

The Influence of Oil and Energy Consumption Factors on Fuel Imports in Former Soviet Union Fuel Economies

Haidar Ali Al Dulaimi

University of Babylon, College of Administration and Economics,
Iraq

Email: bus.hayder.ali@uobabylon.edu.iq

Asam Mohamed Aljebory

University of Babylon College of Administration and
Economics, Iraq

Email: asamcultural@itnet.uobabylon.edu.iq

Mustafa Jawad Kadhim AL-Bakri

AL-Mustaqbal University College, Iraq

Email: mustafa.jawad.kadim@mustaqbal-college.edu.iq

Mustafa Kamil Shakeer

AL-Mustaqbal University College, Iraq

Email: mustafa.kamil@mustaqbal-college.edu.iq

Due to the extensive energy usage derived from oil and fossil fuels, excessive fuel import levels have recently become an international concern. This issue deserves the attention of researchers and regulators. Consequently, this study examines the influence of electricity production from oil sources (EPOR), fossil fuel energy consumption (FFEC), energy use, industrialization, and population growth on oil and fuel imports in the Former Soviet Union (FSU) fuel economies. From 2011 to 2020, the article uses data from a secondary source such as World Development Indicators (WDI). Methods of Moments-Quantile-Regression (MMQR) were used to evaluate the relationship between the constructs in this research. EPOR, FFEC, energy consumption, industrialization, and population growth were found to have a positive relationship with oil and fuel imports in FSU fuel economies. The article guides designing laws to reduce oil and fuel imports by limiting oil and fuel-derived energy use.

Key words: Electricity production from oil sources, energy use, industrialization, population growth, fuel imports, Former Soviet Union (FSU).

1. INTRODUCTION

International trade has been facilitated by time and globalization, and the import of fuels has emerged. Due to its impact on a nation's development, fuel import has garnered considerable inquiry and discussion among academics (Adewuyi & Awodumi, 2021). The import of fossil fuels boosts the country's overall use of fossil fuels. The abundant supply of fossil fuels enables the nation to enjoy affordable and dependable energy without major technological advancement. It facilitates executing several social and economic activities that require energy, contributing to social welfare and economic expansion. Despite its disadvantages, importing petroleum allows for meeting current energy demands and conducting social and commercial activity. However, importing petroleum has numerous negative effects on social and economic development that outweigh its positive advantages (Kilci, 2019).

For example, fossil fuels contain both carbon and hydrogen. When imported fossil fuels are burned in greater quantities, they produce greenhouse gas emissions that degrade the environment. The imported fuel poses harm to human health and decreases human productivity. In addition, it harms the quality of natural resources, such as crops, plants, trees, food, air, water, and soil. It degrades the health of living creatures, such as birds, animals, and fish, which provide citizens with life and economic necessities. Therefore, the importation of fuel makes it impossible for the country to be self-sufficient (Dorotić et al., 2019). The import of fuel is primarily driven by electricity generation from oil and other fossil fuels, energy consumption, and energy use. When electricity generation from oil resources increases, the existing limited oil stocks may be insufficient to supply the energy

demand. This necessitates the importation of energy. Similarly, if the usage of fossil fuels or any other form of energy increases inside a country and local energy supplies are insufficient to meet energy needs, energy imports increase (Gökgöz & Güvercin, 2018).

Current research studies the effects of oil-based electricity production, fossil fuel energy consumption, energy use, population expansion, and industrialization on fuel import in FSU countries. Russia, Ukraine, Belarus, Kazakhstan, Kyrgyzstan, Uzbekistan, Tajikistan, Turkmenistan, Moldova, Estonia, Lithuania, Latvia, Georgia, Armenia, and Azerbaijan. In 2020, Russia will import 39 % of the EU's gas, 23 % of its oil, and 46 % of its coal. Ukraine imports 83% of its oil, 33% of its natural gas, and 49% of its coal for use (Bulut & Muratoglu, 2018). Belarus imported 17 Mtoe of natural gas in 2018, making it the top importer of fuel among EU4Energy countries. Kazakhstan imports 292,236,000 barrels of oil per day. Although Kyrgyzstan extracts some oil, natural gas, and coal, most hydrocarbons are imported. More than fifty percent of its energy needs are satisfied by imported oil and gas. Uzbekistan imports extra crude oil for its refineries, which amounts to 30 % of all inputs (Zhu, Mortazavi, Maleki, Aslani, & Yousefi, 2020).

During periods of scarcity, Tajikistan imports oil, gas, and coal. Turkmenistan has predominantly participated in fuel exports and imports energy infrequently. The imports of Moldova cover 98 % of the country's total oil consumption, which is 1.0 Mtoe and consists of 80% diesel and gasoline. All coal in consumption is also imported. Estonia imports all of its oil resources, which total 1,3 Mtoe and are consumed, primarily from Russia. Lithuania meets 70% of its energy requirements via exports by Jiang, Liu, and Wang (2022). After purchasing 417 million kWh and

exporting 304 million kWh, Latvia was left with 572 million kWh for domestic usage. In 2019, all of Georgia's natural gas will be 2.69 cm, and most of its oil products will be imported, totalling 1.35 Mt. The majority of imported oil is refined petroleum products (diesel, 40 %, and gasoline, 40 %). Armenia imports all fossil fuels. Moreover, eighty percent of Armenia's energy imports consist of natural gas, while the remainder consists of oil goods. Oil imports by Azerbaijan total 163 506 000 barrels (Neufeld et al., 2021).

All of the FSU member states are rising economies. The ability to import petroleum helps these nations satisfy their energy needs, but excessive imports disrupt their balance of payments and threaten their sustainable growth by aggravating environmental challenges. However, many nations are still unsure how to reduce energy imports without impeding economic progress (Bae & Mah, 2019). The purpose of this study is to highlight the primary causes of fuel importation. This study aims to investigate the effects of oil-based electricity generation, fossil fuel energy consumption, energy use, population increase, and industrialization on fuel import. This work makes its unique contribution to the body of knowledge. The study's primary objective is not to enable fuel import but rather to prevent it by describing its causes.

Therefore, the study's focus is what places it at the top of the available literature. Second, the impacts of power production from oil, fossil fuels energy consumption, energy use, population expansion, and industrialization on fuel import have been addressed in disparate ways in the prior research. The present study contributes to the existing body of knowledge by examining the effects of these factors on fuel import based on comparable research of equivalent importance. Thirdly, this study investigates the impact of oil-based electricity production, fossil fuel energy consumption, energy use, population expansion, and industrialization on FSU countries' fuel imports. Thus, the scope of this analysis is far greater than that of a previous study on fuel imports.

The paper consists of various sections, which are listed below. The second section uses a literature review to address the relationship between power production from oil, fossil fuels energy consumption, energy use, population expansion, industrialization, and fuel import. Following the results and conclusions, the third section details the research methodology. The following section supports the present study with additional research. The study's ramifications are then presented, followed by findings and limits.

2. LITERATURE REVIEW

Assume that the import of fuel enables the country to obtain energy resources from other nations in return for currency to address the energy deficit and meet its current energy needs. In addition to hurting the health of living beings and degrading the environment and its elements, pollution impedes the sustainable economic development of a nation. Several variables, such as oil-based electricity

production, fossil fuels energy consumption, energy use, population expansion, and industrialization, contribute to fuel import by raising the energy demand and increasing fuel import (Alola, Eluwole, Alola, Lasisi, & Avci, 2020). Several authors have offered their perspectives on the relationship between power production from oil, fossil fuel energy consumption, energy use, population expansion, and industrialization and fuel import in the available literature. These viewpoints of the authors will be examined in the following:

Any nation's primary source of electricity production is petroleum. The oil reserves are created by nature, and this process takes hundreds of years to complete (Das et al., 2018). When oil is used continuously and in significant quantities for power production, there may soon be an oil scarcity. And in this circumstance, when oil consumption is rising, and supplies are restricted, nations choose to purchase oil reserves from foreign economies. Consequently, the electricity production from oil reserves causes the nation to import gasoline (Mengal et al., 2019). Hamzah, Tokimatsu, and Yoshikawa (2019) explore the power production from oil reserves and its impact on fuel importation. This paper demonstrates that as the economy is expanding, operations need to be expanded and increase overall output. Under these conditions, more energy is consumed to achieve various economic objectives.

Consequently, as the nation's demand for electricity derived from oil resources increases, its oil reserves cannot keep up, leaving it with little choice except to import oil. Gaete-Morales, Gallego-Schmid, Stamford, and Azapagic (2019) shed light on power derived from fossil fuels such as oil, fuel import, and environmental impacts. Evidence to test the theory was collected in Chile between 2004 and 2014, a period of ten years. The study suggests that there is a favorable relationship between the three factors. Whenever there is an increase in electricity production from oil resources, governments attempt to import fuel to meet the need for oil reserves. Thus, there is a positive relationship between oil-based electricity output and fuel imports. Kamidelivand, Cahill, Llop, Rogan, and O'Gallachoir (2018) examine the relationship between electricity production from oil reserves and fuel import. The study suggests that as electricity demand increases and the economy relies heavily on oil use for this purpose, oil reserves are in greater demand. The rising oil demand will be satisfied with fuel imported from foreign nations.

The primary source of energy in any economy is fossil fuels. Fossil fuels such as natural oil, natural gas, coal, ore, and petroleum are recovered from the earth beneath the heaviest rocks and form over hundreds of years. Baz et al. (2021). Fossil fuels are either burned directly to provide energy or used to power turbines that generate electricity. When there is pressure on fossil fuel usage for energy reasons, the amount of fossil fuels continues to decline, putting the country under pressure to import fossil fuel resources from outside to meet the rising energy demand (Wang et al., 2020). Perry (2020) investigated the

relationship between fossil fuel energy usage and fuel imports in his study. All business processes require energy, including heating, lighting, cooling, or force, and technologies used in commercial operations, electricity-producing facilities, and transportation activities. Fossil fuels are favoured for use because they supply high-voltage electricity and allow businesses to respond quickly to urgent needs. The increased need for fossil fuels necessitates the acquisition of foreign fuel reserves. In a scholarly work on substituting fossil fuels with renewables, [Marques, Fuinhas, and Pereira \(2018\)](#) examine the effects of fossil fuel energy consumption on fuel imports. Using ARDL estimators, the relationship between the components was empirically examined in eleven European nations between 1990 and 2014. The findings revealed that increasing fossil fuel energy use increases fuel imports, indicating a positive link between the two variables. [Choi and Song \(2018\)](#) authored a study on fossil fuel consumption and energy importation. The study demonstrates that when commercial entities use fossil fuels for obtaining energy and conducting company operations, the demand for energy rises and fuel import increases.

Energy sources are used to power machinery, technology, processes needing heat, force, lightning, or cooling, and transportation operations. The nation's energy consumption rises with the expansion of household, social, and economic activities dependent on these processes, technologies, machinery, and vehicles ([San-Akca, Sever, & Yilmaz, 2020](#)). When energy consumption inside a country increase, the demand for energy resources also rises; when local energy supplies are insufficient to fulfill the rising energy demand, economists go to other economies to acquire energy resources. Consequently, rising energy consumption raises energy demand ([Kemfert, 2019](#)). Using empirical data, [Shao, Guo, Yu, Yang, and Guan \(2019\)](#) explore the effects of energy use on fuel import. The information on energy use and fuel import was collected in Shanghai, China, from 1991 to 2016.

According to the report, countries with technical advancements use machines, plants, and other techniques that require high voltage power. This results in increased energy consumption. Fuel imports are necessary to meet energy demands when energy is consumed at a higher pace than the country's energy production capacity. [Murshed, Mahmood, Alkhateeb, and Bassim \(2020\)](#) investigate the connection between energy consumption, energy costs, and energy import. The data for the selected factors were obtained from Sri Lanka. When robots and technologies replace manual work in a nation, more energy is consumed, according to the study. The nation's increasing energy use generates an energy shortage. The rising demand for energy boosts imports of fuel.

[Rehman, Ma, and Ozturk \(2021\)](#) analyze the connection between economic growth, industrialization, and energy imports in a literary analysis. Pakistan's economic growth,

industrialization, and energy importations, as well as their relationship, were analyzed using the quantile regression technique from 1971 to 2019. The study suggests that the industry dominates most of the country when a nation is experiencing significant economic growth. This encourages economists to rely on machinery, electrical appliances, and plants rather than human labor while conducting business procedures. Consequently, if energy demand exceeds energy output, the extra demand is satisfied by fuel imports. [Akhmad and Amir \(2018\)](#) examine the effects of industrialization on the import of gasoline. As the economy grows, there is a rise in the industry within the country. As a result, on the one hand, the production of technological and mechanical components and the utilization of machines and technical instruments rise. On the other hand, the movement of cargo and human capital increases rapidly, resulting in a rise in the number of operating transport vehicles. Extensive use of equipment, technical processes, and transportation operations leads to a rise in energy usage. The country is compelled to import fuel if the growing energy demands cannot be met with domestic resources.

[Khan, Hou, Irfan, Zakari, and Le \(2021\)](#) study examines the connection between financial development, population increase, energy use, and energy import. The top ten countries, as ranked by WETI 2020, were chosen as samples for investigating the relevant parameters. To investigate the factors nexus, econometric and analytical methods such as GMM, GLS, and FMOLS were utilized. The analysis indicates that international energy trade depends on domestic energy production and consumption. Population growth in a country increases energy consumption beyond the country's energy-producing capabilities. As a result, the country must import energy sources. In their literary work, [Mohsin, Abbas, Zhang, Ikram, and Iqbal \(2019\)](#) study the relationship between economic development, population expansion, energy use, and energy import. The econometric and analytical techniques, such as a hybrid error correction model, regression coefficients, the Dickey-Fuller test, and the co-integration test, were used to examine transport sector components in Pakistan. The study suggests that a country's economic and household patterns expand with its population. Due to the increased energy demand caused by these operations, the government is forced to import more gasoline.

3. RESEARCH METHODS

This study examines the influence of EPOR, FFEC, energy consumption, industrialization, and population increase on oil and fuel imports in FSU fuel economies. From 2011 through 2020, the article pulls information from secondary sources such as WDI. Data from 12 FSU nations, including Russia, Georgia, Ukraine, Uzbekistan, Belorussia, Azerbaijan, Moldova, Latvia, Kazakhstan, Kyrgyzstan, Lithuania, and Estonia, were compiled for the study. Three nations, including Armenia, Turkmenistan, and Tajikistan, were excluded from the study due to a lack of data. The

work has established the following equation with variables under investigation:

$$FIM_{it} = \alpha_0 + \beta_1 EPOR_{it} + \beta_2 FFEC_{it} + \beta_3 EU_{it} + \beta_4 PG_{it} + \beta_5 IND_{it} + e_{it} \quad (1)$$

Where;

- FIM = Fuel Imports
- t = Time Period
- i = Countries
- EPOR = Electricity Production from Oil Resources
- FFEC = Fossil Fuel Energy Consumption
- EU = Energy Use
- PG = Population Growth

Table 1: Measurements of Variables

S#	Variables	Measurement	Sources
01	Fuel Imports	Fuel import (percentage of merchandise imports)	WDI
02	Oil Consumption in Electricity	Electricity production from oil resources (% of total)	WDI
03	Energy Consumption	FFEC (% of total)	WDI
		Energy use (kg of oil equivalent per capita)	WDI
04	Population Growth	Population growth (annual %)	WDI
05	Industrialization	Industry value added (% of GDP)	WDI

The study has examined the details of all understudy constructs with the help of descriptive statistics. Moreover, the study also checks the association among the variables with the help of a correlation matrix. The article has also examined multicollinearity with the help of the variance inflation factor (VIF). The equations for the test are given below

$$R^2_Y \rightarrow Y_{it} = \alpha_0 + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 X_{5it} + e_{it} \quad (2)$$

$$j = R^2_Y, R^2_{X1}, R^2_{X2}, R^2_{X3}, R^2_{X4}, R^2_{X5} \quad (3)$$

$$Tolerance = 1 - R_j^2 \quad VIF = \frac{1}{Tolerance} \quad (4)$$

In addition, the study examines the relationships between understudy variables with the help of MMQR. This approach is established by [J. A. Machado and Silva \(2019\)](#); [\(J. A. F. Machado & Santos Silva, 2019\)](#) and has the ability to robust to outliers. Moreover, this approach permits the “conditional heterogeneous covariance effects” of FIM that influence the whole distribution in difference to panel quantile regression and allows shifting means [\(Adebayo, Akadiri, Adedapo, & Usman, 2022\)](#). The conditional quantile, for example, $Q\tau(\tau/X)$ for the “locational-scale alternate model” is established as under:

$$Y_{it} = \alpha_i + X_{it}\beta + (\delta_i + Z_{it}\lambda)U_{it} \quad (5)$$

Where, $P\{\delta_i + Z_{it}\lambda > 0\} = 1$. Shows the probability, α, β, λ and δ shows the parameters that need to be assessed, α_i, δ_i $i = 1, \dots, n$ shows a precise fixed effect, z shows the k-vector of component X. Finally, the components are transformed with component l, which is mentioned below:

$$Zl = Zl(X), l = 1, \dots, k \quad (6)$$

Where, U_{it} shows orthogonal to X_{it} and consistent with

IND = Industrialization

The dependent variable in the study was fuel imports, which were measured using the fuel import (percentage of merchandise imports). In addition, the study utilized two independent variables, such as oil consumption in electricity measured as the electricity production from oil resources (percentage of total) and energy consumption measured with FFEC (percentage of total) and energy use (kg of oil equivalent per capita). Lastly, the article utilizes two control variables: industrialization as defined by industry value added (percent of GDP) and population increase as assessed by population growth (annual percent). These dimensions are listed in [Table 1](#).

achieving the moment situations that do not include stringent heterogeneity. Hence, the conditional quantile of Y is established as under:

$$Q\tau(\tau/X_{it}) = (\alpha_i + \delta_i q(\tau)) + X_{it}\beta + Z_{it}\lambda q(\tau) \quad (7)$$

Where, X_{it} shows the independent variables such as EPOR, FFEC, EU, PG, and IND and Y_{it} shows the predictive variable such as EIM, which is conditional as X_{it} . Due to time invariants, the heterogeneous effects are permissible for modification across the quantiles of the predictive construct Y. Hence, $Q(\tau)$ is established as under:

$$Min_q = \sum_t \sum_i p\tau (R_{it} - (\delta_i + Z_{it}\lambda)q) \quad (8)$$

4. RESEARCH FINDINGS

The study has examined the details of all understudy constructs with the help of descriptive statistics. The outcomes uncovered that the EIM average value was 13.812 %, the EPOR mean value was 1.297 %, and FFEC mean value was 74.300 %. In addition, the findings also indicated that the EU average value was 2446.464 (kg of oil equivalent per capita), PG mean value was 0.224 %, and IND mean value was 27.804 %. These figures are mentioned in [Table 2](#).

Moreover, the study also checks the association among the variables with the help of a correlation matrix. The findings indicated that the EPOR, FFEC, energy use, industrialization, and population growth have a positive nexus with oil and fuel imports in FSU fuel economies. These figures are mentioned in [Table 3](#). The article has also examined multicollinearity with the help of VIF. The results exposed that the reciprocal VIF values are not less than 0.20, and VIF values are not bigger than five. These figures indicated no multicollinearity. These figures are mentioned in [Table 4](#).

Table 2: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
EIM	120	13.812	9.312	0.723	40.917
EPOR	120	1.297	1.905	0.000	7.479
FFEC	120	74.300	25.791	4.937	100.122
EU	120	2446.464	1497.134	45.386	5167.01
PG	120	0.224	1.077	-2.258	2.684
IND	120	27.804	8.873	17.955	61.733

Table 3: Matrix of Correlations

Variables	EIM	EPOR	FFEC	EU	PG	IND
EIM	1.000					
EPOR	0.006	1.000				
FFEC	0.171	0.077	1.000			
EU	0.163	0.059	-0.177	1.000		
PG	0.371	-0.070	0.305	-0.149	1.000	
IND	0.258	0.394	0.456	0.088	0.371	1.000

Table 4: Variance Inflation Factor

	VIF	1/VIF
IND	1.805	0.554
FFEC	1.376	0.727
PG	1.300	0.769
EPOR	1.277	0.783
EU	1.103	0.906
Mean VIF	1.372	.

MMQR is then used to evaluate the associations between the variables under investigation. EPOR, FFEC, energy consumption, industrialization, and population growth were found to have a positive relationship with oil and fuel imports in FSU fuel economies. The results also revealed that the IND substantially influences FIM in quantiles 1

through 7, whereas FFEC greatly influences FIM in quantiles 1 through 8. In addition, the results revealed that the PG has a considerable influence on FIM in quantiles 1 through 8 and that EPOR has a large influence on FIM in quantiles 1 through 5 and 7. The data also revealed that the EU considerably impacts FIM quantiles 1 through 5, 7 and 9. These connections are shown in [Table 5](#).

Table 5: Panel Quartile Estimation (MMQR)

Variables	Method of Moments Quantile Regression (MMQR)										
	Location	Scale	Grid of Quartiles								
			0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90
IND	0.212***	0.544*	0.883**	0.944**	0.182*	0.272**	0.372*	0.667*	0.453*	0.102	0.065
FFEC	0.876**	0.526*	0.201**	0.337*	0.300*	0.881***	0.288**	0.928**	0.338**	0.100*	0.037
PG	0.883***	0.091**	0.288**	0.883**	0.389*	0.793*	0.192*	0.663*	0.665*	0.392**	0.188
EPOR	0.902*	0.552**	0.472*	0.377*	0.188**	0.229*	0.388*	0.372	0.292*	0.100	0.028
EU	0.667*	0.871**	0.776*	0.365**	0.288***	0.573*	0.282*	0.102	0.288*	0.162	0.377*

***, **, and * represent significant level at 1%, 5%, and 10%, respectively

5. DISCUSSIONS

The results indicated that oil-generated electricity had a positive correlation with fuel imports. These findings are corroborated by [Aryanpur, Atabaki, Marzband, Siano, and Ghayoumi \(2019\)](#), demonstrating that when the economy advances, it desires to extend its activities and boost its total economic output. Under these conditions, the usage of energy for various economic purposes grows. As a result, as the electricity output from oil resources increases, the country's oil reserves are insufficient to fulfill demand, and it must import oil. These findings are also consistent with [Song, Fisher, and Kwoh \(2019\)](#), who examine the role of oil-derived electricity production in fuel imports. The study hypothesizes that there is a deficiency of oil reserves in nations where the usage of power for household and business technology is expanding and where energy is mostly produced from oil resources. Thus, the demand for

fuel imports grows. The findings revealed a favorable relationship between fossil fuel energy use and fuel imports. These findings are backed by [Hank et al. \(2020\)](#). They demonstrate that all business processes, including heating, lighting, cooling, or force, as well as technologies utilized for business operations, plants used for power production, and vehicles, require energy. Due to their instantaneous responsiveness and high voltage, fossil fuels are the favored energy source. The increasing fossil fuel consumption necessitates acquiring fuel reserves from foreign nations. These findings are also consistent with [Ioannidis, Chalvatzis, Li, Notton, and Stephanides \(2019\)](#). They note that the rising consumption of fossil fuels such as coal, oil, and petroleum increase the demand for fuel imports.

The findings demonstrated a favorable relationship between energy consumption and fuel imports. These

findings are reinforced by [Yaqoob et al. \(2021\)](#), who demonstrate that energy consumption rises as technologies and machines replace manual labor in a country. Increasing domestic energy use causes an energy deficit and increases fuel imports. These findings are also consistent with [Weishaupt, Ekardt, Garske, Stubenrauch, and Wieding \(2020\)](#) examination of the role of energy use in fuel imports. According to this study, communities with rapid growth in energy consumption play an active role in fuel imports. The results revealed a favorable relationship between population increase and fuel imports. These findings are reinforced by [Zeng, Stringer, and Lv \(2021\)](#), who demonstrate that when the population growth rate rises, so do the number of people who consume energy. Imports of petroleum are used to meet the rising energy demand. These findings are also consistent with [O'Sullivan \(2020\)](#) assertion that as a country's population grows, so do its household and economic behaviors. As a result of these activities, the rising demand for energy pushes the citizens to increase fuel imports. The findings revealed a positive relationship between industrialization and fuel imports. These results concur with [Grinberg \(2022\)](#) assertion that expanding industrialization over a larger land area increases equipment usage instead of human labor. In this circumstance, the demand for energy rises; if the country's natural energy supplies cannot meet it, fuels are imported. These results are also consistent with [Qiao et al. \(2022\)](#) analysis of the effects of industrialization on fuel imports. When industrialization advances, the manufacturing of machinery parts and the use of machinery in the economy rise, according to this study. Increasing energy demands are satisfied through the importation of fuel supplies.

6. IMPLICATIONS

This work contributes significantly to the body of knowledge and can provide the authors with theoretical instructions. The study investigates the effects of oil-based electricity generation, fossil fuel energy consumption, and energy consumption, together with population expansion and industrialization, on fuel import. In the past, the role of power production from oil, fossil fuels energy consumption, and energy use, coupled with population growth and modernization, in fuel import has been evaluated using data from one or two economies. This study contributes to the literature by evaluating the link between these characteristics in FSU nations. The current investigation also has some relevance in the real world. It is a report with advice on how economies such as those in the FSU might regulate energy imports. The article guides designing laws to reduce oil and fuel imports by limiting oil and fuel-derived energy use. To reduce energy imports, the government and economic actors are obligated to formulate policies to lessen the reliance on oil and fossil fuels for electricity production by introducing alternative energy sources. The present analysis is also guidance for policymakers on reducing total energy consumption or altering energy consumption patterns to control energy import and the resulting pollution. In addition, the report

emphasizes that population expansion and industrialization must be properly managed to reduce fuel imports.

7. CONCLUSION

This study aims to examine the effects of oil-based electricity production, energy consumption from fossil fuels, and energy consumption with population increase and industrialization on fuel import. Using a secondary technique, the authors obtained data for oil-based electricity production, fossil fuel energy consumption, energy use, population growth, industrialization, and fuel import. Fuel import was positively related to oil-based electricity production, fossil fuel energy consumption, energy use, population increase, and industrialization. The analysis revealed that as the amount of electricity generated from oil resources increases, oil reserves deplete, leaving the nation with little choice except to import oil. Based on the findings, fossil fuels are utilized due to their rapid response and high voltage power. The increased need for fossil fuels necessitates the acquisition of foreign fuel reserves. They discovered that the increased usage of technology and equipment increases the consumption of energy resources. Increasing domestic energy use causes an energy deficit and increases fuel imports. When a country's pollution level rises, the number of human activities using energy resources also rises. Imports of petroleum are used to meet the rising energy demand. Industrialization expands the usage of machines throughout a broader land area. In this situation, energy demand increases, and fuel imports are required if natural energy supplies cannot supply them.

8. LIMITATIONS

There are also some limitations associated with the present investigation. The authors should utilize their writing skills to overcome these restrictions. To quantify fuel import, the current study investigates a restricted number of criteria, including oil-based electricity production, fossil fuel energy consumption, energy use, population growth, and industrialization. Several other factors that have a significant impact on fuel import are absent from this study. To provide thorough guidance, future authors should examine gasoline imports based on all available criteria. In addition, the authors have gathered data on oil-based electricity production, fossil fuel energy consumption, energy use, population growth, and the effects of modernization on fuel imports from FSU nations during a restricted period. This is a brief analysis that cannot produce equally valid results for different countries and time periods. Future authors are expected to examine the components and their relationships over an extended period.

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