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ARAŞTIRMA MAKALESİ / RESEARCH ARTICLE

OIL PRICES AND RENEWABLE ENERGY: AN ANALYSIS FOR OIL DEPENDENT COUNTRIES

PETROL FİYATLARI VE YENİLENEBİLİR ENERJİ: PETROLE BAĞIMLI ÜLKELER ÜZERİNE BİR ANALİZ

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Abstract

Volatility in oil prices is argued to be one of the reasons of the rising attractiveness of renewable energy as a way to lower oil dependence, which creates vulnerability to oil price shocks. However, the scenario can be different for oil importing and oil exporting economies. This study investigates the impact of oil price on renewable energy taking into account of the distinction between oil exporters and oil importers. For a group of major oil exporters and a group of major importers, the relationship between oil price volatility and renewable energy, is examined using different methodologies. The results reflect distinct results for oil exporters and oil importers due to their diverse motivations.

Keywords: Renewable Energy, Oil Price, OPEC, Panel Data Analysis

JEL Classification: Q21, C23

Öz

Petrol fiyatlarındaki oynaklığın, petrol fiyatlarındaki şoklara karşı kırılganlık yaratan petrol bağımlılığını azaltmanın bir yolu olarak yenilenebilir enerjinin artan cazibesinin artmasının nedenlerinden biri olduğu iddia edilmektedir. Bununla birlikte, petrol ithalatı ve petrol ihracatçısı ekonomiler için durum farklı olabilmektedir Bu çalışma, petrol fiyatlarının yenilenebilir enerji üzerindeki etkisini, petrol ihracatçıları ve petrol ithalatçıları arasındaki farklılığı göz önüne alarak incelemektedir. Ana petrol ihracatçı ve ithalatçı ülke grupları için, petrol fiyatlarındaki dalgalanma ile yenilenebilir enerji arasındaki ilişki, farklı metodolojiler kullanılarak incelenmiştir. Sonuçlar, sahip oldukları farklı motivasyonları nedeniyle petrol ihracatçıları ve petrol ithalatçıları için farklılaşmaktadır.

Anahtar Kelimeler: Yenilenebilir Enerji, Petrol Fiyatı, OPEC, Panel Veri Analizi

JEL Sınıflandırması: Q21, C23

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1. Introduction

Volatility in oil prices is argued to be one of the reasons of the rising attractiveness of renewable energy as a way to lower oil dependence, which creates vulnerability to oil price shocks. However, lowering such dependence has become a great concern for not only oil-importing countries but also oil-exporting countries, especially after the sharp declines around 2008 and 2014. Moreover, the rising attention to global warming degrades fossil fuels creating another challenge for OPEC (Van de Graaf, 2017; Dike, 2013; Khan et al. 2017). It is a further threat to OPEC since renewable energy can be stocked and sold to non-fossil fuel demanding countries – considering the environmental agreements that are binding – which means a new competition – which will depend on trade links, distance and cost – between different energy resource holders: renewables or oil.

Oil is the main fuel worldwide, accounting for 41% of the total final consumption by fuel (including coal, nuclear power, natural gas, hydroelectricity, biofuels and waste, etc.) as stated by International Energy Agency 2017 report on Key world energy statistics [1]. This high share, even alone, signifies the importance of oil in energy demand of the world. In comparison to 1973, world crude oil production has almost doubled. Considering in terms of region, Middle East ranks first as constituting 33.6% of the world crude oil production by 2016. However, recent studies highlights that oil demand will decline in future especially after 2030 as stated by World Oil Outlook 2040 (2017) [2]. 81.5% of the proven crude oil reserves are held by OPEC countries [3]. According to BP Statistical Review of World Energy (2017) [4], global proven oil reserves in 2016 is sufficient to meet 50.6 years. For some authorities, this is quite a long time considering the technological innovations, especially regarding electrical vehicles and renewable energy resources. Apart from these figures considering the dominance of oil in energy consumption and the fact that there are limited resources, the focus of the world has changed to other concerns in which global warming comes first. Climate change issue has led economies to organize meetings to find a global solution for reductions of greenhouse gas emissions which is argued to be urgent as the threats of air pollution and environmental disasters have become more visible recently. In addition to global warming, energy shortages, fluctuation of oil prices and the potential monopoly actions of OPEC are argued to be the following motivations to find alternative ways to curb oil demand.

In this study, the fluctuations of oil prices are examined whether the volatility affects economies to change their energy consumption into renewables. Indicators for carbondioxide emissions (CO2), economic development and trade are also employed as control variables. The main argument of this paper is the distinction of oil importing and oil exporting countries as these

1 IEA (2017). Key world energy statistics. Retrieved from: https://www.iea.org/publications/freepublications/publication/KeyWorld2017.pdf, 22 December 2017.

2 Retrieved from: https://woo.opec.org/index.php, 22 December 2017.

3 Retrieved from: http://www.opec.org/opec_web/en/data_graphs/330.htm, 22 December 2017.

4 Retrieved from: https://www.bp.com/content/dam/bp/en/corporate/pdf/energy-economics/statistical-review-2017/bp-statistical-review-of-world-energy-2017-full-report.pdf, 22 December 2017.

groups have different motivations for transforming energy production into renewables. Oil exporting economies can be argued to have disincentive to transforming energy production into renewable energy resources as the oil reserves can be argued to be sufficient for a long period and that such a transformation is not easy as it requires a large investment, in other words, it is highly costly. However, considering oil importing economies, it can argued that there are strong incentives to consider this transformation. Oil price fluctuations lead to difficulties for firms in deciding about the level of production for future. Besides this, politically it can be argued that the nationalism is rising and resources can be used as political threats among countries. Hence, considering the political tension, there is a further incentive for oil importing economies to lower their oil demand, in other words, dependence on oil. Thus, this paper employs a group of oil exporting and oil importing economies to scrutinize the impact of oil prices on renewable energy consumption.

The rest of the paper is organized as follows. Section 2 presents the literature survey. Section 3 shows the model and the data. Section 4 explains the empirical findings and last section concludes the paper.

2. Literature Survey

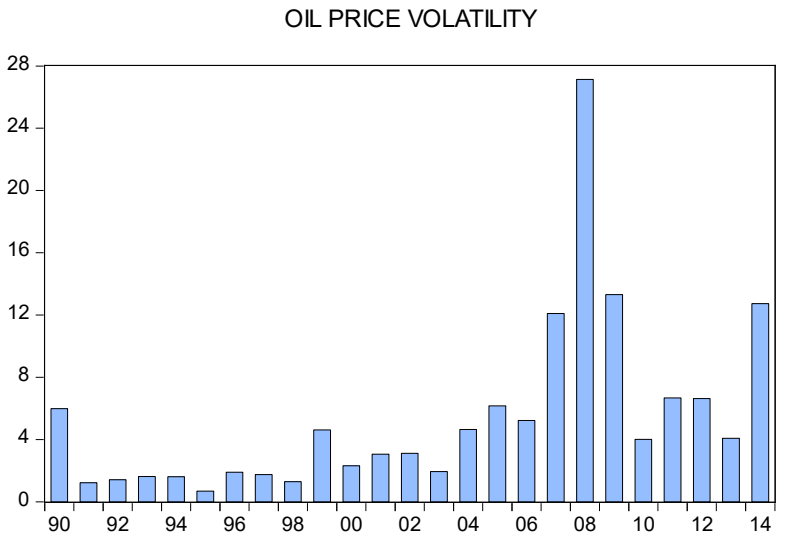
The literature on renewable energy resources is quiet scarce as this topic has become crucial only recently. Apergis and Payne (2010a, 2010b, 2011) examine the relationship between renewable energy consumption and economic growth. Apergis and Payne (2010a) analyze the relationship for a panel of OECD countries and observe a long-run relationship between real GDP, renewable energy consumption, real gross fixed capital formation, and the labor force. Their analysis signifies a bidirectional link between renewable energy consumption and economic growth in both the short run and long run. Apergis and Payne (2010b) examine the link for Eurasian economies and obtain the same results exactly for a panel of different group. Apergis and Payne (2011) employs the same analysis for a group of Central American economies and obtains the same results in terms of coefficients and the causal link. Sadorsky (2009a) estimates an analysis for G7 countries and obtains the result that GDP per capita and CO2 emissions are the major determinants of renewable energy consumption in the long run, whereas oil price is found to be less effective (and negatively affecting) on renewable energy consumption. Sadorsky (2009b) examines the relationship between renewable energy consumption and income for a group of emerging economies and observes that real per capita income have positive impact in the long run. Menyah and Wolde-Rufael (2010) for an analysis regarding the relationship between CO2 emissions, nuclear energy, renewable energy and economic growth using US data observe no causal link from renewable energy to CO2 emissions. Regarding the link between renewable energy consumption and oil prices, Omri and Nguyen (2014) make analyses for a group of high-income, middle-income, low-income countries and globally including all. Utilizing system GMM model, the results signify the negative impact of oil price and positive impact of CO2 emissions for all country groups.

3. Model

This study takes Omri and Nguyen (2014) paper as a basis and utilizes the same indicators for a different country group since our main discussion is to show the distinction between oil exporting and oil importing economies both of which have dependence on oil prices but with different motivations. For oil importers, it can be argued that there is an incentive for these economies to transform their energy production into renewable energy resources as fluctuations in oil prices create deteriorating impacts in terms of cost. However, it can be argued that the scenario is inverse for oil exporting economies as these economies are better off together with a rise in oil price level. Hence, a disincentive for oil exporting economies is more consistent which reflects a distinction between two country groups.

Besides the country group distinction of being oil importing and exporting economies, the indicator for oil prices is also differentiated. Other than oil prices in nominal form, real oil prices and oil price volatility are also examined. The rest of the variables are kept as the same with the base paper of Omri and Nguyen (2014). Figure 1 shows the oil price volatility between 1990 and 2014. It is quite significant that oil price fluctuates even excluding the financial crisis period of 2008-2009. Hence, it is important to check the impact of volatility besides pure price level.

Figure 1: Oil price Volatility



Note: For annual oil price volatility, monthly standard deviations are used.

The models are given below:

Model 1:

$$REC_{i,t} = \alpha + \beta_1 OILP + \beta_2 GDPPC_{i,t} + \beta_3 CO2_{i,t} + \beta_4 TO_{i,t} \quad (1)$$

Model 2:

$$REC_{i,t} = \alpha + \beta_1 ROILP + \beta_2 GDPPC_{i,t} + \beta_3 CO2_{i,t} + \beta_4 TO_{i,t} \quad (2)$$

Model 3:

$$REC_{i,t} = \alpha + \beta_1 OILPVOL + \beta_2 GDPPC_{i,t} + \beta_3 CO2_{i,t} + \beta_4 TO_{i,t} \quad (3)$$

where REC, $OILP$, $ROILP$, $OILPVOL$, $GDPPC$, $CO2$, TO, denote renewable energy consumption, oil price (in nominal form), real oil price, oil price volatility, GDP per capita, CO2 emissions and trade openness, successively.

3.1. Data

The analysis is applied for a panel data of 12 oil importing and 12 oil exporting countries for the period of 1995-2014. Country selection is based on data availability. Largest oil importing and exporting countries are obtained from CIA (2017) World Factbook (crude oil imports) as given in Tables 1 and 2. Selected 12 oil exporting countries are as follows: Saudi Arabia, Russian Federation, Canada, United Arab Emirates, Nigeria, Angola, Venezuela, Kazakhstan, Norway, Mexico, Algeria and Iran. Selected 12 oil importing countries are as follows: United States, United Kingdom, Germany, Spain, France, Italy, Philippines, Netherlands, South Korea, Japan, India and China.All data except for oil price and oil price volatility are obtained from World Bank World Development Indicators. Regarding renewable energy, renewable energy consumption (REC) (% of total final energy consumption), electricity production from renewable sources, excluding hydroelectric (% of total), renewable electricity output (% of total electricity output) (REEO) and electricity production from renewable sources, excluding hydroelectric (% of total) (EPR) are provided by World Bank. However, only renewable energy consumption data are available for all countries. Oil price (OILP) data is Cushing, OK WTI Spot Price FOB (Dollars per Barrel) crude oil data obtained from U.S. Energy Information Administration (EIA). Annual oil price volatility (OILPVOL) is calculated as standard deviations of monthly crude oil prices. Real oil prices (ROILP) are calculated by deflating oil prices by GDP deflator. As for control variables, GDP per capita (constant 2010 US$) (GDPPC), Trade openness (exports plus imports as a ratio of GDP) (TO), CO2 emissions (metric tons per capita)(CO2) are used. All variables are in their natural logarithm.

Table 1: Largest Crude Oil Importers (barrel per day)

Rank	Country	Imports	Estimation date
1	United States	8,567,000	2015
2	China	7,599,000	2016
3	India	3,785,000	2013
4	Japan	3,433,000	2015

5	Korea, South	2,815,000	2015
6	Netherlands	1,884,000	2015
7	Germany	1,884,000	2015
8	Philippines	1,503,000	2014
9	Italy	1,395,000	2015
10	Spain	1,349,000	2015
11	France	1,174,000	2015
12	United Kingdom	1,047,000	2015

Note: Crude oil – imports is the total amount of crude oil imported, in barrels per day (bbl/day).
Source: CIA (2017) World Factbook

Table 2: Largest Crude Oil Exporters (barrel per day)

Rank	Country	Exports	Estimation date
1	Saudi Arabia	7,416,000	2013
2	Russia	4,888,000	2013
3	Iraq	3,301,000	2016
4	Canada	3,210,000	2015
5	United Arab Emirates	2,637,000	2013
6	Nigeria	2,231,000	2013
7	Angola	1,745,000	2013
8	Kuwait	1,711,000	2013
9	Venezuela	1,548,000	2013
10	Kazakhstan	1,466,000	2013
11	Qatar	1,303,000	2013
12	Norway	1,255,000	2015
13	Mexico	1,193,000	2016
14	United States	1,162,000	2015
15	Algeria	1,146,000	2013
16	Iran	1,042,000	2013

Note: Crude oil – exports is the total amount of crude oil exported, in barrels per day (bbl/day).
Source: CIA (2017) World Factbook

The importance of country group distinction of oil exporters and oil importers is also visible when we check electricity production from renewables and renewable energy consumption given in Table 3 and Figures 2 and 3. Oil importers have higher electricity production from renewable compared to oil exporters and it has a positive trend for oil importers which shows the higher tendency of oil importing economies so as to lower their dependence on oil. In fact, recently, after the political tension between Russia and European countries, it is also argued that EU economies desire to lower the energy dependence [5] on Russia which is almost 50% as stated by Eurostat [6]. However, regarding renewable energy consumption, exporters have higher ratio than exporters

5 Retrieved from: https://www.forbes.com/sites/kenrapoza/2016/02/09/europe-devises-energy-security-measures-to-reduce-russia-dependence/#64c9fbe235cb, 22 December 2017.

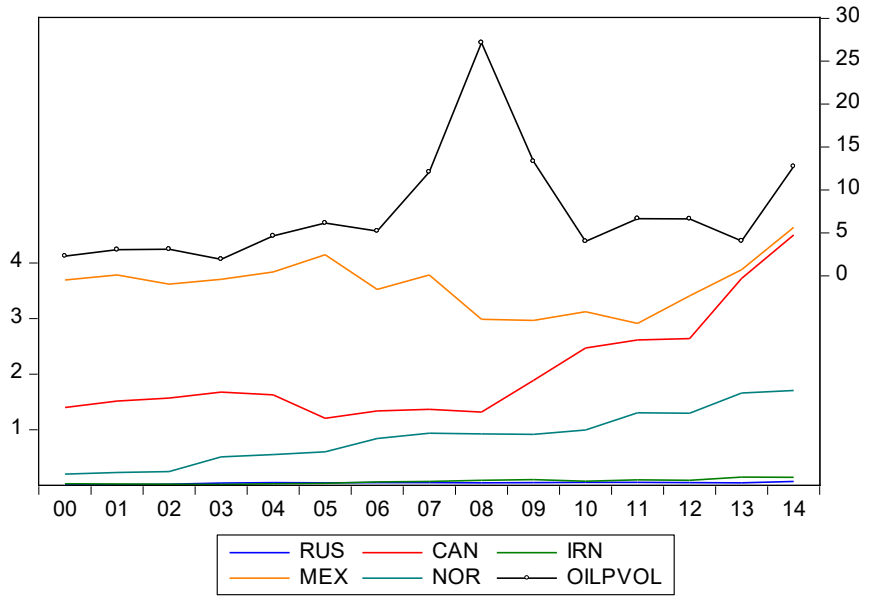
6 Retrieved from: http://ec.europa.eu/eurostat/statistics-explained/index.php/Energy_production_and_imports, 22 December 2017.

which sounds confusing. Out of 12 exporting countries, Nigeria and Angola have very high renewable energy consumption rates. The rate becomes lower than importers when these two small countries are excluded.

Table 3: Panel summary statistics for EPR and REC

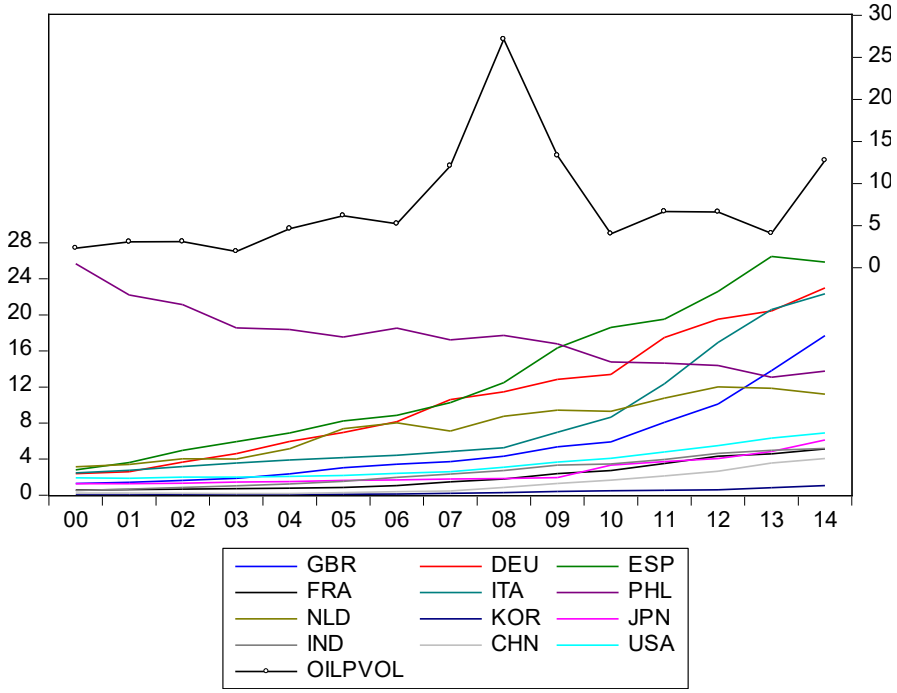
	OILPVOL	EPR (IMP)	EPR (EXP)	REC (IMP)	REC (EXP)
Mean	6.474	5.358	0.540	12.965	21.838
Maximum	27.830	26.485	5.569	54.484	88.832
Minimum	0.765	0.029	0.000	0.444	0.006
Std. Dev.	6.152	6.482	1.172	13.887	29.177

Figure 2: Exporting Countries – Electricity production from renewable sources



Note: Oil price volatility is given on the right-hand-side axis.

Figure 3: Importing Countries – Electricity production from renewable sources



Note: Oil price volatility is given on the right-hand-side axis.

4. Empirical Findings

Panel methodologies employed in this study are fixed effect model (least squares dummy variable), generalized method of moments (GMM) model and Abrigo and Love (2016) panel VAR (vector autoregression) model. All methodologies require stationarity of the variables. Hence, the analysis starts by panel unit root test of Im et al. (2003) to check the order of integration of the variables given in Table 4.

For oil exporting countries, CO2 emissions and GDPPC are observed to be unit root, whereas rest of the variables are stationary. For oil importing countries, only the variables related to oil prices (log of oil prices, real oil prices and oil price volatility) are stationary. Thus, logarithmic first differences of the variables are employed for the analyses. Then, fixed effect model is employed for long run analysis regarding oil exporting and oil importing countries, given in Tables 7 and 10, successively. The results reflect a negative impact of oil price and oil volatility for oil exporting countries, whereas oil price, real oil price and oil price volatility reflect positive impact on renewable energy consumption. The distinction between two country groups is consistent with the expectations as oil exporters have a disincentive to transform its energy consumption into renewable energy resources whereas for oil importers, higher oil price works contrarily,

creating an incentive to transform into renewable even if it is highly costly. Considering the potential endogeneity, GMM methodology is used employing instrumental variables. The short run analyses for oil importing and oil exporting economies reflect the same results, i.e., a negative impact for oil exporters but a positive impact for oil importers given in Tables 8 and 11, respectively.

Finally, a panel VAR model is applied so as to control for a simultaneous relationship between variables in question. GMM based panel VAR results reflect that oil price has negative impact on renewable energy resources for oil exporter whereas it is positive for oil price and real oil price, given in Tables 9 and 12, respectively.

Table 4: Panel Unit Root tests

OIL EXPORTERS			OIL IMPORTERS		
Variables	**IPS**	**Conclusion**	**Variables**	**IPS**	**Conclusion**
LOILP	-1.206 (0.113)	I(0)	LOILP	-1.206 (0.113)	I(0)
ROILP	-95.008 (0.000)	I(0)	ROILP	-3.309 (0.001)	I(0)
OILPVOL	-2.199 (0.013)	I(0)	OILPVOL	-2.199 (0.013)	I(0)
LCO2	-0.689 (0.245)	I(1)	LCO2	1.407 (0.920)	I(1)
LGDPPC	0.318 (0.625)	I(1)	LGDPPC	1.069 (0.857)	I(1)
LTO	-1.884 (0.029)	I(0)	LTO	0.752 (0.774)	I(1)
LREC	-4.188 (0.000)	I(0)	LREC	-1.292 (0.098)	I(1)
			LRREO	0.968 (0.833)	I(1)
			LEPR	1.997 (0.977)	I(1)

Note: Values in paranthesis are standard errors

Table 5: Descriptive Statistics For Oil Exporters

	LCO2	**LGDPPC**	**LOILP**
Mean	1.771146	9.265232	3.779673
Maximum	3.574542	11.42512	4.601865
Minimum	-1.122774	7.125072	2.668616
Std. Dev.	1.129430	1.186658	0.653911
	LREC	**LTO**	**OILPVOL**
Mean	1.183573	-0.381928	6.474648
Maximum	4.486745	0.631926	27.83009
Minimum	-5.114540	-1.230036	0.765500
Std. Dev.	2.752676	0.355115	6.152783

Table 6: Descriptive Statistics For Oil Importers

	LCO2	**LGDPPC**	**LOILP**	**LREC**
Mean	1.781635	9.725094	3.779673	1.967506
Maximum	3.004630	10.86127	4.601865	3.997909
Minimum	-0.260189	6.433428	2.668616	-0.812855
Std. Dev.	0.882102	1.378112	0.653911	1.169797
	LREEO	**LROILP**	**LTO**	**OILPVOL**
Mean	2.341432	3.539217	3.959523	6.474648
Maximum	3.795313	4.755062	5.038824	27.83009
Minimum	-0.014601	2.332440	2.814179	0.765500
Std. Dev.	0.907509	0.561670	0.488182	6.152783

Table 7: Fixed Effects Model for Oil Exporters

Dependent Variable:	**LREC**	**LREC**	**LREC**
LOILP	-0.090* (0.022)		
ROILP		-0.001 (0.002)	
OILPVOL			-0.006* (0.002)
GCO2	-0.068 (0.114)	-0.039 (0.122)	-0.050 (0.116)
GGDPPC	0.293 (0.328)	0.280 (0.353)	0.177 (0.336)
LTO	0.516* (0.097)	0.277* (0.093)	0.501* (0.099)
C	1.135* (0.103)	1.288* (0.057)	0.848* (0.073)
R-square	0.99	0.99	0.99

Table 8: GMM Model for Oil Exporters

Dependent Variable:	**LREC**	**LREC**	**GREC**
Lagged Dependent	0.932* (0.047)	0.913* (0.044)	
LOILP	-0.026* (0.015)		
ROILP		-0.001 (0.001)	
OILPVOL			-0.005* (0.002)
GCO2	-0.092 (0.075)	-0.051 (0.073)	-0.083 (0.087)
GGDPPC	0.290 (0.204)	0.259 (0.205)	0.184 (0.219)

LTO	0.071 (0.057)	0.093* (0.055)	0.062 (0.063)
Sargan test (p-value)	0.217	0.100	0.294
AR(2) (p-value)	0.462	0.452	0.494

Table 9: GMM based Panel VAR for Oil Exporters

Dependent Variable:	**LREC**	**LREC**	**LREC**	**LREC**
Lag Dependent	0.802* (0.132)	0.926* (0.101)	1.060* (0.180)	0.942* (0.124)
LOILP(-1)	-0.045* (0.019)	-0.027* (0.013)		
ROILP(-1)			-0.002 (0.002)	
OILPVOL(-1)				0.001 (0.001)
GCO2(-1)	0.027 (0.060)	0.038 (0.050)	0.132* (0.057)	-0.038 (0.047)
GGDPPC(-1)		0.736* (0.152)	0.598* (0.205)	0.138 (0.205)
LTO(-1)	-0.150* (0.062)	-0.134* (0.051)	-0.011 (0.072)	-0.035 (0.055)
Hansen's J (p-value)	0.139	0.221		0.773

Note: Hansen's J testrefers to the over-identification test for the restrictions in GMM estimation.

Table 10: Fixed Effects Model for Oil Importers

Dependent Variable:	**GREC**	**GREC**	**GREC**	**GREEO**	**GREEO**	**GREEO**
LOILP			0.024* (0.008)			0.028* (0.013)
ROILP		0.001* (0.000)		0.001* (0.000		
OILPVOL	0.002* (0.001)				0.001 (0.001)	
GCO2	-0.797* (0.144)	-0.776* (0.143)	-0.785* (0.142)	-1.116* (0.234)	-1.142 (0.236)	-1.130* (0.234)
GGDPPC	-0.271 (0.302)	-0.269 (0.296)	-0.271 (0.294)	-0.074 (0.484)	-0.136 (0.494)	-0.094 (0.483)
GTO	0.093 (0.070)	0.055 (0.069)	0.070 (0.068)	0.078 (0.113)	0.121 (0.114)	0.100 (0.113)
C	0.036* (0.011)	0.019 (0.013)	-0.045 (0.032)	0.001 (0.022)	0.030 (0.018)	-0.070 (0.052)
R-square	0.40	0.41	0.42	0.25	0.24	0.25

Table 11: GMM Model for Oil Importers

Dependent Variable:	GREC	GREEO	GREC	GREC
Lag Dependent				0.122* (0.062)
LOILP			0.002* (0.001)	
ROILP	0.001* (0.000)	0.001* (0.000)		
OILPVOL				0.001* (0.001)
GCO2	-0.791* (0.160)	-1.020* (0.291)	-0.838* (0.146)	-0.833* (0.154)
GGDPPC	-0.337 (0.253)	0.239 (0.458)	-0.317 (0.226)	-0.236 (0.240)
GTO	0.022 (0.072)	0.006 (0.131)	0.123* (0.067)	0.114 (0.071)
C	0.021* (0.0127)	-0.010 (0.022)	0.036* (0.009)	0.029* (0.010)
Sargan test (p-value)	0.115	0.936	0.069	0.360
AR(2) (p-value)	0.788	0.659	0.683	0.973

Note: One-step Dynamic GMM is applied.

Table 12: GMM based Panel VAR for Oil Importers

Dependent Variable:	GREC	GREC	GREC	GREEO	GREEO	GREEO
Lag Dependent	-0.158 (0.093)	-0.138 (0.091)	-0.010 (0.126)	-0.283* (0.083)	-0.280* (0.083)	-0.215 (0.090)
LOILP(-1)	0.038* (0.012)			0.039* (0.018)		
ROILP(-1)		0.046* (0.015)			0.047* (0.023)	
OILPVOL(-1)			0.001 (0.001)			-0.001 (0.001)
GCO2(-1)	-0.236 (0.163)	-0.229 (0.163)	-0.263 (0.251)	-0.145 (0.216)	-0.153 (0.221)	0.027 (0.237)
GGDPPC(-1)	-0.136 (0.514)	-0.279 (0.487)	0.195 (0.764)	-0.724 (0.650)	-0.901 (0.637)	-0.562 (0.664)
GTO(-1)	-0.046 (0.080)	-0.047 (0.080)	-0.093 (0.120)	-0.054 (0.103)	-0.053 (0.101)	-0.106 (0.115)
Hansen's J (p-value)	0.462	0.479	0.480	0.208	0.227	0.154

5. Conclusion

This study is based on Omri and Nguyen (2014) model investigating the determinants of renewable energy consumption using the variables of oil price level, CO2 emissions, GDP per capita and trade openness. However, our study concentrates on the importance of country group distinction.

The impact of oil price on renewable energy is investigated for oil dependent economies classified as oil exporting and importing. In this respect, top 12 oil exporters and importers are selected based on data availability for the time period of 1995-2014. Using several econometric techniques, oil price is observed to have a positive impact on renewable energy indicator for oil importing countries and negative impact for oil exporting countries. Besides oil prices, real oil prices and oil price volatilities are also checked and similar results are obtained when these variables are utilized. The models are also checked for endogeneity and for a simultaneous relationship. The empirical findings are consistent with our initial expectations.

It is empirically found that oil exporters do not have any incentive to transform their energy production/consumption into renewable. Oil exporters are also oil dependent economies but in terms of supplying it. Transformation into renewable is highly costly and it can be argued that there will be no incentive for these economies to increase their renewable energy resources until their oil reserves decline or transformation into renewables becomes cheaper or there is a political change dictated at government or supranational level. The scenario is completely contrary for oil importers since there is a high incentive as higher oil prices or oil price fluctuations deteriorate their economic structure. Besides that, oil dependence create political dependence which is a course especially recently after the political tension between Russia and EU economies. Hence, as a conclusion, it can be argued that oil importers are in search of lowering their economic and political dependence together with oil price fluctutations, whereas oil exporters keep on being dependent on oil prices in terms of revenues.

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