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THE IMPACT OF CHINA'S DIRECT INVESTMENT ON ENERGY INDUSTRY DEVELOPMENT IN KAZAKHSTAN

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ABSTRACT

The purpose of the research is to study the impact of China's direct investment on Kazakhstan's Energy industry, it enables them to figure out what type of Energy sources need more investment, and the demand level on the Energy services, which require for investigating the feasibility behind investing in Energy industry in Kazakhstan.

Research methodology - a regression model of the impact of China's direct investment on Kazakhstan's Energy industry is established to study the impact of Chinese direct investment on Kazakhstan's Energy industry from four variables: net foreign direct investment in Kazakhstan, Kazakhstan's GDP, China's direct investment in Kazakhstan, and China's direct investment in Kazakhstan's Energy industry.

Original/value of the research - China's direct investment in Kazakhstan's Energy industry, compared with other factors, can have a more important impact on Kazakhstan's Energy industry, so Kazakhstan can through cooperation with foreign capital, especially China's capital, the establishment of joint ventures, to improve the current situation in Kazakhstan's Energy industry bad development.

Findings. The results show that the impact of net FDI in Kazakhstan, Kazakhstan's GDP, China's direct investment in Kazakhstan, and China's direct investment in Kazakhstan's Energy industry on Kazakhstan's Energy development is significant and positively related.

Key words: *China's direct investment, energy industry, Kazakhstan, China.*

INTRODUCTION

The Chinese-Kazakhstan relationship has strengthened over the last decade, it covers several areas of cooperation, in economic, political, and social aspects. The Chinese investment in Kazakhstan has declined dramatically over the last five years, specifically from 2015-2019, which motivates this study to investigate further what the situation of foreign direct investment in Kazakhstan, as there is an opportunity for the both countries in energy industry, this is due to the high demand of china to the energy, besides the availability of energy sources in Kazakhstan.

Kazakhstan has rich Energy resources but unfortunately, due to the lack of sufficient investment in the Energy industry, the volume of productivity is very small, as well as the equipment used for production. Kazakhstan can create joint ventures through cooperation with foreign capital, especially Chinese capital, in order to improve the current situation in Kazakhstan's Energy sector and improve its development. This study provides an analysis of the FDI from China's investors and will benefit decision-makers in both countries in terms of bilateral trade, policy relationship improvement, and social development. Thus, this study has great importance because it aids to clarify the overall impact of China's direct investment on Energy industry that may help policy makers to set correct policy to increase the growth effect of FDI in Kazakhstan. The other significance of this thesis is to enrich the literature reviews about the relationships between China's direct investment on Energy industry in Kazakhstan.

MAIN BODY

Literature review. Keeley and Ikeda (2017) investigated the impact of FDI on Energy industry development in developing countries; they found that foreign investment works to boost the Energy industry development [5]. Specific motivations within the Energy industry that attract foreign investors, these motivations such as tax exemptions, especially for renewable Energy.

Sarkodie and Strezov (2019) test the effect of FDI on Energy industry development in China over the period 1982 to 2016 [6]. The study found a significant impact of FDI on developing the Energy industry and Energy emissions over the tested period.

Behera, Dash, and Reviews (2017) examine the impact of FDI on economic growth and Energy industry; [4] the result confirmed a significant impact of FDI on the Energy industry, this impact confirmed through improving the economic development, as the technology transfer from overseas through the FDI. At the present stage of economic development, the development of information and communication technologies (ICTs) gives a significant acceleration to globalization. They play an

important role in the internationalization of companies' activities. FDI in the ICT sector has a direct impact on the structure of the economy and the country's economic growth.

Charyshkina, A.V. studied the features of the economy in the Energy sector: Energy has a number of technological features that distinguish it from other industries, for example, the coincidence of processes and Energy consumption in time [9]. The consequence of technological features is the specific content of the Energy economy as a branch of economic science. Industrial enterprises in various industries such as machine-building, metallurgy, chemical industry, food industry, and many others interact and depend directly on Energy associations. Each side is interested in its own profitable activities. The main task set by Energy enterprises and industrial enterprises is to ensure continuous, trouble-free operation of technological equipment for production in the planned volume, in the established time frame, and with the lowest Energy costs of competitive products. Economic knowledge and a systematic approach to solving economic issues are particularly necessary in the Energy sector, which is the most capital-intensive industry complex and is linked to all industries. FDI is one of the most important indicators of globalization. These are investments made to participate in the profits of an enterprise operating in a foreign territory, with the direct participation of the investor in the management of the enterprise. They can help to restructure the national economy and strengthen the international competitiveness of local companies.

To sum up, the existing domestic and foreign research on the Energy industry demonstrate that the level of direct investment in Kazakhstan's Energy development has achieved rich results, the relevant theory and empirical methods have been more improved. In terms of a review of studies on the impact of FDI on host countries' economies, there is a wide scope of concentrates that address the connections among FDI and economic growth or the effect of FDI on the host countries' economy. This study depends on the neoclassical hypothesis, as indicated by which FDI has just influenced capital amassing, without changing long haul growth, which has just been conceivable gratitude to exogenous factors, for example, innovative advancement and populace growth. Present-day models of endogenous growth investigate the indirect impacts of FDI, for example, innovation move, efficiency expands, showcase extension and different focal points for the beneficiary country.

In terms of a review of studies on Kazakhstan's Energy Industry, after defining it, most of it is experiencing slow and growing economic progress, which is also accompanied by some demographic growth, which generates more and more Energy demand to supply the population. In turn, this is compounded by the problem of intensive use of Energy from non-renewable sources such as oil, which, in the long term, will be one of the most important problems for governments in meeting high

demand Energy. So, it is important to study Kazakhstan's Energy industry. In terms of the review of studies on the impact of FDI on Energy is obvious. From the literature of recent years, it can be seen that in the period of economic transition investment motivation of enterprises is diverse and irregular. Inflows of FDI in Kazakhstan are carried out through joint ventures, subsidiaries, privatization of state enterprises with participation of foreign capital the transfer of the management of foreign firms to large industrial enterprises and investment banking sector. The main form of direct investments into the country is joint ventures, to a lesser extent - with 100% foreign capital - subsidiaries. Although there are many achievements in the field of China's direct investment in Kazakhstan, there are still few studies in the field of Energy industry in Kazakhstan, so this paper studies the Energy industry of Kazakhstan to enrich the research of China's direct investment in the field of Energy industry in Kazakhstan.

RESEARCH METHODOLOGY

According to the specific research purpose, this paper obtains the required information by combing a large number of literates and can systematically and comprehensively understand the problems to be analyzed. Based on the existing domestic and foreign literature collation and summarization, the relevant theories on the impact of China's direct investment on Kazakhstan's Energy industry are combined, and the latest developments in the relevant theories are monitored in real-time, and the data are updated.

Quantitative analysis methods. This paper mainly uses the method of empirical analysis within this approach the secondary data is specified for the period from 1992 to 2018 to test the impact of FDI from China on the Energy industry development in Kazakhstan. For the present study, the non-experimental, descriptive and correlated design was applied.

Modelling. The proportion of China's FDI in Kazakhstan's Energy industry is steadily increasing. This chapter conducts empirical analysis on how China's direct investment effects on Energy industry in Kazakhstan. This study is done to determine whether these variables maintain a relationship in the long term and of what type, and investigating the direct impact of economic growth on the Energy industry development. Similarly, it seeks to respond if China's FDI can explain Kazakhstan Energy industry development. With this finding, it will be possible to know if FDI is a source of growth of Energy industry.

The starting point of this study model is output value Energy function in which the level of output value Energy of a country is estimated using four predictors, which are net foreign direct investment (FDI) input into the country, the gross domestic product of Kazakhstan (GDP), Net FDI sourced from China (FDICH), and China's

direct investment into Energy industry (FDENE) to conceptually capture the fraction of each estimator toward reducing the output value Energy. Investigating the impact of FDI on the energy industry development has received attention from several previous studies such as Keeley and Matsumoto (2018), which examine the impact of FDI on the energy development in ten developing countries, where the energy output used as a proxy for the energy development. Also, the study of S. A. Sarkodie and V. Strezov (2019) that used the net foreign direct investment directed into the energy industry, besides the output of energy industry as a measurement of development in five countries [15].

This study model is rooted in the theory of endogenous growth formulated by Borensztein, De Gregorio, and Lee (1998), according to which FDI contributes to growth thanks to technological advances and improvements in human capital, institutions and infrastructure [10]. To empirically assess the estimation of four variables that FDI, net FDI sourced from China, FDI into Energy industry, and economic growth on the total output value of Kazakhstan's national Energy industry, the model is specified as follow:

$$\ln IMEN_t = \beta_1 \ln FDI_t + \beta_2 \ln GDP_t + \beta_3 \ln FDICH_t + \beta_4 \ln FDENE_t + e \quad (4.1)$$

Where

IMEN = Total output value of Kazakhstan's national Energy industry

FDI = FDI into Energy industry

GDP = Gross domestic production of Kazakhstan

FDICH = Net FDI sourced from China

FDENE = China's direct investment into Energy industry

e = Standard error

Variables description. The primary purpose of data analysis is to study the phenomena and relationships between variables of the research subject. For the purpose of the analysis of China's FDI toward the Energy industry development in Kazakhstan, five variables are used that total output value of Kazakhstan's national Energy industry (IMEN), net FDI (FDI), net FDI sourced from China (FDICH), and the FDI into Energy industry (FDENE). These five variables are structured into a regression model to interpret how China's FDI contributes to the Energy industry development in Kazakhstan over the period 1992-2018 [3].

1) Total output value of Kazakhstan's national Energy industry (IMEN)

This study uses the total output value of Kazakhstan's national Energy industry's Energy percentage over the period 1992-2018 as an indicator of Energy development in Kazakhstan.

2) FDI into Energy industry (FDI)

This variable refers to the net FDI input into the Energy industry. According to (Liu, Xu, Yang, Zhao, & Xing, 2016) [11] there are three types of FDI into the Energy industry, which are establishing new Energy projects, maintaining current Energy project, and FDI input into research and development the Energy industry.

3) FDI sourced from China (FDICH)

Refers to the net FDI sources from China, it calculated by (input FDI from China minus output FDI toward China)

4) China's direct investment into Energy industry (FDENE)

Refers to the net FDI sources from China and invest it in Energy industry.

5) The gross domestic production of Kazakhstan (GDP)

According to (Ouyang & Li, 2018), there is a bidirectional relationship between economic growth and energy industry [12]. The much-developed energy industry lead to exploit the natural resources and improve the public infrastructure; both integrate together and work to boost the economic growth. As a bidirectional relationship reported by the previous studies, GDP as one of the main indicators of the economic growth are included into the model to control the estimation of FDI on the Energy industry development.

Data source. This study is based on 27 annual observations over the period 1992 to 2018. For the purpose of estimating the impact of three economic factors that FDI, gross domestic production, net FDI sourced from China, and net FDI into Energy industry in Kazakhstan toward the total output value of Kazakhstan's national Energy industry.

The data of this study retrieved from the World Bank data base for three variables that FDI; economic growth, and the total output value of Kazakhstan's national Energy industry, while the data for the net FDI sourced from China and FDI into Energy industry were retrieved from Kazakhstan statistics committee. The data is made up of a time series of the entries five variables that FDI; net FDI sourced from China, FDI into Energy industry, economic growth, and total output value of Kazakhstan's Energy industry. The time line of this study is identified based on two suggestions, first, Weigend (2018) recommended a time series of data over 24 observations, which helps more accurate estimation within Ordinary Least Square (OLS) model [2]. Second, this time series is tied to the data availability for the model construction as reported by the data sources mentioned above.

Descriptive statistics. Descriptive statistics is a statistical method of expressing the characteristics and the summary of the collected data. Means, variances, and standard deviations are among descriptive statistics. Inferential statistics are statistical techniques that infer the characteristics of a population-based on the statistics of a

sample population. Descriptive research is mainly based on the analysis of the previous theories, summarizing the relationship between the two and building a new theory. For exploratory research, quantitative research support is obtained by collecting secondary data. The purpose of explanatory research is to establish the causal relationship between variables. Researchers use it to test the causal relationship behind the problem. Using this method, when there are theoretical insights, through quantitative research and preliminary data collection, the hypothesis is elaborated and tested.

In order to make inference statistics, descriptive statistics must be preceded. This is because sampling surveys obtain statistics (characteristic statistics) that characterize the population (descriptive statistics), and then infer the characteristics of the population, or parameters (inference statistics).

For the present study, the use of descriptive statistics was conducted for the reason of finding out several important factors such as the mean, standard deviation, Skewness, Kurtosis, and other important factors related to the study variables as appear in table 1. The following table 1 shows the results of the descriptive statistics test followed by some explanations.

Table 1: Descriptive Statistics

	FDENE	FDI	FDICH	GDP	IMEN
Mean	1297.322	5822.240	3668.011	91758.4496	59707
Median	507.0280	2816.823	1774.599	57123.67	108.1550
Maximum	4649.660	17220.96	10849.21	236634.6	13.53500
Minimum	13.00000	100.0000	63.00000	16870.82143	2040
Std. Dev.	1360.771	5512.898	3473.126	76640.68	40.23473
Skewness	0.916930	0.797536	0.797536	0.510766	0.983654
Kurtosis	2.654964	2.264447	2.264447	1.714163	2.596903
Jarque-Bera	3.917354	3.470953	3.470952	3.034018	4.536887
Probability	0.141045	0.176316	0.176316	0.219367	0.103473
Observations	27	27	27	27	27

Key: FDI = net FDI; GDP = gross domestic production; FDICH = net FDI sourced from China; FDENE = FDI into Energy industry; IMEN = Total output value of Kazakhstan's national Energy industry

The minimum value for the variable FDI into the Energy industry was 13.00000, while the maximum was 4649.660. The mean score for the variable FDI into the Energy industry was 1297.322, this result means that the Energy industry in Kazakhstan is being developed and the FDI is decreasing. In the same line, the Skewness value for

this variable was 0.916930, while the Kurtosis value was 2.654964. These results reveal that the FDI into the Energy industry variable has an acceptable normal distribution. Furthermore, the standard deviation for this variable was 1360.771.

The minimum value for the variable FDI was 100.0000, while the maximum was 17220.96. The mean score for the variable FDI was 5822.240, this result means that the FDI in Kazakhstan is performing very well and it's at its best situations. In the same line, the Skewness value for this variable was 0.797536, while the Kurtosis value was 2.264447. These results reveal that the FDI variable has an acceptable normal distribution. Furthermore, the standard deviation for this variable was 5512.898.

The minimum value for the variable net FDI sourced from China was 63.00000, while the maximum was 10849.21. The mean score for the variable net FDI sourced from China was 3668.011, this result means that FDI sourced from China in Kazakhstan is playing an important role in the economy of the country, where it shows a significant position for the FDI sourced from China. In the same line, the Skewness value for this variable was 0.797536, while the Kurtosis value was 2.264447. These results reveal that the net FDI sourced from China variable has acceptable normal distribution. Furthermore, the standard deviation for this variable was 3473.126.

The minimum value for the variable gross domestic production was 16870.82, while the maximum was 236634.6. The mean score for the variable gross domestic production was 91758.44, this result means that the gross domestic production in Kazakhstan is growing rapidly, and it shows that Kazakhstan economy is maintain a good level. In the same line, the Skewness value for this variable was 0.510766, while the Kurtosis value was 1.714163. These results reveal that the gross domestic production variable has acceptable normal distribution. Furthermore, the standard deviation for this variable was 76640.68.

The minimum value for the variable total output value of Kazakhstan's national Energy industry was 143.2040, while the maximum was 13.53500. The mean score for the variable total output value of Kazakhstan's national Energy industry was 96.59707, this result means that the imported Energy in Kazakhstan is declining and the country is limiting its total output value of Kazakhstan's national Energy industry. In the same line, the Skewness value for this variable was 0.983654, while the Kurtosis value was 2.596903. These results reveal that the total output value of Kazakhstan's national Energy industry variable has an acceptable normal distribution. Furthermore, the standard deviation for this variable was 40.23473.

RESEARCH RESULTS

Stability test. It is a non-functional type of test and it is usually performed during performance testing. The main focus is to determine the stability of the software when exposed to heavy loads, stress and different environments. It does not verify normal

behavior and is the critical point of validation software crash, system crash that is the point. The load is applied to the system under test for a long time, which helps to determine the stability of the software.

According to the following figure 4-3, the test results show that the study model was in a stable level between the + 4 and – 4 values. The CUSUM is represented in the blue line in figure 1 shows that it is in the acceptable range between the two red lines.

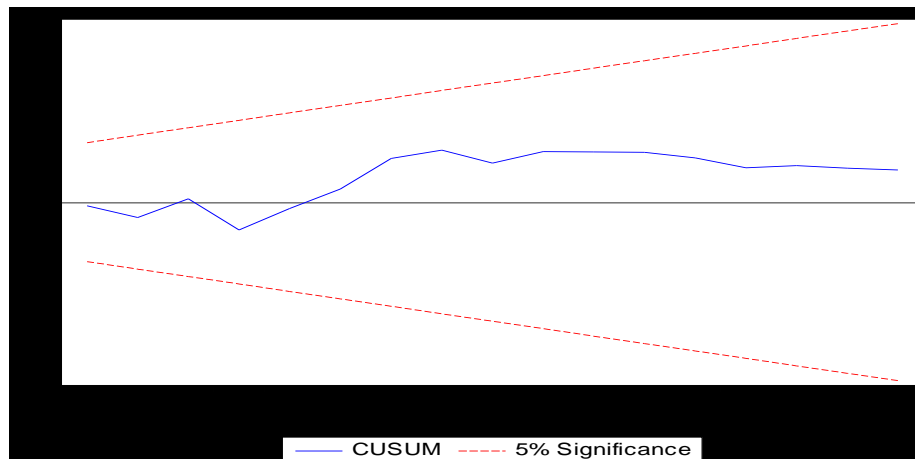


Figure 1: The Stability Test

Correlation test. Statistical pair data, often called ordered pairs, refers to two variables of individuals in a population that are linked together to determine correlations between them. In order for a data set to be considered, the data should not be considered separately, where a pair of data values are all attached or linked together.

Quantitative data statistics contrasted with the general relationship of one number for each data point from another, where the idea of paired data provides a graph to observe the relationship between these variables, where each data point is associated with two numbers set population.

This method of pairing data is used when the study hopes to compare two variables in individuals of the population that draw some kind of conclusions about the observed correlations. When observing these data points, the order of pairing is important because the first number is a measure of one, while the second is a measure of something completely different.

For the current study, a correlation test was used to find out the relationship type between four independent variables and one dependent variable. The correlation test was used to figure out whether (net FDI, gross domestic production, net FDI sourced from China, and FDI into the Energy industry) correlate with the total output value of Kazakhstan's national Energy industry or not. The following table 2 shows the results of the correlation test, followed by some conclusions drawn based on these results.

Table 2: Correlations

		FDI	GDP	FDICH	FDENE	IMEN
FDI	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	27				
GDP	Pearson Correlation	.647**	1			
	Sig. (2-tailed)	.000				
	N	27	27			
FDICH	Pearson Correlation	1.000**	.647**	1		
	Sig. (2-tailed)	.000	.000			
	N	27	27	27		
FDENE	Pearson Correlation	.978**	.714**	.978**	1	
	Sig. (2-tailed)	.000	.000	.000		
	N	27	27	27	27	
IMEN	Pearson Correlation	.446*	.436*	.446*	.437*	1
	Sig. (2-tailed)	.020	.023	.020	.023	
	N	27	27	27	27	27

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Key: FDI = net FDI; GDP = gross domestic production; FDICH = net FDI sourced from China; FDENE = FDI into Energy industry; IMEN = Total output value of Kazakhstan's national Energy industry.

According to table 2, the following statements were developed:

- There is a positive correlation between FDI and total output value of Kazakhstan's national Energy industry in Kazakhstan, where ($r = 0.446$) and the significant level of 0.020.
- There is a positive relationship between gross domestic production and a total output value of Kazakhstan's national Energy industry, where ($r = 0.436$) and the significant level of 0.023.
- There is a positive relationship between FDI sourced from China and total output value of Kazakhstan's national Energy industry, where ($r = 0.446$) and the significant level of 0.020.
- There is a positive correlation between FDI into the Energy industry and total output value of Kazakhstan's national Energy industry, where ($r = 0.437$) and the significant level of 0.023.

Regression test. Regression testing is often done by rerunning the previous run test and checking to see if any errors that were fixed before could be reproduced.

As a rule of thumb, this error reproduction method is quite effective. This is because poor versioning often loses previous bug fixes and often causes bugs to recur. Also, a frequent fix is only a temporary solution that makes the program messy and not a fundamental solution. Temporary fixes are often useless if the user changes other parts of the program. In other words, when redesigning some features through refactoring, the same problem often reoccurs in the previous fix.

Therefore, it's a good idea to write a test case where a researcher finds a bug when he/she fixes it, and then run the test again whenever it makes a change to the program. The researcher can do it manually, but he/she usually use test automation tools. Typically, test suites provide a test environment that automatically handles regression test cases. Some test suites also provide the ability to automatically run a full regression test on time and report the results. Typically, when a compilation is done (for a small project), run a full test every night or weekly (for a small project).

Regression testing is an important part of extreme programming. According to this methodology, design documents are updated at every stage of the software development cycle, even after they are first written. Such updates are made through extensive and repeated automated testing of the entire software package.

The regression test was used in the present study to predict the future contribution of the study's model. The current model reveals that the R square is equal to 0.446 which means that this model explains the total output value of Kazakhstan's national Energy industry with 0.436, while the rest can be explained by some other variable. According to Ohtani (2000) lower adjusted R-square refers to potential other estimators toward the dependent variable in the regression test [14]. Sarstedt and Mooi (2014) stated that in regression analysis, adjusted R-square less than 0.25 indicates to weak longitudinal estimation, while a value above 0.5 and less than 0.75 indicates to moderate estimation from the model, and substantial if the value higher than 0.75 [13].

Based on table 3, the regression equation was found where gross domestic product has a significant and positive influence on the total output value of Kazakhstan's national Energy industry ($\beta = .204$, $t = 3.231$, $p = 0.020$). Also, a regression equation was found where FDI sourced from China has a significant and positive influence on the total output value of Kazakhstan's national Energy industry ($\beta = 1.390$, $t = 2.320$, $p = 0.007$). As well as a regression equation was found where FDI has a significant and positive influence on the total output value of Kazakhstan's national Energy industry ($\beta = 1.324$, $t = 2.711$, $p = 0.006$). And finally, a regression equation was found where FDI into the Energy industry has a significant and positive influence on the total output value of Kazakhstan's national Energy industry ($\beta = 1.943$, $t = 3.210$, $p = 0.003$).

Table 3: Regression Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	2.304	3.497	.1824	4.432	.002
GDP	.204	.241	.876	3.231	.020
FDICH	1.390	.803	-3.432	2.320	.007
FDI	1.324	.462	-.598	2.711	.006
FDENE	1.943	.793	-2.876	3.210	.003
Adjusted R ²	.9413				

a. Dependent Variable: IMEN

Key: FDI = net FDI; GDP = gross domestic production; FDICH = net FDI sourced from China; FDENE = FDI into Energy industry; IMEN = Total output value of Kazakhstan's national Energy industry.

Results Discussion. This study aims to analyze the Impact of China's direct investment on Energy Industry in Kazakhstan over the period 1992-2018. The study utilized multiple regression test to determine the impact of China's direct investment on Energy Industry in Kazakhstan. This study followed the quantitative approach because it uses data collection to test hypotheses, based on the numerical measurement and statistical analysis, to establish patterns of behavior and test theories. It is of a descriptive correlational and linear regression type since it seeks to know the relationship or the degree of association that exists between two or more concepts, categories or variables in a particular context (FDI, net FDI sourced from China, FDI into Energy industry, economic growth, total output value of Kazakhstan's national Energy industry) and is based submitted to tests; It takes a longitudinal approach because it analyzes the changes that the study variables have undergone over time within some population in general.

For the current study, the correlation test was performed and the results showed that there is a significant and positive relationship between FDI and total output value of Kazakhstan's national Energy industry, where ($r = 0.446$) and a significant level of 0.020. There is a positive relationship between gross domestic production and total output value of Kazakhstan's national Energy industry, where ($r = .436$) and a significant level of 0.023. There is a positive relationship between FDI sourced from China and total output value of Kazakhstan's national Energy industry, where ($r = 0.446$) and a significant level of 0.020. There is a positive correlation between FDI into the Energy industry and total output value of Kazakhstan's national Energy industry, where ($r = 0.437$) and a significant level of 0.023. Also, the regression test was applied

and the results showed that the regression equation was found where gross domestic product has positive influence on the total output value of Kazakhstan's national Energy industry ($\beta = .204$, $t = 3.231$, $p = 0.020$). Also, a regression equation was found where FDI sourced from China has positive impact on the total output value of Kazakhstan's national Energy industry ($\beta = 1.390$, $t = 2.320$, $p = 0.007$). As well as a regression equation was found where FDI has positive influence on the total output value of Kazakhstan's national Energy industry ($\beta = 1.324$, $t = 2.711$, $p = 0.006$). And finally, a regression equation was found where FDI into the Energy industry has positive influence on the total output value of Kazakhstan's national Energy industry ($\beta = 1.943$, $t = 3.210$, $p = 0.003$).

CONCLUSION

Kazakhstan is one of the few countries around the globe that has many natural resources, which helps in producing renewable Energy. Energy industry in Kazakhstan, have five main scales of Energy comprises the Energy industry represented by natural gas 10.6%, oil 14.6%, coal 70%, electricity 5%, and other types 10% of Energy. The highest consumption of coal attributes to the high domestic consumption, as coal is considered as the cheapest source of Energy in Kazakhstan.

Kazakhstan over the years of independence has attracted about 350 billion US dollars of FDI. At the same time, over the past 10 years, the national economy has received 231.6 billion us dollars. The leaders in attracting investment to Kazakhstan are investors from the Netherlands — 7.3 billion US dollars (with a share of 30.2 %), the United States — 5.5 billion US dollars (23.0%), Switzerland — 2.2 billion US dollars (9.3%) (see table 1). It is worth noting that in 2019, China's investors took the 4th place, pushing investors from the Russian Federation to the fifth position. In Kazakhstan, the total of FDI flows registered in the period from 2014 to 2018 reach the total sum of 99,439 million dollars (mUSD) of which, 20,847 million have been invested in the Energy industry, which absorbed 21% of the total foreign investment flows that entered the country in the aforementioned period. Disaggregating the figures for the Energy industry, about 18,649 mUSD (89%) were invested in renewable Energy, while 1,967 mUSD (9%) were used for fossil Energy.

China's investment in Kazakhstan is mainly in the Energy sector, where the volume of proven oil reserves according to BP is 39.6 billion barrels or 6.5 billion tons, which is 3.2 % of the total world reserves in the period from 2014 to 2018 the solar Energy was the most benefited, going from a share of 8 to 32% of FDI flows compared to the previous period, while the other renewable Energy means went from a share from 17% to 21%, respectively. China's investments in Kazakhstan are mainly direct investments. The number of China's companies in Kazakhstan is constantly growing. China today is one of the three largest investors in Kazakhstan's Energy industry.

Regarding the commodity circulation, then over the 8 months of this year, countries traded nearly 680 million US dollars. China's investment in Kazakhstan is becoming more extensive, and the investment structure is becoming more complex.

According to Sumer, Zhanaltay, and Parkhomchik (2019) the Energy in Kazakhstan is a promising industry [8], but it lacks to the enough financing, either from the foreign or domestic investment. Ke (2019) highlights the lack of the government of Kazakhstan in promoting the FDI toward developing the Energy industry, as this industry projects required huge capital investment, which can be provided only by the FDI [7]. In this context, China is one of the main investors target to Kazakhstan, as Chinese foreign investment increased rapidly over the last decade (Bekmukhametova & Zhong, 2019) [1]. Hence, Kazakhstan looks forward toward getting significance portion of this investment to be directed to improving the economic growth and Energy sector development.

This paper empirically analyzed the current situation and characteristics of China's direct investment in Kazakhstan's Energy industry and empirically tested the impact of China's FDI on it through the establishment of the linear regression model. The data used in this study is a secondary data source of the time series of data over the period 1992 to 2018 is constructed, which accounts for a total of 27 observations. The data of this study retrieved from the World Bank database for three variables are FDI; economic growth, and imported Energy, while the data for the net FDI sourced from China and FDI into the Energy industry were retrieved from Kazakhstan statistics committee. The results show that the impact of net FDI in Kazakhstan, Kazakhstan's GDP, China's direct investment in Kazakhstan, and China's direct investment in Kazakhstan's Energy industry on Kazakhstan's Energy development is significant and positively related. Among them, China's direct investment in Kazakhstan's Energy industry, compared with other factors, can have a more important impact on Kazakhstan's Energy industry, so Kazakhstan can through cooperation with foreign capital, especially China's capital, the establishment of joint ventures, in order to improve the current situation in Kazakhstan's Energy industry bad development.

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