ISSN 2776-110X

Contents list are available at Journals.indexcopernicus.com

ASIAN Economic and Business Development

Journal homepage: aebd.tripleninecommunication.com

Assesing The Relationship Between Oil Rent, Energy Consumption, And Government Expenditure In Indonesia

Muhammad Rama Ma'rufin[1], Muhammad Ikrom Alfareza[2]
[1,2] Islamic Economics study program, Department of Economics, University of Jember, Indonesia

Abstract

This study was conducted in Indonesia to analyze the relationship between oil rent, energy consumption, and government spending. This study uses annual data obtained from world bank publications. The data analysis method used is VECM. This study finds in Indonesia, there is a three-way casual relationship between energy use and oil rent, but no causal relationship between variables. This indicates in the greater Indonesian energy consumption, the higher the profit level of Indonesia's oil and gas sector. Energy consumption has no impact on government expenditure in Indonesia. So that the policy of limiting the consumption of fossil fuels such as environmental taxes does not significantly suppress the state's development from government expenditure and can actually increase state revenues so that it has the potential to increase development. Suggestions for future research is to include including environmental tax variables to measure potential environmental tax revenues in Indonesia.

Keyword : Energy Consumption, Government Expenditure, Oil Rent, VECM.
JEL Classification : C01, H52, O14, O44

Received September 30, 2022; Revised October 11, 2022; Accepted October 20, 2022

DOI : 10.54204/AEBD/Vol5No1October2022010

Introduction

In this globalization era, various kinds of commodities have been traded between countries in international trade in order to meet domestic needs (Viphindrartin, Wilantari, Prabowo, Sasongko, & Priyanto, & Bawono, 2021). Energy is one of commodities which is most traded in the world, including oil. Oil is a vital commodity for every country because it becomes the source of energy in every country (Sasongko, Widarni, & Bawono, 2021).

Consumption of oil and fossil energy is at risk of increasing environmental pollution through increasing carbon dioxide (Yanto, 2022). Therefore, the uncertainty of supply and demand of oil is often considered very crucial for several countries in the world because it affects their economy (Umar, Su, Rizvi, & Lobonţ, 2021). Berument, Ceylan, & Dogan, (2010), state that a country's economic structure and its dependence on oil will determine how changes in oil prices affect it. importing or exporting country. This means that the impact that occurs due to the erratic nature of global oil prices is strongly influenced by the role taken by the country the global market for oil, besides the significance of the oil commodity for the survival of the country's economy.

Energy plays an important role in human life and economic activities. Every society and economic activity requires energy, such as transportation, production activities, telecommunication systems, etc (Mofijur, Fattah, Alam, Islam, Ong, Rahman, Najafi, Ahmed, Uddin, & Mahlia, 2021). Energy demand in various sectors causes dependence on fossil fuels and continuously reduces the stock and reserve of fossil fuel energy (Martins, Felgueiras, Smitkova, & Caetano, 2019). On the other hand, dependence on fossil fuels in various sectors can have negative impacts on the environment such as pollution and climate change (Arroyo & Miguel, 2020). Indonesia is an ASEAN country with the largest energy consumption. Energy consumption in Indonesia grew about 3.96% per year in 2019, energy consumption percapita also increased by 24% since 2010, the average of 10 years grew about 2.8%, and energy production grew about 3.70% per year (Sewandono & Munandar, 2020). It shows that the high need and demand for fossil energy fuels in Indonesia is unavoidable.

The high demand and consumption of fossil fuel energy requires the government to control its price, or else inflation will occur (Krane, & Idel, 2021). Indonesian government provides subsidy and compensation which are budgeted in the state budget to control the inflation rate and maintain society purchasing power (Erga, & Kasikoen, 2021; Alim, Setiyantono, & Zakiah, 2021). As the demand for fossil fuel energy continuously increases, the subsidy and compensation provided by government will also increase (Ichsan, Lockwood, & Ramadhani, 2022). Indonesia is a country that actively carries out international trade activities or commonly referred to as export-import. In the energy sector, Indonesia also exports a large amount of oil. It becomes one of the sources of revenue that has an important role for the state budget. The value of oil exports in 1970-2002 was quite large and contributed about 43% to Indonesian government revenue (Dartanto, 2013). Moreover, at that time world oil prices experienced an increase which had a direct impact on state revenue from oil rent. An increased state revenue can provide an opportunity for the government to increase government expenditure because of the need to enhance economic performance surplus state budget (Liu, Saleem, Al-Faryan, Khan, & Zafar, 2022).

Table 1. Government revenue and expenditure of oil rent in 2000-2010 (in billion of USD)

Revenue and spending	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Oil rent	16,1	14,3	10,8	11	13,5	14,3	19,5	15,3	22,4	12,2	16

Fuel Subsidy	9,5	9,4	4,3	4,1	8,6	9,9	6,2	7,6	10,8	3,1	6,2
percentage of fuel subsidy to oil rent	59,01	65,73	39,81	37,27	63,70	69,23	31,79	49,67	48,21	25,41	38,75
Crude oil price (USD/barrel)	29	25	22	29	34	53	64	72	97	62	80
oil lifting cost (thousand barrel per day)	1405	1273	1320	1092	1072	999	1000	899	931	944	954

Source : world bank

Table 1 shows that the Indonesian government has spent an average of 52.8% of its oil revenue or rent per year on fuel subsidy. Following the rise and fall in oil prices will be the volatiliyu of oil rent, then government responds by adjusting the amount of fuel subsidy. As seen during the 2008 global financial crisis, a sharp increase in oil prices of 25 USD was followed by an increase in oil revenue from 15.3 USD to 22.4 USD. Likewise with subsidy which is adjusted with the increase in oil prices from 7.6 USD to 10.8 USD. Of course, the value of the fuel oil subsidy which has a large proportion will affect the total government expenditure because it absorbs most of the state budget and ultimately results in fiscal pressure.

Oil export activities can increase oil revenues but on the other hand oil import activities amid the large domestic energy demand will increase government expenditure (Solaymani, 2018). With the high value of oil exports, the there will be extra non-tax income from the tax and profit-sharing revenues. from oil rent but government expenditure will also increase to subsidize fossil fuel energy due to the increasing of its needs (Nurfatriani, Sari, Saputra, & Komarudin, 2022). This is what makes it an important object to study. This study aims to analyze short and long term relationship between fossil fuel energy consumption, oil rent, and government expenditure.

Literature Review

Some studies had examined the effect of oil rent and price such as Eltony & Al-Awadi (2001) for the case of Kuwait, and Olomola & Adejumo (2006) for Nigeria case. Unfortunatelly, only some studies which include government expenditure in the analysis such as the study of Jbir & Zouari-Ghorbel (2009) for the case of Tunisia. Farzanegan & Markwardt (2009) for the Iranian economy. Tijerina-Guajardo & Pagán (2003) for the case of Mexico, and Esfahani, Mohaddes, & Pesaran, (2009) for the case of Iranian economy in the long run. Another studi of Hesami, Rustamov, Rjoub, & Wong, (2020) analyzed the response of fiscal in Middle Eastern countries to oil revenue or rent fluctuation.

Oil rent plays an important role in the government revenue (Mohammed, Karimu, Fiador, & Abor, 2020). by creating a model that links slow growth with the inverse relationship between natural resources and growth rate with government expenditure (Erum & Hussain, 2019). lowering costs is essential to obtaining significant economic success and performance the level

and volatility of government expenditure (Migkos, Sakas, Giannakopoulos, Konteos, & Metsiou, 2022).

Tijerina-Guajardo & Pagan (2003) explain that if country relies heavily on oil revenue in government expenditure, its economic condition will also depend heavily on the changes of world oil prices which will automatically reduce oil rents. Uncertain declines in oil revenues will lead to fiscal imbalances. Gochberg & Menaldo, 2022) explains that government revenue from oil rent is often overestimated and misused. In addition, future expectations of income that are too high and then do not match the realization of income will increase the fiscal deficit.

Classical economic theory explains that abundant Natural resources can be advantageous impact on the economy (Kronenberg, 2004). Also, classical economists argue that natural resource is one of the top ten influential factors influencing economic growth in several empirical studies (Doppelhofer, Miller, & Sala-i-Martin, 2004). On the other hand, many According to studies, natural resources abundance has a negative correlation on the economy, for example the study of Sachs & Warner (1995), and Sala-i-Martin (1997). This situation is also known as "the paradox of plenty". The study of Kronenberg (2004) found that natural resource abundance in developing countries of Eastern Europe is associated with slower economic growth. Likewise, the study of Sachs & Warner (1995) found that almost all countries economic growth occurs when natural resources are abundant. that tends to stagnate since the early 1970s. Gylfason (2001) also found that Long-term economic expansion is typically slower in some rich natural resources countries.

Alfaki & El Anshasy, (2022) argue that the biggest issue with dependence is connected to the erratic nature of oil prices and the dwindling supply of Oil rent is very volatile due to changes in world oil prices. On the other hand, oil as non-renewable energy will continue to decrease and even its reserves will be depleted over time. Therefore, the sale or exploitation of oil will not always be profitable (Gelb, 1988). Oil industry analysts distinguish oil reserves into two, namely proven reserve and probable reserve. Proved reserves are reserves that have been and are expected to be mined now, within the last five years, and probable reserves are those that have been discovered but have been found but have not yet been used for either technical or economic reasons (Pollo, Alexandrino, Augusto, & Hantao, 2018)

In the fulfillment of the energy needs of each country, of course, it is not only supplied from within the country but also from other countries, so it is necessary to carry out the international trade. The price difference between world and domestic oil prices is often very unequal, so in this case the government must provide subsidies or compensation through government expenditure (Schaffitzel, Jakob, Soria, Vogt-Schilb, & Ward, 2020). This causes energy consumption growth to be faster quicker than economic expansion. Alternatively put In other words, the large energy subsidies result in very excellent energy efficiencies in these nations (Bildirici, Castanho, Kayıkçı, & Genç, 2022). High levels of fossil fuel energy consumption as a result of Some researchers predict that Iran will eventually experience price distortions that will convert it from a net exporter to an importer (Couharde & Mouhoud, 2020).

Energy subsidy patterns must be reformed to generate broad support and generate broad benefits. Reasonable The cost of living of individuals will be significantly impacted by an increase in energy and the elimination of subsidies. will have a significant impact on people's cost of living

unless another fiscal or social action is taken (Husaini, Puah, & Lean, 2019). The social impact of rising energy prices on various low- and middle-income societies can be mitigated by redistributing some of the increased government revenues through discrete transfers to low-income societies (Taghizadeh-Hesary, Rasoulinezhad, Shahbaz, & Vo, 2021).

Research Method

This study was conducted in Indonesia to analyze the relationship between oil rent, energy consumption, and government expenditure. This study used annual data obtained from the publication of the world bank. The data analysis method used is VECM. Modeling using VECM is based on time series data which is not stationary but cointegrated. If it the projection is made It will make mistake regression results when using non-stationary data. (Gujarati, 2004). If the If spurious regression is interpreted incorrectly, the analysis's findings will be incorrect, that would lead to poor conclusions. being taken so that the policies made will be wrong.A unit root Test is utilized to test the constancy the information. It used Augmented Dickey-Fuller (ADF). If ADF test statistic value is less than the critical value for the MacKinnon table with db = n - k, where k = number of parameters and n = number of observations, H_0 is accepted or the data are nonstationary. Conversely, if the ADF test higher worth than all of the MacKinnon table important value, so H_0 can be rejected or the data can be concluded to be stationary. Another important aspect of VAR estimation model testing is determining the lag of System VAR. An ideal lag is required to record the impact of person changes in the VAR system. There are several criteria using methods like Akaike's to calculate the ideal latency AIC, also recognized as Schwartz's Information Criterion (SCI), Hannan Quinn, Final Prediction Error (FPE), and (HQ).

A cointegration test is used to assess whether variables have a long-term relationship, whether they are independent or dependent. Cointegrated variable is a variable that does not contain a unit root and does not have an intercept (Wardhono, 2004). This study uses the Johannes test to find cointegration on variables. Granger causality is a test used to see causality or reciprocity between two variables so that it can be seen whether the two variables statistically influence each other (two-way or reciprocal relationship), have a unidirectional relationship or have no relationship at all (Gujarati, 2004). The the VECM concept an formula with each variable acting as the dependent variable. A feature of VECM is that the model includes an ECT component, or error correction term. The VECM's standard form model such as the dimensions of lag 1 (p-1) is:

$$\Delta yt = \alpha e_{t-1} + Q_1 \Delta y_{t-1} + Q_2 \Delta y_{t-2} + \cdots + Q_p \Delta y_{t-p+1} + s_t \qquad (1)$$

Where $e_{t-1} = Y_{t-1} - (\varphi + \omega X_{t-1})$

Δy_t : 1st derivative vector of dependent variable

Δy_{t-1} : 1st the dependent variable's derivative vector with first lag

e_{t-1} : inaccuracy resulting from the Y-X regression equation at lag-1

s_t : remaining triangle

α : matrix of cointegration constants

β_i : coefficient matrix of required element -i, where i = 1, 2, ..., p

After estimating the VECM model, we need to explain the structures produced by the model. We could shape the role of the impulse response (IRF)to describe consequently its model dynamic structure and determine the shocks effects among variables. In other words, IRF represents the shock behavior of one variable over another at certain period of time, so the length in terms of the dependent variable effect on the shock in the mistake phrase using the values of the standard deviation of the VECM method (Gujarati, 2004). Forecast error variable decomposition (FEVD), also referred as variance decomposition, is a complex mechanism of the Vector error correction model that divides different possibilities variation. VD was performed then IRF test, however unlike VD, was associated with shifting of shock effects to other variables in current and future period of time.

Result and Discussion

In this study, doing a unit rest on the data from three variables is the first step in the data analysis process. Based on data processing, Results are displayed in a table 2.

Table 2. Unit root check

Variable	Alpha	level		1st different	
		Stat ADF	p-value	Stat. ADF	p-value
Oil Rent	5%	-4.492	0.0023	-3.889	0.0089
Energy Consumption	5%	-0,591	0.8508	-6.366	0.0001
Government expenditure	5%	-1.053	0.7127	-3.287	0.0303

Based on Table 2 it can be seen that the oil rent, energy consumption and government expenditure data are data containing unit roots at the level or not staying put at level . It can be seen that what the unit root test revealed, the value of of the ADF statistic for the energy consumption and government expenditure variables are greater than $\alpha = 5\%$, this means that H_0 is accepted, which means that the data is station or there is unit root in the data Although the unit root test on oil rent has a statistical p-value of ADF smaller than $\alpha = 5\%$ which means that the data is stationary, but if one of the variables data is not stationary then the other variable data must also be tested by unit root at the same level so that Oil rent data will also be tested by unit root at the 1st different level with other variables that are not stationary.

The first unit root test's outcome showed different level indicate that all variable data have an ADF statistical p-value smaller than $\alpha = 5\%$ so that H_0 is rejected, which imply that there is no unit root in the data or is stationary. Thus, the oil rent, energy consumption, and government expenditure variables are initially non-stationary at first different. Before the cointegration test, the optimal amount of lag must be determined. The results of the optimal lag test demonstrate that Final Prediction Error (FPE), Akaike Information Criterion (AIC), Schwarz Information Criterion (SCI), and Hannan Quinn (HQ) indicators indicate that the optimal lag is 1. Then, before conducting further analysis, it is necessary to determine whether the model is stable has been given at first difference and lag-1. The AR roots able output in Table 2 indicates that the model is stable, which is characterized by a modulus value that is less than 1 (one) so that a cointegration test can be performed to determine the analytical method to be used.

Table 3. Stability test output

Root	Modulus
0.891604 - 0.153203i	0.904671
0.891604 + 0.153203i	0.904671
0.576920	0.576920

Cointegration test result for lag 1 of oil rent, energy consumption, and government expenditure variables using trace statistics is shown in Table 3.

Table 4. Cointegration test output

Unrestricted Cointegration Rank Test (Trace)				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.914571	49.25734	29.79707	0.0001
At most 1	0.240888	4.975985	15.49471	0.8114
At most 2	0.000838	0.015087	3.841466	0.9021

In Table 4 .The outcome of a hypothesis test employing trace statistics is evident. show that $p\ value$ is 0.0001 which is less than = 5%, The value of the trace statistics is 49.257 which is greater than 29.7979. In light of this, it can be said that there is just one cointegration equation.

It was decided to use the Granger Casualty Test to assess the causal relationship between the in this study. Table 4 shows the results, which show that ranger causality test results, oil rent has no causal relationship to government expenditure and conversely, with the probability of 0.888 and 0.604 which are greater than the alpha value of 0.05. Energy consumption also does not have causal relationship with government expenditure and conversely, with probability values of 0.399 and 0.276 which are greater than the alpha value of 0.05. The same result also occurs in the casual connection between energy usage and oil rent, where the output of the granger accident test shows that energy consumption does not have a causal relationship with oil rent and conversely, with probability values of 0.178 and 0.9681.

Table 5. Granger causality test output

Null Hypothesis:	Obs	F-Statistic	Prob.
OIL_RENT does not Granger Cause GOV_EXPEN	19	0.11971	0.8881
GOV_EXPEN does not Granger Cause OIL_RENT		0.52111	0.6049
ENERGY_CON does not Granger Cause GOV_EXPEN	19	0.98069	0.3994
GOV_EXPEN does not Granger Cause ENERGY_CON		1.40989	0.2768
ENERGY_CON does not Granger Cause OIL_RENT	19	1.95093	0.1789
OIL_RENT does not Granger Cause ENERGY_CON		0.03255	0.9681

VECM Estimation :

D(Oil_Rent) = - 0.749619287312 (Oil_Rent(-1) + 0.352825548916 gov_Expen(-1) + 0.63892846873 energy_Con(-1)* - 46.3159558962) - 0.0318392096759d(Oil_Rent(-1)) + 0.439639805563d(Gov_Expen(-1)) + 0.138429349148d(Energy_Con(-1)) - 1.17473371299

D(Gov_Expen) = 0.0614314662751(Oil_Rent(-1) + 0.352825548916gov_Expen(-1) + 0.63892846873energy_Con(-1) - 46.3159558962) + 0.0627494150301d(Oil_Rent(-1)) + 0.0699865417173d(Gov_Expen(-1)) - 0.232332299556d(Energy_Con(-1)) + 0.431035206219

D(Energy_Con) = - 0.00925598824052(Oil_Rent(-1) + 0.352825548916gov_Expen(-1) + 0.63892846873energy_Con(-1) - 46.3159558962) - 0.00168097477478d(Oil_Rent(-1)) + 0.121020809728d(Gov_Expen(-1)) - 0.419232171587d(Energy_Con(-1)) + 1.2416882291

Based on the above model, Energy Consumption has a significant positive causality relationship with oil rent with a coefficient of 0.638 so an increase in energy consumption of one unit will increase oil rent by 0.638 units in the long run. However, other variables do not have a significant causal relationship.

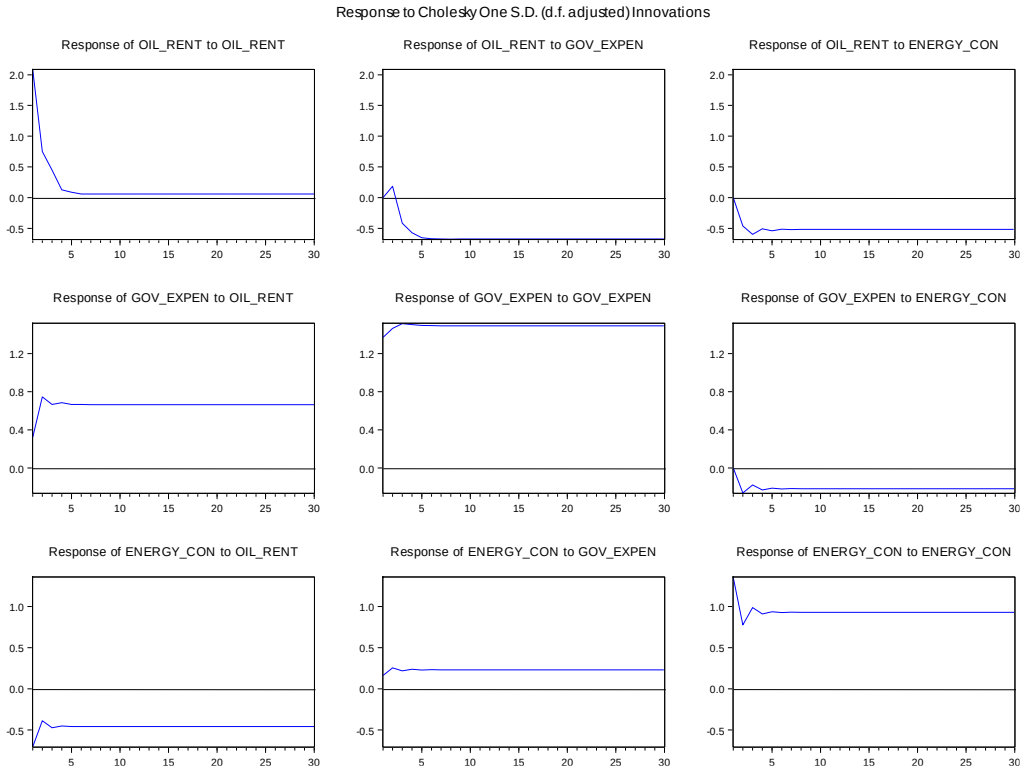

Figure 1. Impulse Respons Output

When conducting an impulse response analysis, impulse response function (IRF). The results of the IRF plot can be seen in Figure 1. It can be seen that there are 9 IRF plots for the next 30 periods, which visually explain a response of varible to other variables that arise due to a shock of 1 standard deviation either from its variable or other variables. Based on Figure 1, the IRF analysis of oil rent response for the next 30 periods shows that oil rent response from the shock of itself tends to be high in the first period but has negative trend until the 6th period. This means that oil rent shock to itself tends to weaken until 30th period and begin to stabilize and stagnate in the 7th to 30th period. Meanwhile, the response of oil rent to government expenditure shock is increased until the 2nd period but after the 2nd to 5th period it decreased, which means its response weakens. The response to oil rent to government expenditure shock begin to stabilize and stagnate in the 6th until 30th period. On the response of oil to the instruction by hand rent to energy consumption shocks has a negative trend until the 7th period, meaning that its response weakens. However, after the 7th period, its response begin to stabilize and stagnate until the 30th period.

The IRF analysis of government expenditure response for the next 30 periods shows that the government expenditure response to the shock of itself is very high and has a positive trend until the 5th period, meaning that the response is strengthening. After the 5th period, the response begin to stabilize and stagnate until the 30th period. However, the government expenditure response to the oil rent shock has a positive trend until the 5th period and begin to stabilize and stagnate until the 30th period. On the other hand, the government expenditure response to energy

consumption shock has a negative trend until the 4th period, meaning that its response tends to weaken. Its response also begin to stabilize and stagnate in the 5th period to the 30th period. The IRF analysis of the energy consumption response for the next 30 periods shows that the energy consumption response to the shock of itself is quite high but has a negative trend until the 4th period, meaning that its response tend to weaken. However, it also begin to stabilize and stagnate in the 8th untill 30th period. Energy consumption response to oil rent shock has positive trend until the 5th period, meaning that it is strengthening before finally it is stable and stagnant until the 30th period. On the other hand, the response of energy consumption to government expenditure shock tends to fluctuate until the 7th period before finally becoming stable and stagnant until the 30th period.

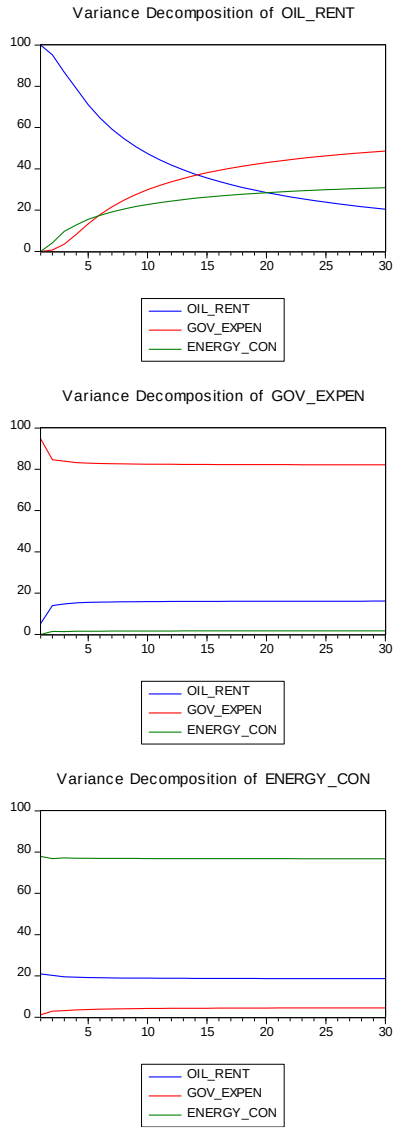

Figure 2. forecast error decomposition variance (FEDV) output

Figure 2 shows the summary of FEDV analysis result for each variable. the outcome of the FEDV analysis for oil rent something in the sentence , shocks to itself cause 95% fluctuations and become the largest contributor to the changes in oil rent, but in the long run, they decline until the 30th period, and in the end, the changes in oil rent is contributed by government expenditure by 49% and energy consumption by 31 percent which are greater than the oil rent contribution which is only 20% in the 30th period.

The results of the FEDV analysis for government expenditure show that the change in government expenditure is more influenced by its variable than oil rent and energy consumption, and tends to be stable and stagnant since the 2nd period, with respectively contributions of 85%, 14%, and 1%. The same evidence happened to the results of the FEDV analysis for energy consumption which show that the change in energy consumption is more influenced by its variable than other variables, namely oil rent and government expenditure, and tend to be stable and stagnant since the 3rd period, with respectively contributions of 77%, 20%, and 3%.

Conclution

There is a tangential connection between energy use and oil rent in Indonesia, but There is no passing connection between variables and this indicates that the higher the energy consumption in Indonesia, the higher the profit level in the oil and gas sector in Indonesia. Energy consumption has no impact on government expenditure in Indonesia. So that the policy of limiting the consumption of fossil fuels such as environmental taxes does not significantly suppress the state's development from government expenditure and can actually increase state revenues so that it has the potential to increase development. Suggestions for future research is to include including environmental tax variables to measure potential environmental tax revenues in Indonesia.

References

Alfaki, I. M. A., & El Anshasy, A. A. (2022). Oil rents, diversification and growth: Is there asymmetric dependence? A copula-based inquiry. Resources Policy, 75(1), 1-9.https://doi.org/10.1016/j.resourpol.2021.102495

Alim, M. B., Setiyantono, A. P., & Zakiah, S. N. (2021). Analysis of the relationship between Tax Revenue and Government Expenditures in Indonesia. In Journal of International Conference Proceedings (JICP), 4(3),62-68.https://doi.org/10.32535/jicp.v4i3.1299

Arroyo M, F. R., & Miguel, L. J. (2020). The role of renewable energies for the sustainable energy governance and environmental policies for the mitigation of climate change in ecuador. Energies, 13(15), 1-18.https://doi.org/10.3390/en13153883

Berument, H., Ceylan, N.B., & Dogan, N., (2010). The impact of oil price shocks on the economic growth of the selected MENA countries. The Energy Journal,31 (1), 149–176. https://doi.org/10.5547/ISSN0195-6574-EJ-Vol31-No1-7

Bildirici, M. E., Castanho, R. A., Kayıkçı, F., & Genç, S. Y. (2022). ICT, energy intensity, and CO2 emission nexus. Energies, 15(13), 1-15.https://doi.org/10.3390/en15134567

Couharde, C., & Mouhoud, S. (2020). Fossil fuel subsidies, income inequality, and poverty: Evidence from developing countries. Journal of Economic Surveys, 34(5), 981-1006.https://doi.org/10.1111/joes.12384

Dartanto,T. (2013), Reducing fuel subsidies and the implication on fiscal balance and poverty in Indonesia: A simulation analysis, Energy Policy, 58 (1), 117-134. https://doi.org/10.1016/j.enpol.2013.02.040

Doppelhofer, G., Miller, R.I., & Sala-i-Martin, X., (2004). Determinants of long-term growth: a Bayesian Averaging of Classical Estimates (BACE) approach. American Economic Review, 94 (4), 813–835. http://doi.org/10.1257/0002828042002570

Eltony, M.N., & Al-Awadi, M., (2001). Oil price fluctuations and their impact on the macroeconomic variables of Kuwait: a case study using a VAR model. International Journal of Energy Research 25(1), 939–959. https://doi.org/10.1002/er.731

Erga, Y. K., & Kasikoen, K. M. (2021). Factors affecting the policy for determining the retail selling price of gas oil in Indonesia. International Journal of Research in Business and Social Science, 10(6), 383-393.https://doi.org/10.20525/ijrbs.v10i6.1365

Erum, N., & Hussain, S. (2019). Corruption, natural resources and economic growth: Evidence from OIC countries. Resources Policy, 63(1), 1-9.https://doi.org/10.1016/j.resourpol.2019.101429

Esfahani, H.S., Mohaddes, K., & Pesaran, M. H., (2009). Oil exports and the Iranian economy. The Quarterly Review of Economics and Finance,53(3),221-237.https://doi.org/10.1016/j.qref.2012.07.001

Farzanegan, M.R., & Markwardt, G., (2009). The effects of oil price shocks on the Iranian economy. Energy Economics, 31 (1), 134–151. https://doi.org/10.1016/j.eneco.2008.09.003

Gelb, A.H., (1988). Oil windfalls: blessing or curse?. Oxford : Oxford University Press

Gochberg, W., & Menaldo, V. (2022). To rent or not to rent? Mechanics, causes and consequences of Ricardian and Quasi-rents in the oil industry. Resources Policy, 78(1), 1-8.https://doi.org/10.1016/j.resourpol.2022.102826

Gujarati, D. (2004). Basic Econometrics, 4th edition. Mc Graw-Hill: New York.

Gylfason, T., (2001). Natural resources, education, and economic growth. European Economic Review 45 (4–6), 847–859

Hesami, S., Rustamov, B., Rjoub, H., & Wong, W. K. (2020). Implications of oil price fluctuations for tourism receipts: The case of oil exporting countries. Energies, 13(17), 1-17.https://doi.org/10.3390/en13174349

Husaini, D. H., Puah, C. H., & Lean, H. H. (2019). Energy subsidy and oil price fluctuation, and price behavior in Malaysia: A time series analysis. Energy, 171(1), 1000-1008.https://doi.org/10.1016/j.energy.2019.01.078

Ichsan, M., Lockwood, M., & Ramadhani, M. (2022). National oil companies and fossil fuel subsidy regimes in transition: The case of Indonesia. The Extractive Industries and Society,11(1),1-10.https://doi.org/10.1016/j.exis.2022.101104

Jbir, R., & Zouari-Ghorbel, S., (2009). Recent oil price shock and Tunisian economy. Energy Policy 37 (1), 1041–1051. https://doi.org/10.1016/j.enpol.2008.10.044

Krane, J., & Idel, R. (2021). More transitions, less risk: How renewable energy reduces risks from mining, trade and political dependence. Energy Research & Social Science, 82(1), 1-12.https://doi.org/10.1016/j.erss.2021.102311

Kronenberg, T., (2004). The curse of natural resources in the transition economies. Economics of Transition, 12 (3), 399–426. https://doi.org/10.1111/j.0967-0750.2004.00187.x

Liu, H., Saleem, M. M., Al-Faryan, M. A. S., Khan, I., & Zafar, M. W. (2022). Impact of governance and globalization on natural resources volatility: The role of financial development in the Middle East North Africa countries. Resources Policy, 78(1), 1-8. https://doi.org/10.1016/j.resourpol.2022.102881

Martins, F., Felgueiras, C., Smitkova, M., & Caetano, N. (2019). Analysis of fossil fuel energy consumption and environmental impacts in European countries. Energies, 12(6), 1-11.https://doi.org/10.3390/en12060964

Migkos, S. P., Sakas, D. P., Giannakopoulos, N. T., Konteos, G., & Metsiou, A. (2022). Analyzing Greece 2010 Memorandum's Impact on Macroeconomic and Financial Figures through FCM. Economies, 10(8), 1-19.https://doi.org/10.3390/economies10080178

Mofijur, M., Fattah, I. R., Alam, M. A., Islam, A. S., Ong, H. C., Rahman, S. A., Najafi,G., Ahmed,S.f.,Uddin,A., & Mahlia, T. M. I. (2021). Impact of COVID-19 on the social, economic, environmental and energy domains: Lessons learnt from a global pandemic. Sustainable production and consumption, 26(1), 343-359.https://doi.org/10.1016/j.spc.2020.10.016

Mohammed, J. I., Karimu, A., Fiador, V. O., & Abor, J. Y. (2020). Oil revenues and economic growth in oil-producing countries: The role of domestic financial markets. Resources Policy, 69 (1), 1-8.https://doi.org/10.1016/j.resourpol.2020.101832

Nurfatriani, F., Sari, G. K., Saputra, W., & Komarudin, H. (2022). Oil Palm Economic Benefit Distribution to Regions for Environmental Sustainability: Indonesia's Revenue-Sharing Scheme. Land, 11(9), 1-24.https://doi.org/10.3390/land11091452

Olomola, P.A., & Adejumo, A.V., (2006). Oil price shock and macroeconomic activities in Nigeria. International Research Journal of Finance and Economics 3, 28–34.

Pollo, B. J., Alexandrino, G. L., Augusto, F., & Hantao, L. W. (2018). The impact of comprehensive two-dimensional gas chromatography on oil & gas analysis: Recent advances and applications in petroleum industry. TrAC Trends in Analytical Chemistry, 105(1), 202-217.https://doi.org/10.1016/j.trac.2018.05.007

Sachs, J.D., & Warner, A.M., (1995). Natural resource abundance and economic growth. National Bureau of Economic Research, Working Paper No. 5398.

Sala-i-Martin, X., (1997). I just ran two million regressions. American Economic Review 87 (2), 178–183.

Sasongko, B., Widarni, E. L., & Bawono, S. (2021). MONETARY OUTLOOK: INTERNAL VALUE OF MONEY STABILITY COMPARISON IN USA. JBFEM, 4(1), 9-18. https://doi.org/10.32770/jbfem.vol49-18

Schaffitzel, F., Jakob, M., Soria, R., Vogt-Schilb, A., & Ward, H. (2020). Can government transfers make energy subsidy reform socially acceptable? A case study on Ecuador. Energy Policy, 137(1), 1-10.https://doi.org/10.1016/j.enpol.2019.111120

Sewandono, R. E., & Munandar, A. I. (2021). Covid-19 and its effect on the supply and demand of fossil fuel energy: Indonesian context. IOP Conference Series: Earth and Environmental Science, 753(1),1-8. https://doi.org/10.1088/1755-1315/753/1/012023

Solaymani, S. (2018). Social and economic aspects of the recent fall in global oil prices. International Journal of Energy Sector Management,13(2),258-276.https://doi.org/10.1108/IJESM-06-2017-0006

Taghizadeh-Hesary, F., Rasoulinezhad, E., Shahbaz, M., & Vo, X. V. (2021). How energy transition and power consumption are related in Asian economies with different income levels?. Energy, 237(1), 1-15.https://doi.org/10.1016/j.energy.2021.121595

Tijerina-Guajardo, J.A., & Pagán, J.A., (2003). Government spending, taxation, and oil revenues in Mexico. Review of Development Economics 7, 152–164. https://doi.org/10.1111/1467-9361.00182

Umar, M., Su, C. W., Rizvi, S. K. A., & Lobonț, O. R. (2021). Driven by fundamentals or exploded by emotions: Detecting bubbles in oil prices. Energy, 231(1), 1-10.https://doi.org/10.1016/j.energy.2021.120873

Viphindrartin, S., Wilantari, R. N., Prabowo, B. H., Sasongko, B., & Priyanto, E., & Bawono,S. (2021). Transformation of Money. Singapore : Triple Nine Communication

Wardhono, A. (2004). Mengenal Ekonometrika Teori dan Aplikasi. Edisi Pertama. Jember : Fakultas Ekonomi Universitas Jember.

Yanto,D.D.G.F. (2022). Green Economy and Sustainable Development in Indonesia: ARDL Approach. Tamansiswa Accounting Journal International,4(1),9-15.https://doi.org/10.54204/TAJI/Vol412022002