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DOES FINTECH INFLUENCE ON THE COUNTRIES' ECONOMIC GROWTH?

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ABSTRACT
In the article it is considered the relationship of the digital banking products and macroeconomic indicators in countries of the whole world and the groups of different level of income.
KEYWORDS: ***innovation, innovative banking products, FinTech,· financial inclusion, economic growth.***

INTRODUCTION

The influence of digital banking products using financial technologies is beginning to be felt not only in the banking sector but also in the whole economy of the country. Now financial inclusion is almost synonymous with the financial technologies (FinTech). We know that financial technology innovation has changed the financial architecture of the world. How these innovations impact on the economic development of countries? In this article it is considered this issue.

Austrian scientist, founder of the "theory of innovation", J. Schumpeter, first used the term "innovation" in the scientific economic literature. He defines innovation as "innovation is a new combination of factors of production, driven by entrepreneurial permission." In his opinion, this innovative activity serves as a source of income in the economy. He also noted that innovative processes caused the emergence of the dynamics of the economy with a wave-like appearance. (Schumpeter, 1911).

The founder of management P. Drucker describes it as follows: “Innovation is a special tool that allows an entrepreneur to take advantage of changes and create new opportunities, for example, to open a new business or provide new services (Drucker, 1985).

The founder of the theory of "diffusion of innovations" E. Rogers believes that "diffusion is the process of dissemination of innovation through specific channels between members of a social system over a period of time." He believes that there are three main elements to this, communication channels, time and social system (Rogers, 1962). Based on the essence of the theory by E. Rogers, it can be understood that the process of penetration and using innovations is a process that depends on the environment and time.

There are a lot of factors, that influence on economical development the regions. One of the main indicators, according to the World Bank experts, is the indicators of possiblity to use financial resources - financial inclusion.

DW Kim, JS Yu, MK Hassan find that financial inclusion has a positive effect on economic growth. The IFRs results derived from the panel VAR analysis suggest that financial inclusion has positive effects on the economic growth and financial inclusion and economic growth have mutual causalities with each other based on the panel Granger causality tests (DW Kim, 2018).

Findexable experts describe the concept of "financial technology" (FinTech) as follows - it is a technological innovation in the field of financial services, which includes new business models, applications, processes and products that significantly affect the provision of financial services to financial institutions (Findexable, 2019).

The digital revolution adds new layers to the material cultures of financial inclusion, offering the state new ways of expanding the inclusion of the ‘legible’, and global finance new forms of ‘profiling’ poor households into generators of financial assets (Brooks, 2016).

Experts from the International Monetary Fund consider that "countries are using the power of financial technology to promote economic development and integration, as well as reduce inequality" (IMF, 2020).

However thre are researches concluded that financial technology cannot increase the level of

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financial inclusion. This requires an effective payment system, a developed financial infrastructure, the implementation of consumer protection measures, etc. In order for these products to be highly effective, they must be adapted for the passive segments of the population, for people with low financial literacy, women and the poor (Asli Demirgüç-Kunt, 2020).

Taking into account different points of view on this issue, we decided to study the relationship between indicators of the level of implementation of FinTech and macroeconomic indicators of the countries of the world. How much does the level of development of the country affect the situation?

RESEARCH METHODOLOGY

This study explores two methodological approaches: a systematic review of relevant scientific literature and analysis of data from database of the international organizations as the World Bank, IMF, WIPO and Earnst&Yuang on the development of financial access and economic development.

The World Bank provides detailed indicators for 217 countries and economies around the world. As part of this work, main indicators of countries in the field of digital financial inclusion in the period 2015-2019 are analyzed.

ANALYSIS AND DISCUSSION OF RESULTS

In recent years, we have witnessed great changes in the global economy. The global economy of the 21st century differs significantly from the global economy of the 20th century. For example, if you analyze the distribution of the World Index of National Income between regions in 1970-2019, you will see huge changes in its structure. That is, in 1970, most of the national income (40.9%) came from European countries, which were leading until the mid-1990s. America (33.3%) has strengthened its position since 1990, with the largest share of national income (39.5%) in 2000. But in early 2010, the American continent freed up a leading position for Asian countries. The largest share of the global national income (38%) is accounted for by the countries of the Asian region in 2019. The smallest shares for the entire period are in Africa (decreased from 3.3% in 1970 to 2.7% in 2019) and Oceania (increased from 1.6% in 1970 to 1.8% in 2019) .

Also, the results of the analysis of the share of national income per capita show that the share of African countries in 2019 compared to 2017 decreased by 47.1%, America - by 89.3%, the share of countries in the European region and Oceania increased by 113-117 %. It is fenomenally, that despite the presence of such overpopulated countries as China and India the share of Asian countries increased by 237%.

Table1. Dynamics of the share of regions in total world national income per capita in 1970-2019

	1970	1980	1990	2000	2010	2019
Oceania	2,9	3,2	3,2	2,7	4,1	3,4
Growth rate compared to 1970	100	110,3	110,3	93,1	141,4	117,2
Europe	2,2	2,5	2,8	2,4	2,8	2,5
Growth rate compared to 1970	100	113,6	127,3	109,1	127,3	113,6
America	2,8	2,3	2,5	2,9	2,5	2,5
Growth rate compared to 1970	100	82,1	89,3	103,6	89,3	89,3
Asia	0,27	0,35	0,41	0,47	0,53	0,64
Growth rate compared to 1970	100	129,6	151,9	174,1	196,3	237,0
Africa	0,34	0,45	0,2	0,14	0,19	0,16
Growth rate compared to 1970	100	132,4	58,8	41,2	55,9	47,1

Source: World Bank, WIPO

For the economical development at such a high rate, it is consequential that the innovations are increasing in the country. As evidence of this, 4 of the TOP10 countries (South Korea (4.24%), Taiwan (3.16%), Japan (3.14%), China (2.12%), which have the highest level of R&D in GDP are located in the Asia. (WIPO, 2020)

The World Bank considers that one of the main indicators for the development of the country is the indicators of financial inclusion. For example, in 2014, 41% of the world's population spent or received payments using digital technologies, in 2017 this figure reached 52%. This indicator varies greatly in developing and developed countries. In developed

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and developing countries in 2014, these indicators were 32% and 86%, while in 2017 they were 44% and 91%, respectively. Which once again proves the relationship between economic growth and the level of penetration of FinTech in the country.

Surprisingly, the level of financial development of a country does not always correspond to the level of development of digital finance. For example, based on the Global FinTech Adoption Index, calculated by the international auditing company Earnst & Yuang, the ranking of cities differs from the ranking of global financial centers. For example, if the San Francisco Bay (80,136) located in Silicon Valley is the most widespread FinTech place in the world, but as a financial center, this Bay is only on the 12th.

Table 2. The dynamics of the penetration of financial technologies in some developed countries in 2015-2019 (in% of the population)

	2015	2017	2019	2019/2015
Australia	13%	37%	58%	45%
GDP annual growth	2,2%	2,3%	2,2%	3,3
Canada	8%	18%	50%	42%
GDP annual growth	0,7%	3,2%	1,7%	11,6
Hong Kong	29%	32%	67%	38%
GDP annual growth	2,4	3,8	-1,2	18,2
Singapore	15%	23%	67%	52%
GDP annual growth	3	4,3	0,7	20,8
USA	17%	33%	46%	29%
GDP annual growth	2,9	2,4	2,2	17,6

Source: Earnst&Young

Based on the data in Table 2, one can see the penetration level of financial technologies in the developed countries of the world. While in 2015 the US accounted for 14%, Canada - 8%, Singapore - 15%, by 2019 these figures are 46%, 50% and 67%, respectively. Leadership in this regard belongs to Hong Kong in 2015 (29%), Eurasia in 2017 (37%) and Singapore in 2019 (67%). If the annual growth rates of fintex and GDP are compared, it is clear that fintex does not accelerate the level of annual GDP growth. But on the other hand, the highest GDP growth for the period is observed in Singapore, where the prevalence of fintex is the highest. But this situation is not observed in other countries. Thus, this analysis does not allow us to get a definite answer.

The next stage of our analysis is directed at studying the impact of the use of innovative banking products on the macroeconomic indicators and fintex ratios. Based on a two-factor correlation analysis, we studied the correlation between the indicators of 160 countries and regions for 2017. Since in this analysis only 1 year metrics are used , it is prefered Spearman's rank correlation in this case.

In this analysis, the following groups of indicators are used:

1. Share of the population that conduct or accept digital transactions (DT) – GDP (current US$), GDP per capita, inflation and unemployment;

2. Share of the population who made a payment or made a purchase online (PO) – GDP (current US$), GDP per capita, inflation and unemployment;

3. Share of the population using an account at a financial institution using a mobile phone or the Internet (MI) – GDP (current US$), GDP per capita, inflation and unemployment.

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Table 3. Analysis of the correlation between macroeconomic indicators and innovative banking products of countries using the Spearman rank correlation method

	DT	PO	MI
GDP (157-160)	0.4233	0.5017	0.3715
High income counties (43та)GDP	0.3795	0.4775	-
GDP per capita(157-160)	0.8381	0.8768	0.6402
Low middle and low income countries (58-61) GDP per capita	0.3280	0.4378	-0.2732
High middle income countries (36) GDP per capita	-	0.4080	0.4245
High middle income countries (43) GDP per capita	0.7392	0.6660	0.4958
Inflation (149-153)	-0.3399	-0.3698	-0.2502
Unemployment (147)		-0.1693	

Source: World Bank

The selected indicators are presented in the results of the correlation analysis in Table 2 and are interpreted as follows:

The indicators of the share of users of digital banking products among the population and GDP do not have a strong direct relationship. In low-, lower middle- and high-middle-income countries, the relationship between GDP and the level of use of digital financial products is not statistically significant. But for 43 high-income countries, the strength of the relationship between these rates is 38-48%.

The indicators of the share of users of digital banking products among the population and GDP per capita have a strong direct relationship. And this connection is strengthened depending on the level of development of the country. In particular, for high-income countries, the correlation coefficient varies from 0.5 to 0.7, while for low-middle and low-income countries it is only 0.3-0.4, and the relationship between MI and GDP has a weak negative relationship (-0.27). Digital banking product and inflation indicators have a weak negative relationship from -0.37 to -0.25. the strongest connection between indicators the share of the population who made a payment or made a purchase online (PO) and GDP per capita (0.87) that it can be seen in the Fig.1.

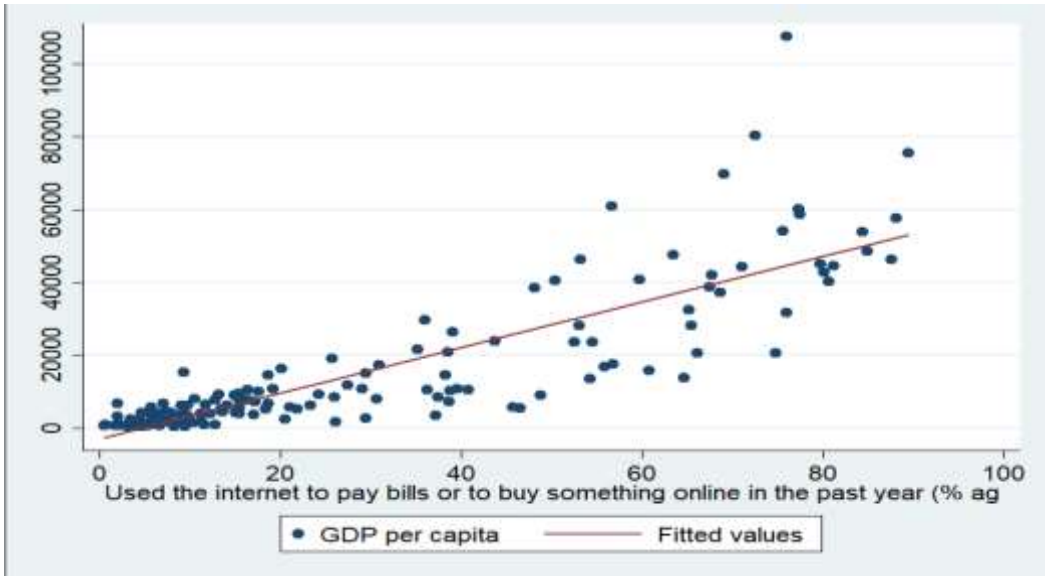

Fig.1. Correlation between GDP and PO

Fig.1. shows that there is a correlation between the variables and it is possible to establish a linear functional correlation between them. For higher values of the analyzed paired indicators, the spread of indicators is wider, but the linear dependence remains.

In particular, there is a weaker inverse correlation with inflation, which is 25-37%. The correlation between digital banking product performance and inflation rate is not statistically significant for certain groups of countries. Digital banking products have almost no effect on the unemployment rate in the country.

CONCLUSION

Based on the results of the above analysis, the following conclusion can be drawn:

1. The results in this study define that FinTech has implications for financial inclusion and economic growth, it is too early to draw conclusion of the huge influence of FinTech on the economic growth.
2. In general, there is relationship between digital banking products and GDP (current US$). The connection between these indicators is that FinTech affects the level of a country's economic development. In order for these products to affect the economic development of countries, the level of payment infrastructure and financial literacy of the population, the use of the Internet and mobile communications must be high. It is for this reason that these rates are high in high-income countries.
3. There is a fairly strong relationship between digital banking products and GDP per capita. That is, the use of digital financial services serves to improve the well-being of the population.
4. Digital banking products have no effect on the unemployment rate in the country.

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