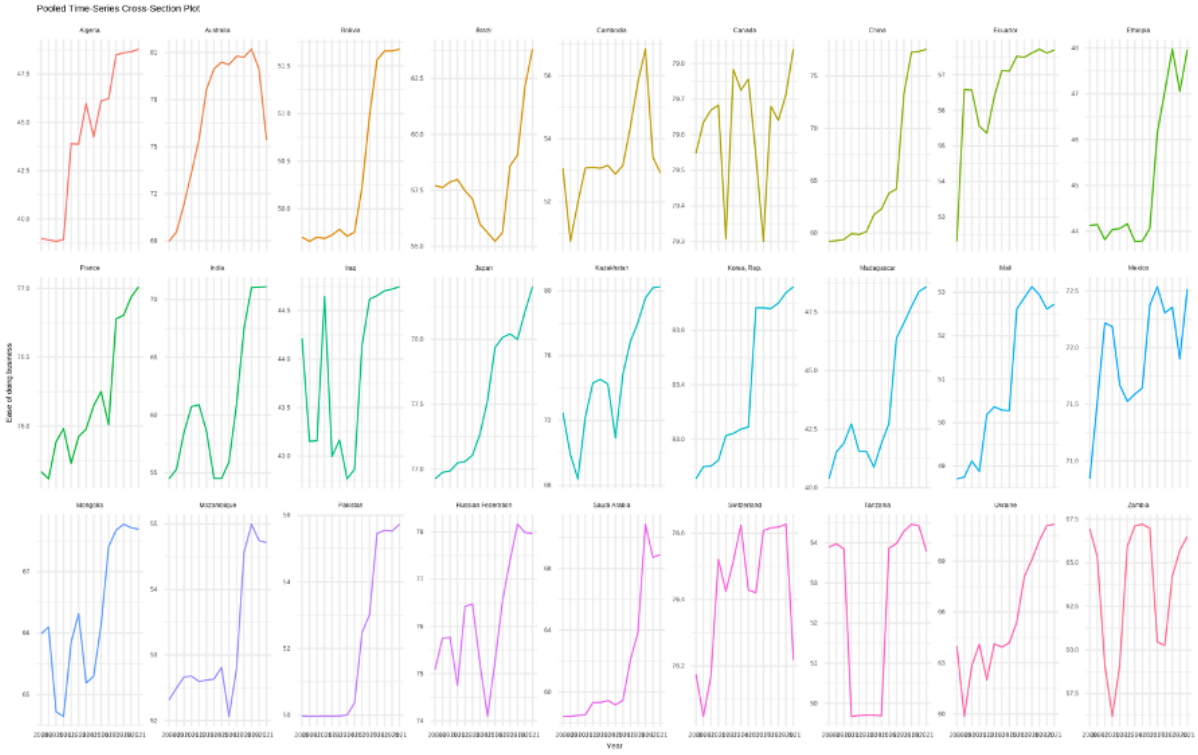

Figure 1 – Dynamics of changes of ease of doing business by each country in the period from 2008 to 2021

We can observe the dynamics of changes in the level of complexity of doing business in a positive way in most countries, such as: Algeria, Bolivia, Brazil, China, Ecuador, Ethiopia, France, India, Japan, South Korea, Madagascar, Mali, Mozambique, Pakistan, Saudi Arabia. However, we can also observe very unstable dynamics in countries such as Australia, Cambodia, Canada, Iraq, Kazakhstan, Mexico, Mongolia, Russia, Switzerland, Tanzania, Zambia. The general conclusion that can be drawn from the construction of these graphs is that, for the most part, the introduction of advanced technologies and the development of innovations directly affect the simplification of doing business in countries, regardless of income level.

The analysis shows an ambiguous picture of changes in the complexity of doing business in the BRICS countries - Russia, China, Ethiopia and Brazil were examined in this study. While countries such as China and Brazil are showing positive dynamics reflecting improved business processes and the introduction of advanced technologies, other BRICS countries such as Russia are showing unstable dynamics in this regard. This discrepancy can be caused by various factors, including regulatory problems, infrastructure deficiencies, or uneven levels of technological integration.

As independent numerical variables we took the indicators of developments in information and communication technologies (ICTDI), information and communications technology infrastructure which represents equipment and software necessary to implement and operate systems and networks for communications services as well as support applications, digital content, and ecommerce (ICTIFN), frontier technology readiness index of human hard skills (SK), frontier technology readiness index of research and development (RAD), frontier technology readiness index of access to finance (AF), an indicator of income country level to track the trend and dynamic, government effectiveness: percentile rank (GEP) to assess the role of government activities for doing business, ICT goods and services exports (ICTDE and ICTSE) to assess international market communications, new business density (new registrations per 1,000 people), as entrepreneurship is measured by the number and density of new business registrations, and also GDP growth indicator were selected to assess the level of material well-being of citizens of a certain state and their economic activity in the period from 2008 to 2021.

Regression analysis was performed using the R software environment. All regression models as Pooled OLS, Random, Fixed and Two-way fixed are constructed for each income level group (formula 1).

$$edb = a(1) + a(2)*ictdi + a(3)*rad + a(4)*af + a(5)*gdp + a(6)*gep + a(7)*ictge + a(8)*ictse + a(9)*nbd + \varepsilon_i$$

Based on post-evaluation tests for each level, it was found that the model with fixed two-way effects is the best in all cases. This means that it is necessary to consider the model of the influence of factors on the indicator of ease of doing business not only in the context of each country, but also to compare the previous experience of this country and other countries with a similar income level. This can serve as a recommendation for international company's leaders to pay attention and take into account the experience of other countries to develop their own strategy and favorable conditions for easy opening of the business.

We can take into account the fact that government effectiveness has a positive impact on the business efficiency in all models and also is significant in each model at the 1% significance level. The coefficient for lower-income countries is the lowest, meaning it has little effect on the dependent variable. It can be said that the Frontier technology readiness index of skills has a positive impact on business efficiency in all income level countries. Frontier technology readiness index of access to finance has a but there is a negative trend in all income level countries except high level. This is due to the fact that in countries with well-developed economies, the government allocates funds for the development of advanced technologies, education and supports entrepreneurs, and as a result, the overall level of development of the country in various fields increases even more.

ICT development index has a negative impact on the ease of doing business in all countries except upper-middle income countries. This may be due to the fact that advanced technologies are developing at a rapid pace and people do not have time to study them and implement them into business processes.

The general trend noted in the study indicates that the introduction of advanced technologies and innovations plays a key role in simplifying business in different countries, regardless of their income level. Despite the challenges faced by some BRICS countries, the potential benefits of implementing digital transformation and technological advances are obvious. Thus, Russia, China and Brazil have an obvious opportunity to continue investing in digital infrastructure, skills development and a regulatory framework to optimize business processes and increase their competitiveness on the global stage. By effectively using digital technologies, the BRICS countries can cope with the complexities of the business environment and ensure sustainable economic growth in the digital age.

To address these challenges, BRICS countries need to prioritize investments in digital infrastructure, promote digital literacy, and enhance skills development in information and communication technologies (ICT). By fostering a more inclusive and technologically advanced environment, these nations can unlock the full potential of digital transformation, drive economic growth, and improve their standing in the global marketplace. Moreover, collaboration among BRICS countries in sharing best practices and knowledge exchange in digital technologies can further accelerate their progress towards a more prosperous and inclusive future.

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