

THE ANALYSIS OF THE EFFECT OF FINANCIAL TECHNOLOGIES (FINTECH) ON THE ECONOMIES OF COUNTRIES

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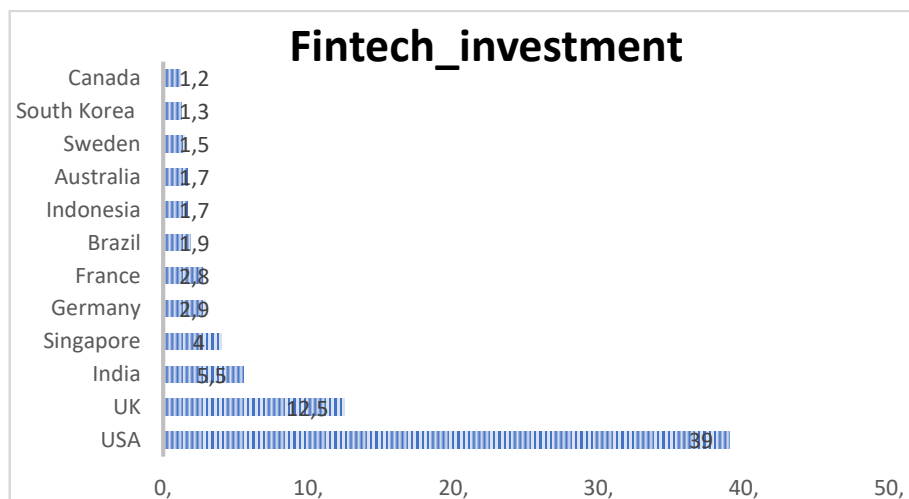
Abstract. In this article the author wrote about financial technology and its role in the development of digital economy which leads to the growth of economy of the country. As well as, she analyzed how FinTech investment of some countries, as USA, UK, India, Singapore, Germany, France, Brazil, Indonesia, Australia, Sweden, South Korea and Canada affects the Gross Domestic Product of these countries in 2022. During the analysis, she used one of econometric model, OLS model. According to the results, there is a positive relationship between FinTech investment and the GDP. The more investments to fintech countries do, the more GDP increases.

Keywords: FinTech investment, GDP, digital economy, economic growth, dependent variable, independent variable, linear regression.

INTRODUCTION. In today's globalized life the digitalization of the economy can be seen in each sphere of the lifestyle and provides the economic growth. In this process leveraging financial technologies is considered to be a driving factor for the development of the digital economy. Because of this fact, the rise of FinTech investment can be seen on the example of many countries, for instance, USA, UK, India, Germany, France and others. In the article, the relationship between investment to financial technologies and GDP of 12 countries will be analyzed.

METHODS. Research methodologies, such as grouping, analysis, synthesis were used in this article. Besides, the author used one of econometrics analysis methods, OLS model and the results were obtained.

RESULTS AND ANALYSES. First of all, let's see the amount of investment to the fintech by some countries in 2022.



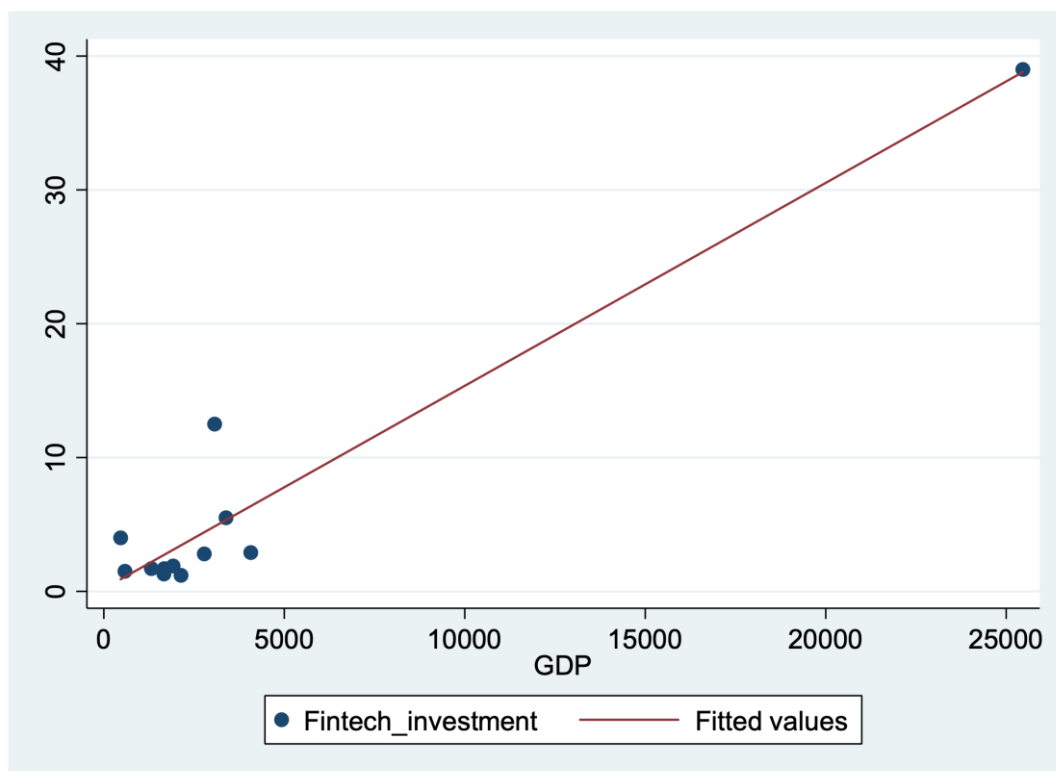
Picture 1. The amount of FinTech investment by some countries in 2022 (in billions).

According to Picture 1, there are 12 top countries which invested the highest amount of FinTech investment. USA took the first place with 39 billion US dollars. After USA, there is UK on the second place. It invested 12,5 billion US dollars to financial technologies in 2022. India's investment was 2 times less than UK's, equaling 5,5 billion US dollars. Among these 12 countries, the FinTech investments of Sweden, South Korea and Canada were the lowest ones, being 1.7, 1.3 and 1.2 billion US dollars respectively.

Table 1. Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Fintech investment	12	6.333	10.758	1.2	39
GDP	12	4045.492	6831.206	466.8	25462.7

The above table 1 determines descriptive statistics about fintech investment and GDP of 12 countries in 2022. In this research fintech investment is an independent variable and GDP is a dependent variable. It can be seen from the table that the mean value, standard deviation, minimum and maximum values of fintech investment and GDP of 12 countries. For example, the minimum value of FinTech is equal to 1.2 billion US dollars when the maximum one is 39 billion US dollars. Besides, minimum and maximum values of GDP are 466.8 and 25462.7 billion US dollars, accordingly.



Picture 2. Fitted values of FinTech investment.

In Picture 2 the relationship between FinTech investment and GDP is shown. It can be said that between them there is a positive relationship which means if the country increases the investment on financial technology, its GDP will also rise.

Table 2 illustrates Pairwise correlations which show how investments on financial technology depends on GDP. There p equals 0.000 which means this research is very statistically important. FinTech investment determines 96 percent of GDP.

Table 2. Pairwise correlations

Variables	(1)	(2)
(1) Fintech_invest~t	1.000	
(2) GDP	0.963	1.000
	(0.000)	

Apart from Pairwise correlations, OLS model shows Spearman coefficient which also means how these 2 variables are dependent.

Spearman coefficient: Fintech_investment GDP

Number of obs = 12

Spearman's rho = 0.5744

Test of Ho: Fintech_investment and GDP are independent

Prob > |t| = 0.0508

According to this coefficient, H0 is put the following: FinTech investment and GDP are independent. However, $p = 0.05$ which means we must reject H0 hypothesis and FinTech investment and GDP are dependent variables.

Table 3. Skewness/Kurtosis tests for Normality

Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	chi2(2)	Prob>chi2
Fintech_in~t	12	0.000	0.001	27.740	0.000
GDP	12	0.000	0.000	31.790	0.000

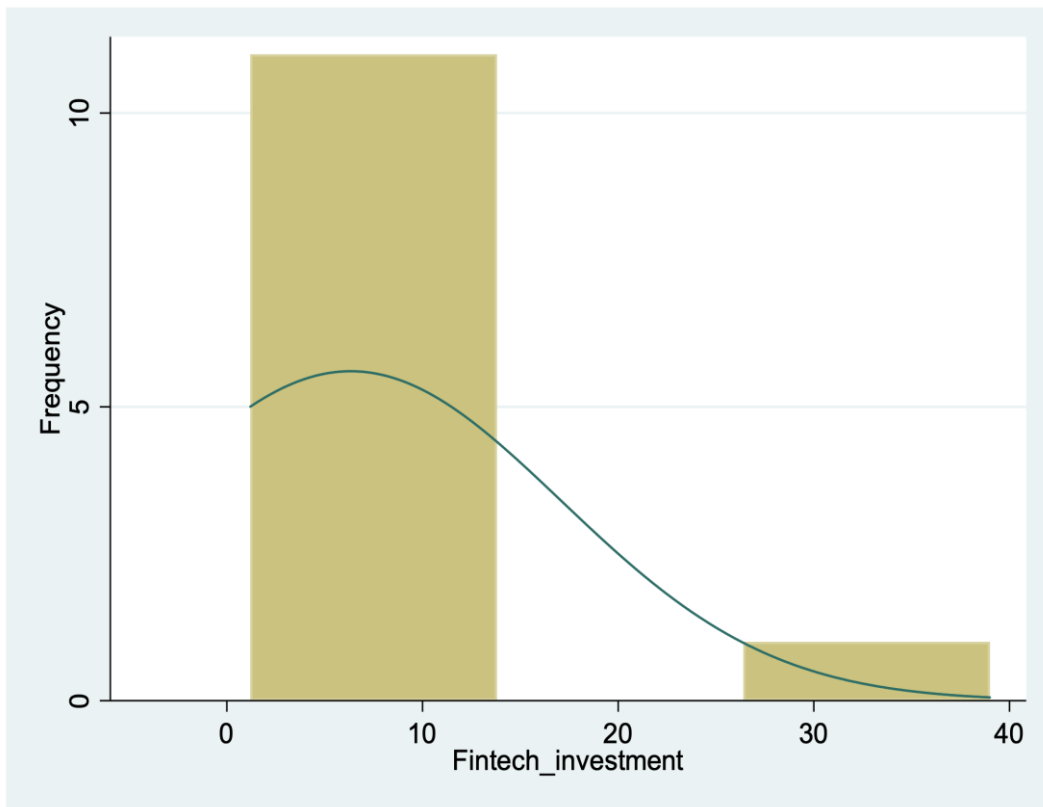
This Skewness/Kurtosis tests for Normality determines whether or not the skewness and kurtosis of a variable is consistent with the normal distribution. The null hypothesis for this test is that the variable is normally distributed. In my research, $p=0.000$ and 0.001 , so in each case, $p<0.001$ which means data of both variables are normally distributed.

Picture 3 determines the data distribution of the investment on financial technologies by countries. According to the picture, the data is not normally distributed. Because it can be seen from the picture that between approximately 15 and 25 billion US dollars there is no data of FinTech investment.

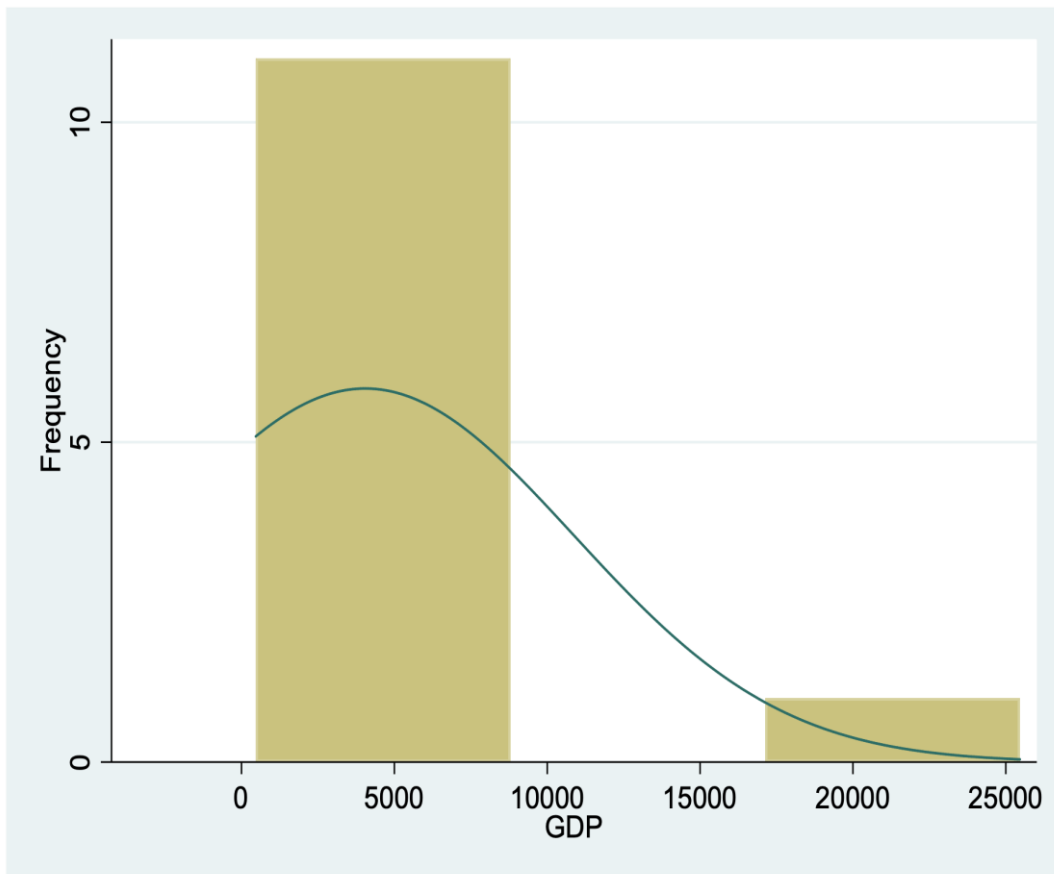
Picture 4 gives the information about the data distribution of GDP of 12 countries. From the picture, it can be untrue that the information about GDP is normally distributed if I say. Because it is known that from about 9 000 to 17 billion US dollars there is no data of GDP.

The above table 4 determines the linear regression of this research. It can be seen from the table that F test equals 0.002. F test determines the whole model and H0 is the following: all independent variables together do not affect on the dependent variable. However, in this case F test is equal to 0.002 which means we reject H0 hypothesis and the FinTech and GDP are not independent. Therefore, this research is statistically important. Besides, R squared equals 62%

which means the independent variable determines 62 percent of the dependent variable and it is considered to be very good result.



Picture 3. The distribution of data of FinTech investment



Picture 4. The distribution of information of GDP

Table 4. Linear regression

logGDP	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Fintech_investment	.074	.018	4.04	.002	.033	.115	***
Constant	7.223	.222	32.52	0	6.728	7.718	***
Mean dependent var		7.693	SD dependent var		1.014		
R-squared		0.620	Number of obs		12		
F-test		16.345	Prob > F		0.002		
Akaike crit. (AIC)		25.724	Bayesian crit. (BIC)		26.694		

*** $p < .01$, ** $p < .05$, * $p < .1$

The research's regression is:

$$\text{Reg}(\log\text{GDP}) = 7.223 + 0.074 * \text{FinTech investment.}$$

For example, if we increase the FinTech investment by 1 point, the GDP will rise by approximately 8 percent.

DISCUSSION. Many scientists express their opinions about financial technologies. For example, “At its core, fintech is the use of technology to provide new and improved financial services. Part of the motivation for the emergence of fintech is that, while information technology has made everything – from computers to cars – cheaper and more functional, the unit cost of financial intermediation has apparently not changed much in over a century” – says Anjan V. Thakor [1].

Mohammad Sahabuddin, Md. Nazmus Sakib, Md. Mahbubur Rahman, Adamu Jibir, Mochammad Fahlevi, Mohammed Aljuaid and Sandra Grabowska analyze the fundamental issues and characteristics of FinTech in research, such as the annual contribution of publication, hot in the press, and foci, using theme analysis, concurrence analysis, and timeline analysis of authors' keywords[2].

Xiaohui Chen, Lei Teng, Wen Chen do the research about “the nature of the relationship between FinTech and the digital economy” [3].

İlayda İSABETLİ FİDAN and Tuğba GÜZ investigate “the relationship between GDP and Fintech investment using panel causality methods from 2014Q1 to 2020Q4 for eight high-income countries: The United States, United Kingdom, Singapore, Australia, Canada, Germany, Israel, and France” [4]. They also do the research about the relationship between GDP and Fintech in 8 countries. However, their study does not include the data of 2022. I analyzed the last year's data in order to get newer results.

Yoon Soon Suk, Hongbok Lee, and Ingyu Oh examine whether fintech levels influence bank performance and whether fintech's interaction with GDP per capita causes differential effects on bank performance globally.[5]

Jon Frost does the research about “Fintech promises to deliver greater financial inclusion. In other economies, adoption can be related to the high cost of traditional finance, a supportive

regulatory environment, and other macroeconomic factors. Finally, demographics play an important role, as younger cohorts are more likely to trust and adopt fintech services”. [6]

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