# Impact of Trump's Phenomenon, Brexit, & Oil Prices Fluctuation Toward Indonesia's Economic Growth

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| **Article Information** | **Abstract** |
|---|---|
| | This paper tries to find impact of global uncertainties toward Indonesia's economic growth. Several problems which will be discussed in this paper namely: impacts of President Donald Trump's policies, Brexit, and uncertainty regarding crude oil prices. It conducted from 1st quarter of 2010 until 1st quarter of 2017. The method of analysis used here is VECM (Vector Error Correction Model). We use dummy variable to capture the specific change of economic policies when Brexit and Trump's emergence appear as the major issues which attract attention around the world. We consider these as the uncertainties which influence global society. Based on the result, there is positive impact of economic policy uncertainty in UK in the long-run. When Brexit was taken into account, in the short-run, it also has positive impact toward Indonesia's economic growth. Meanwhile economic policy uncertainty in the US generates negative impact on Indonesia's economic growth. But Trump's emergence in the US presidency produces positive impact in the short-run. Oil price fluctuation as the latest shock in the global context has positive significant impact on Indonesia's economic growth. We consider these results as ways to find breakthrough in understanding of changing policies from developed countries; that not all of them will contribute to negative matters. The conjecture, hunch, and any speculation must be postponed due to lack of convincing proofs. |

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## INTRODUCTION

As we know when the elected US President Donald John Trump campaigned provocatively, international public has worried, and made sure that all changes done by him must be anticipated. It is clear enough that policy to mass deportation of illegal immigrants in America will effect seriously toward the composition of labor force. Nowadays there are many employments which get benefit from the illegal workers, especially informal jobs. To deport them with forcible way will exhaust energy and span long times, and also economically many industries will get bankruptcy. Analysis of Moody's—one of the institution of economic think-thank—predicted that triumph of throwing back the illegal immigrants will take 8 years (Zandi *et al.*, 2016).

Today we see that Trumps has launched the temporary prohibition of entering US border for some Middle East inhabitants which come from suspected clutch of terrorism: Iran, Iraq, Libya, Sudan, Somalia, Syria and Yemen. This policy indeed can be seen as a way to protect American people from radicalism ideology, but also can induce some unproductive isolation and horrible image. If we want to calculate the impact, maybe there are many American losses than what they can get. This overweening tendency surely has been addressed by Trump previously when he campaigned for the election, by building wall of barrier between USA – Mexico border. Because of lack of proofs against the illegal immigrants, that contra-productive policy finally has never been issued.

In other side, UK divorce with European Union is wallop for the union because the country actually did not get many benefits. Choosing Brexit significantly will impact the partners of trade around the world. Many economists estimate UK's economic growth will be lower, and investment in European Union also weakens. Of course UK starts since now to renegotiate partnership with other nations in order to keep the potential consumers' trust.

We also now must face fluctuation of oil prices seriously. Current price of the black gold price is about $50 per barrel. The low price of crude oil has made economy of oil exporters got into turmoil, like Venezuela. It is because that nation has made profit of oil sector as tools to subsidize people welfare. When oil price turns down, welfare's society also decreases. Fortunately Indonesia has been out of dependence zone on crude oil benefits, so that when the price fluctuates uncontrollably we did not get the impact. However, some Indonesia's partners in trade cannot escape from the impact, which unfortunately in turn will contribute to changing in our economy. This indirect impact of the oil fluctuation basically something we must consider seriously. Any riots in Middle-East countries which are exporters of oil appear cannot lift back the price of that black gold, due to huge exploration out of those countries has been successful.

By considering these three problems above, this paper aims to scrutinize any matters which will alter global economy, especially the impact toward Indonesian economic growth. Nowadays we cannot close our eyes that life of human being is interconnected without limits, and rigid boundary, so that any phenomenon happening in one region can determine condition of many people in the other side.

This research tries to enrich discourse of policies' impact from developed nations on developing country's economic growth. This study conducted to show that some controversial issues regarding new presidency in US does not result some messy troubles which worried by some experts. Besides, it also wants to contribute to our understanding about the importance of maintaining economic security when facing uncertainties which caused by global matters. It seems true that some terrifying minds should be anticipated while we try to find the alternative solution to mitigate real problems which will be met. Some experts have learnt the possibilities regarding Donald John Trump presidency several months earlier before he won the election. They mostly show pessimism about the future of USA. Trump is known often address provocatively sensitive issues and his proposals to develop USA seem less elegant. For instance,

Trump wanted to cut special taxes for companies and individual. Even the tax of estate and gift will be deleted as well. But he wanted to increase income tax. He has argument that if country wants people to live prosperously the first thing what must be done is to provide smooth regulation of investment. Trump wanted to actualize it by pushing private sectors in order to be able to expansion aggressively. This is not good policy for some people.

In this research we start an analysis by the assumption that Donald Trump since his appearance has caused "trouble" in political communication. Not only in USA national context, but also triggers many speculations in global scale. Anxieties of many stakeholders around the world who feel their interest must be distracted by Trump's speech cannot be neglected. They surely will launch retaliation against Trump, in this matter of course against official US' policies.

In other side, the discourse of UK discharging from European Union (EU) also triggers many speculations. All this time UK is believed as one of the strongest nation in EU. Discharging of UK will cause instability of regional economy, and their trade partners. In this matter, Indonesia also will face the consequences. Both Trump's policies and Brexit have serious influence which affects many developing economies.

We intuit that impact of policy changes in those two countries will hamper Indonesia's growth through uncertainty. We use US' index of Economic Policy Uncertainty (USEPU), and UK's index of economic policy uncertainty (UKEPU) as proxies for those policy changes. This idea follows Bloom (2017) who analyzed the impact of uncertainty caused policy changes in US and UK, which must be faced by Australia.

Bloom (2017) draws several uncertainties in global context which originated from abroad. It is found that total shock which must be faced by Australia economy, for about 90 percent come from abroad, including the latest issue in 2016, namely hot debate and discourse of Brexit and emergence of Donald John Trump in US politics. Bloom found that the impact of uncertainty toward economic growth, alleged strongly originated from investment channel. It is because firms have forward-looking behavior, rather than consumers. Therefore they will try to adjust the uncertainty with cautious behavior in deciding trade route. Even they will reduce investment, decreasing to share dividend, and cutting debt. It means that Trump and Brexit are bad factors for Australian economy.

Interesting feature proposed by Cumming and Zahra (2016) who predicted that UK discharging from European Union will generate some ease. For instance, UK companies can cooperate freely by making beneficial agreement mutually with their partners in trade from North America. Barriers of trade, regulation, and tariff imposed by EU will be gone, so that transaction becomes easier. But in other side, some entrepreneurs also will face several considerations with new policies, due to declining value of poundsterling. Cumming and Zahra (2016) illustrated that declining of GBP will cause the weakness of demand for products from exporters to UK. This in turn will produce the entrepreneurs to think hard to determine whether UK is a better place for businesses. There will be tendency that they want to move their businesses to other places. Such big exodus of entrepreneurs can make London loss its prominent role. Even it is not impossible the worsen impact which will be faced by UK will also spreads to US. So there are negative and positive impacts for English people themselves when Brexit takes place.

Beeson and Lee-Brown (2016) valued that triumph of Trump in presidential election will add cooperation uncertainty in East Asia regional. This matter emerges because of influential competition between US and China is very hard to be described. US is eager to maintain TPP (Trans-Pacific Partnership), meanwhile China has ambition to expand its influence via RCEP (Regional Comprehensive Economic Partnership). Trump urged in his campaign that he want to block import commodities from China, because he wanted to open expansion domestic industries. Of course what he said get applause directly from entrepreneurs who want

their business prospect becomes larger. But it is not good for bilateral US with China in the future.

Issue of uncertainty also comes from oil prices fluctuation. However, some researchers have interesting proofs regarding this matter. Abeysinghe (2001) conducted research from 1st quarter in 1982 until 2nd quarter in 2002, and concludes that oil prices fluctuation did not show the straight line in some regions. The impact is different for several countries of ASEAN, OECD, China, United States of America and Japan. Based on the analysis by using VARX method, we know that direct impact toward USA is negative. Meanwhile the indirect impact is also negative, although with enough stability rate at different stages. Interestingly, oil prices fluctuation's direct impact is positive toward Indonesia's and Malaysia's economic growth. It is contradictory with the indirect impact, which shows the negative sign.

Bernanke, Gertler and Watson (2004) found that increase of crude oil prices would worsen several USA's economic activities. Rise of world crude oil prices has negative relation with economic growth. Their research used VAR method, by using quarterly data from 1965 until 1995. According to them, one thing should be done by American government to overcome the negative impact of oil prices' rise is to lower interest rate at 900 basis points or to make it fixed for several times (Bernanke, Gertler & Watson, 2004).

In other side, Hamilton and Herrera (2004) stated that what Bernanke, Gertler and Watson (2004) found was invalid. They run re-calibration over the analysis. According to these two prominent economists, in the essay of three economists', the research should use VAR analysis which included more lags: between 12 until 16. This matter aimed to capture shock of world crude oil prices clearly. Hamilton and Herrera test again the data which used by Bernanke, Gertler and Watson (2004), and concluded that impact of oil prices' shock in decreasing US' economic growth was more tremendous than what they found (Hamilton and Herrera, 2004).

Clement, Jung and Gupta (2007) addressed that increase of crude oil prices influences negatively toward Indonesia's economic growth. Their research used CGE (Computable General Equilibrium), with data from 1994 until 2002. In their finding, there was a proof that reduction of subsidy would cause increase of oil prices among the domestic market, and also all costs of other economic sectors, which is being followed by decrease of consumer demands, amount of production, and people's income. It generated horrible condition. Their analysis showed that abolishment of oil subsidy at 1 percent generated drop of real output growth at 2%. In this context, oil price fluctuation must be anticipated through wise polices to sustain social welfare.

This research has advantages rather than other researches due to attempt to find relationship impact of uncertainty from two big countries (USA and UK) toward developing country such as Indonesia. The result of this study will add literature regarding uncertainty in the context of emerging market as the vulnerable economy.

**RESEARCH METHODS**

This research starts since 1st quarter 2010 until 1st quarter in 2017. We choose this period due to magnitude of problems caused by any changes conducted in those two countries (USA and UK) that have direct or indirect impact toward condition of other countries especially developing country like Indonesia. By reminding the difficulties to find precise proxy for policy variable of President Donald John Trump and Brexit, we consider to use dummy variable to show the starting of those uncertainties. Trump started his campaign since June 2016, and issue of Brexit getting hot since early 2016. We choose early 2016 for dummy variable as a cautionary act. These two events are uncertainty variables which we believe influence many countries around the world.

We use secondary data consisting of: Indonesian economic growth, Economic Policy Uncertainty (EPU) in US, Economic Policy

Uncertainty (EPU) in UK and world crude oil prices. All data are from Federal Reserve Bank of St. Louis, Economic Research Division, except data of Indonesian economic growth are taken from ADB (Asian Development Bank).

Due to time series data, so we analyze stationary data firstly. The result shows that all data not stationary at level, but at first difference. Table of analysis as follows:

**Table 1.** Test of Stationay

| Variable | t-statistic | Prob.* |
|----------|-------------|--------|
| GDP | -7.326403 | 0.0000 |
| OIL | -5.223693 | 0.0002 |
| UK's EPU | -4.758394 | 0.0008 |
| US' EPU | -6.235398 | 0.0000 |

Source: Author's Calculation

Detail table of calculation can be seen in appendix 1. The test of stationary is important to show that all data in the analysis cannot generate spurious regression, so that the result can be convincing estimation.

We use VEC Method which is development of VAR. Previously we test cointegration to find the long-run impact among the variables, before decide VEC or VAR method. It is proven that there are two cointegrations. Thus, VECM is chosen as the best way to analyze. The table of cointegration test can be seen in appendix 2. The VEC Model is following:

$$\Delta Y_t = \varphi_1 + \lambda_1 e_{t-1} + \gamma_{11}\Delta Y_{t-1} + \cdots$$
$$+ \phi_{1p}\Delta Y_{t-p} + \psi_{11}\Delta X_{t-1}$$
$$+ \chi_{11}\Delta Z_{t-1} + \tau_{11}\Delta T_{t-1} + \cdots$$
$$+ \psi_{1q}\Delta X_{t-q} + \chi_{1r}\Delta Z_{t-r}$$
$$+ \tau_{1s}\Delta T_{t-s} + \theta_1 D1 + \varepsilon_{1t..}$$

$$\Delta X_t = \varphi_2 + \lambda_2 e_{t-1} + \gamma_{21}\Delta X_{t-1} + \cdots$$
$$+ \psi_{2q}\Delta X_{t-q} + \phi_{21}\Delta Y_{t-1}$$
$$+ \chi_{21}\Delta Z_{t-1} + \tau_{21}\Delta T_{t-1} + \cdots$$
$$+ \phi_{2p}\Delta Y_{t-p} + \chi_{2r}\Delta Z_{t-r}$$
$$+ \tau_{2s}\Delta T_{t-s} + \theta_2 D1 + \varepsilon_{2t}$$

$$\Delta Z_t = \varphi_3 + \lambda_3 e_{t-1} + \gamma_{31}\Delta Z_{t-1} + \cdots$$
$$+ \chi_{3r}\Delta Z_{t-r} + \phi_{31}\Delta Y_{t-1}$$
$$+ \psi_{31}\Delta X_{t-1} + \tau_{31}\Delta T_{t-1} + \cdots$$
$$+ \phi_{3p}\Delta Y_{t-p} + \psi_{3q}\Delta X_{t-q}$$
$$+ \tau_{3s}\Delta T_{t-s} + \theta_3 D1 + \varepsilon_{3t}$$

$$\Delta T_t = \varphi_4 + \lambda_4 e_{t-1} + \gamma_{41}\Delta T_{t-1} + \cdots$$
$$+ \tau_{4s}\Delta T_{t-s} + \psi_{41}\Delta X_{t-1}$$
$$+ \phi_{41}\Delta Y_{t-1} + \chi_{41}\Delta Z_{t-1} + \cdots$$
$$+ \psi_{4q}\Delta X_{t-q} + \phi_{4p}\Delta Y_{t-p}$$
$$+ \chi_{4r}\Delta Z_{t-r} + \theta_4 D1 + \varepsilon_{4t}$$

Where:

$e_{t-1}$ = $Y_{t-1} - \alpha - \beta X_{t-1} - \beta Z_{t-1} - \beta T_{t-1}$

or $e_{t-1}$ = *Residual* simple linear regression

$Y$ = Indonesia's GDP Growth

$X$ = Crude Oil Prices

$Z$ = UK's EPU (Economic Policy Uncertainty)

$T$ = US' EPU (Economic Policy Uncertainty)

$D1$ = Dummy Variable

$\gamma, \chi, \phi, \psi, \tau, \theta$ = Coefficient of each independent variables

$\varphi$ = Vector cointegration

$\Delta$ = symbol of first difference

$\varepsilon$ = error in VECM

In the first equation GDP is dependent variable. In the second, oil prices variable is dependent variable. The third post UK's uncertainty index as dependent variable. The fourth contains US' uncertainty index as dependent variable. In running this analysis we transform all data into natural logarithm to ease analysis.

## RESULTS AND DISCUSSIONN

Based on the empirical evidence that EPU (Economic Policy Uncertainty) both in UK and US has significant effect toward dependent variables. Full table of analysis can be seen in appendix 3. The estimation of VEC model in the long-run as follows:

**Table 2**.VECM Estimation with 2 Cointegration

| Dependent Variable : Crude Oil Prices (in first Cointegration) | | |
|---|---|---|
| Independent Variables | t-statistic | Coefficient |
| UK's EPU | -6.60152 | -10.94792 |
| US' EPU | 6.83593 | 14.58093 |
| | | |
| Dependent Variable: Indonesia's Economic Growth (in Second Cointegration) | | |
| Independent Variables | t-statistic | Coefficient |
| UK's EPU | 5.63520 | 0.928307 |
| US' EPU | -5.98606 | -1.268305 |

Source: Author's Calculation

Based on the estimation above, it appears that uncertainty in US and UK has significant impact on oil prices, and also on Indonesia's economic growth. This long-run analysis shows that the impact of UK toward oil prices is negative. Meanwhile impact of US is positive. It depicts that two countries launches different regulation in responding fluctuation of oil prices.

In other side, from the calculation we find positive impact of uncertainty in UK toward Indonesia's economic growth. It apparently should be noticed that many changed policies in the King Arthur's country has provided ease to some economic activities in Indonesia. It might because the changes are mainly to develop potential sectors, so that it benefits all. On other side, political situation in UK seem always stable. But the opposite impact occurs in US. USA is also partner of Indonesia in various economic agreements. However, uncertainty in the Uncle Sam's country triggers the weakness of Indonesia's economic growth. One of the problems generated from political disturbance and instability.

From the analysis in the short-run the calculation shows that dummy variable has positive impact toward Indonesia's economic growth. The detail estimation can be seen at appendix 3. It means policy change in UK, by introducing Brexit, and in USA by emerging President Donald Trump have positive significant effect on Indonesia's economic growth, due to optimism in both agendas. That effect is 0.03 percent. This also means that threats of those events cannot be proven.

In this context actually we can say that what UK's people and Trump did with their country by choosing those hot policies is like what we do for our nation. We can say that what they did are choices based on patriotism as love to their country. If they succeed to make their country more productive, and prosperous, it also influences their partners in many economic agendas to get gains, in trade or investment for example. Therefore, policy changes in other nations not always generate disrepute for international relation, even it is not impossible that it can induce better situation for all.

From the calculation result, it is also noted that the impact of Trump and Brexit toward crude oil prices, recorded significant positive effect at 0.20 percent. It means that policy changes in USA by emerging Trump and in UK by Brexit agenda will lift oil prices, because the demand for oil will increase as productivity rises. The more their economic activities rise, the more their needs for oil increase.

Interestingly, in the short-run, uncertainty in the two countries without Brexit and Trump's emergence cannot be drawn. Either EPU in UK or in US does not show significant impact. Nevertheless, its impact clearly influences toward oil prices. Uncertainty in UK influences positively oil prices at 0.60 percent in lag 1. The impact still appears in lag 3 at 0.32 percent. The uncertainty in US influences oil prices negatively at -6.68 percent in lag 1. Meanwhile the value changes to become -0.44 percent at lag 2, and continues to turn down at -0.24 percent in lag 3.

It is also interesting to be noticed that oil prices influence positively toward Indonesia's economic growth at 0.29 percent at lag 1. It increases in lag 2 at 0.31 percent, and decreases at 0.12 in lag 3. This positive impact due to Indonesia until now is still being exporter of oil, although not as much as in period of 1970s. Oil prices also affect UK's EPU, but negatively at -1.6 percent at lag 1, and -2 percent at lag 2. It means UK needs more the black gold to support many development agendas, which cannot be fulfilled by domestic production, so that the increase of oil price will influence negatively. In this analysis we cannot get influence of oil prices on US' EPU, so that it can be ignored.

From the estimation we also get the information that economic policy uncertainty in UK has negative significant impact toward US' economic policy uncertainty. Since first lag, namely at -1.39 percent, proceeds to -1.19 percent in second lag, and finally in the third lag at -0.75 percent. But it does not cause otherwise; US' EPU does not impact at all on UK's.

Analysis of impulse response shows that respond of GDP in facing shock of uncertainty in UK and US fluctuates well in every quarter. Table of analysis can be seen in appendix 4. In the first quarter, the shock of EPU in UK shows positive sign. However in 3th period it values negative. Then fluctuates rise and down continually until 44th period becomes negative. Then it becomes positive until quarter 48. Meanwhile shock of US' uncertainty in period 3 values negative, then rises and down again in 5th period. This shock is almost not different with UK's EPU. The fluctuation continues to move until 45th period where the value is positive, and then turns down again since period 46 until 48.

Shock of oil prices is drawn positive in the first period. But in the second period it becomes negative, and then fluctuates until 16th period gets positive value. Then since 17th period until 48th quarter the value is always negative. From this we must be aware that fluctuation of oil prices cannot be predicted, and the impact somehow unexpected. This finding can be alert that government of Indonesia must be ready to undertake special programs like to cut

dependence radically on fossil fuel, in order oil prices cannot contribute to alter sensitive compositions in economic agenda, especially if it is originated from indirect impact.

Result of analysis shows, that Indonesia's economic growth is affected very much by economic growth itself, then by UK's EPU, oil prices and finally by US' UPE. But in eighth period and forth until 48th period, we see that the contribution of UK's EPU rises and influences GDP more than other variables, including GDP itself. This signifies that economic growth in small open economy sometime cannot sustain in facing uncertainty from abroad, especially from developed countries. The detail result can be seen in appendix 5.

From the analysis we also get revelation that US' EPU is affected very much by UK's EPU, then oil prices. It shows that there is strong relationship between two countries regarding economic cooperation and also any consequences. The bilateral agreement sometimes produces unexpected impact and also interdependency between two countries. Which country too dependent upon the others is can be seen from the policies conducted by stakeholders of each other. Meanwhile UK's EPU is affected by UK's EPU itself, then by oil prices.

The worries which very often addressed by several analysts that triumph of Donald John Trump as 45th President of USA would cause troubles for Muslim countries, such as Indonesia, in fact apparently did not happen. It is clear that Indonesia is not one of the enemies of USA. This research clearly finds different result of previous works which illustrated the negative effect if Trump elected as President of US.

Trump basically does not consider all Muslim nations as threatens against US. Although recently anti-Islam sentiment apparently emerges from Trump's speeches, it did not support any anomalies of policies toward Indonesia. We can say that his targets were not Muslims of Indonesia who have been known hospitable, courteous, and friendly with all people around the world.

Indeed, one survey has been launched that recorded that the anxieties of US Muslim

induced by Trump campaign which is ostensible to hate Muhammad's religion have been culminated. Even one fifth of them have prepared plans what have to be done if situation is getting worse in USA. Trump's hatred campaign which he addressed to Muslim triggered terrifying thinking (http://m.republika.co.id). Donald Trump after he won election assigned a temporary ban to enter US zone for several inhabitants from countries which have been identified as clutch of terrorism: Iran, Iraq, Sudan, Libya, Somalia, Syria, and Yemen.

However, we have to consider other things, and not determine absolutely that Trump is suffering Islam phobia. There are many reasons we must doubt that tendency, especially when he visits to Saudi Arabia and speaks friendly with King Salman on 20th May 2017, to renegotiate bilateral relationship between two countries (https://m.tempo.co). It proved that what opposed by Trump are Islam terrorists and not Muslim as a whole. Interestingly, multilateral relation of US with several Muslim nations is getting strong, especially in combating terrorism around the world. We think Trump actually realizes profoundly the peace message of Islam, so that he can distinguish nicely what Islam and what terrorism is.

Changes of policies in UK, including Brexit, utterly did not induce negative impact to Indonesia's economic growth. Our research supports positive impact of Cumming and Zahra (2016). We have good reasons why it happens. All this time, people in UK want their country quit from European Union because there is no real benefit for them. UK paid in billion poundsterling as payment for membership. But what they get is not proportional. They just waste many resources to get nothing. Even there is conviction that Britain is just only an escape for some European people facing hardship in looking for jobs in their homeland. This matter clearly is problem especially due to labor force composition in UK.

In other side, supporters of EU reasoned that UK's security from terrorist attack can be eliminated and guaranteed, as UK is still of member of EU. This belief is very strong due to power of EU is indisputable. However, attack in Brussels, Belgium, and other big cities in Europe signed that terrorists attack to heart of Europe conducted systematically and effectively to frighten people. It means that becoming member of EU is not guarantee that UK can be free from terrorist target. ISIS always sends their agents to around the world to threaten with coward mostly civilians in public facilities.

The supporters of EU also addressed that image of UK will lower in international relation if quit from EU. Whereas all this time it is not because of membership in EU which makes their country outstanding in the world, but it because of the power and positive role. The membership of EU is only one little issue which may lift prestige of UK, but not too significant. There are many opportunities where UK can contribute more in the international context. By these considerations above, Brexit seems more rational rather than continuing in EU membership. The benefit of Brexit is clear enough and it is also can be gained by other nations which has bilateral partnership with UK, such as Indonesia.

Indonesia has strong diplomatic relation with UK and USA. There are many suppositions that any change which happened in the two countries will influence very much toward Indonesia, not just from economic side but also politics and security as well. It is said because US and UK have huge investment in Indonesia everything uncertain in those countries can hamper Indonesia's condition. However, we should know that USA and UK are not sole nations which have good relationship with Indonesia. Even trade relation of Indonesia to date is tied strongly with other Asian countries, instead of Europe or America. In addition, policy changes are not something decent to be feared, at least for recent periods. Of course we do not deny that policy uncertainties in developed countries will affect small open economy like our nation. But if we have good plans and proper outward looking agenda, it is not to be needed to be worried very much.

Issue of Trump and Brexit almost happened in same direction with fluctuation of world crude oil prices which cannot influence

Indonesia's economic activities. Even in Persident Joko Widodo'e era, when world crude oil prices get down, the price of fuel in Indonesia rises. Many ordinary people maybe do not know exactly why it happened. But in fact the government of Indonesia has launched better policy to stabilize price of fossil fuel in domestic market. So when oil prices in global market lifted, fuel price in Indonesia did not change, so that all activities among the society can run as usual. It can be proof that Indonesia has succeeded to stabilize the demand and price of oil as source of energy. It is also urgent that we must find various alternative energies to support demand of Indonesian people which every year always rise. The dependence on crude oil price is past not future of Indonesia. This research is contradictory with previous works which described negative impact of oil price fluctuation on Indonesia's economic growth. We can apprehend it, because they conducted research in years when Indonesia still depended on fossil fuel and cannot control price in the domestic market.

## CONCLUSION

This paper aims to depict impact of Brexit, Trump's emergence, and oil prices fluctuation toward Indonesia's economic growth. This shows that uncertainty in UK and US has different significant impact on Indonesia. UK's EPU has positive one, meanwhile US' EPU has negative impact clearly. Nevertheless, either Brexit or Trump has positive impact on Indonesia's economic growth. It is proven those two worried occasions in UK and US support positively to boost welfare for all people around the world, not just in those countries.

Interestingly fluctuation of oil prices has positive impact toward Indonesia's economic growth in the short-run. We cannot capture the long-run impact due to cointegration analysis. This finding actually is in line with fact had happened, namely oil prices cannot influences any fuel prices in Indonesia. Our government has launched policy which can avoid negative effect of world crude oil price fluctuation. Nevertheless, this paper faces several weaknesses. For example, we use EPU (Economic Policy Uncertainty) as

proxies for Brexit and Trump's policies by relying on intuition through dummy variable. Of course we realize there are many possibilities to analyze them by more precise approaches. Besides, the duration of the study which we conducted is short enough. We can involve longer period of research to get other reach.

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**APPENDIX**
**Test of Stationary**
### 1.1. GDP

| Null Hypothesis: GDP has a unit root | | | | |
|---|---|---|---|---|
| Exogenous: Constant | | | | |
| Lag Length: 0 (Automatic - based on SIC, maxlag=6) | | | | |
| | | | t-Statistic | Prob.* |
| Augmented Dickey-Fuller test statistic | | | -1.331291 | 0.6007 |
| Test critical values: | 1% level | | -3.689194 | |
| | 5% level | | -2.971853 | |
| | 10% level | | -2.625121 | |
| *MacKinnon (1996) one-sided p-values. | | | | |

| Null Hypothesis: LGDP has a unit root | | | | |
|---|---|---|---|---|
| Exogenous: Constant | | | | |
| Lag Length: 0 (Automatic - based on SIC, maxlag=6) | | | | |
| | | | t-Statistic | Prob.* |
| Augmented Dickey-Fuller test statistic | | | -7.326403 | 0.0000 |
| Test critical values: | 1% level | | -3.699871 | |
| | 5% level | | -2.976263 | |
| | 10% level | | -2.627420 | |
| *MacKinnon (1996) one-sided p-values. | | | | |

### 1.2. OIL

| Null Hypothesis: OIL has a unit root | | | | |
|---|---|---|---|---|
| Exogenous: Constant | | | | |
| Lag Length: 0 (Automatic - based on SIC, maxlag=6) | | | | |
| | | | t-Statistic | Prob.* |
| Augmented Dickey-Fuller test statistic | | | -0.797045 | 0.8045 |
| Test critical values: | 1% level | | -3.689194 | |
| | 5% level | | -2.971853 | |
| | 10% level | | -2.625121 | |
| *MacKinnon (1996) one-sided p-values. | | | | |

| Null Hypothesis: LOIL has a unit root | | | | |
|---|---|---|---|---|
| Exogenous: Constant | | | | |
| Lag Length: 0 (Automatic - based on SIC, maxlag=6) | | | | |
| | | | t-Statistic | Prob.* |
| Augmented Dickey-Fuller test statistic | | | -5.223693 | 0.0002 |
| Test critical values: | 1% level | | -3.699871 | |
| | 5% level | | -2.976263 | |
| | 10% level | | -2.627420 | |
| *MacKinnon (1996) one-sided p-values. | | | | |

### 1.3. UK's EPU

| Null Hypothesis: UKEPU has a unit root | | | | |
| --- | --- | --- | --- | --- |
| Exogenous: Constant | | | | |
| Lag Length: 1 (Automatic - based on SIC, maxlag=6) | | | | |
| | | | t-Statistic | Prob.* |
| Augmented Dickey-Fuller test statistic | | | -2.274559 | 0.1868 |
| Test critical values: | 1% level | | -3.699871 | |
| | 5% level | | -2.976263 | |
| | 10% level | | -2.627420 | |
| *MacKinnon (1996) one-sided p-values. | | | | |

| Null Hypothesis: LUKEPU has a unit root | | | | |
| --- | --- | --- | --- | --- |
| Exogenous: Constant | | | | |
| Lag Length: 0 (Automatic - based on SIC, maxlag=6) | | | | |
| | | | t-Statistic | Prob.* |
| Augmented Dickey-Fuller test statistic | | | -4.758394 | 0.0008 |
| Test critical values: | 1% level | | -3.699871 | |
| | 5% level | | -2.976263 | |
| | 10% level | | -2.627420 | |
| *MacKinnon (1996) one-sided p-values. | | | | |

### 1.4. US' EPU

| Null Hypothesis: USEPU has a unit root | | | | |
| --- | --- | --- | --- | --- |
| Exogenous: Constant | | | | |
| Lag Length: 0 (Automatic - based on SIC, maxlag=6) | | | | |
| | | | t-Statistic | Prob.* |
| Augmented Dickey-Fuller test statistic | | | -2.456287 | 0.1365 |
| Test critical values: | 1% level | | -3.689194 | |
| | 5% level | | -2.971853 | |
| | 10% level | | -2.625121 | |
| *MacKinnon (1996) one-sided p-values. | | | | |

| Null Hypothesis: LUSEPU has a unit root | | | | |
| --- | --- | --- | --- | --- |
| Exogenous: Constant | | | | |
| Lag Length: 1 (Automatic - based on SIC, maxlag=6) | | | | |
| | | | t-Statistic | Prob.* |
| Augmented Dickey-Fuller test statistic | | | -6.235398 | 0.0000 |
| Test critical values: | 1% level | | -3.711457 | |
| | 5% level | | -2.981038 | |
| | 10% level | | -2.629906 | |

| | |
|---|---|
| *MacKinnon (1996) one-sided p-values. | |

## 2. Result of Contegration Test

| Date: 07/01/17 Time: 09:46 | | | | |
|---|---|---|---|---|
| Sample (adjusted): 2011Q2 2017Q1 | | | | |
| Included observations: 24 after adjustments | | | | |
| Trend assumption: No deterministic trend (restricted constant) | | | | |
| Series: LGDP LOIL LUKEPU LUSEPU | | | | |
| Lags interval (in first differences): 1 to 3 | | | | |
| Unrestricted Cointegration Rank Test (Trace) | | | | |
| Hypothesized | | Trace | 0.05 | |
| No. of CE(s) | Eigenvalue | Statistic | Critical Value | Prob.** |
| None * | 0.964111 | 120.6684 | 54.07904 | 0.0000 |
| At most 1 * | 0.723452 | 40.81253 | 35.19275 | 0.0111 |
| At most 2 | 0.266759 | 9.963607 | 20.26184 | 0.6434 |
| At most 3 | 0.099558 | 2.516879 | 9.164546 | 0.6742 |
| Trace test indicates 2 cointegrating eqn(s) at the 0.05 level | | | | |
| * denotes rejection of the hypothesis at the 0.05 level | | | | |
| **MacKinnon-Haug-Michelis (1999) p-values | | | | |

## 3. Result of VEC Analysis

| Vector Error Correction Estimates | | | | |
|---|---|---|---|---|
| Date: 07/01/17 Time: 09:46 | | | | |
| Sample (adjusted): 2011Q2 2017Q1 | | | | |
| Included observations: 24 after adjustments | | | | |
| Standard errors in ( ) & t-statistics in [ ] | | | | |
| Cointegrating Eq: | CointEq1 | CointEq2 | | |
| LOIL(-1) | 1.000000 | 0.000000 | | |
| LGDP(-1) | 0.000000 | 1.000000 | | |
| LUKEPU(-1) | -10.94792 | 0.928307 | | |
| | (1.65839) | (0.16473) | | |
| | [-6.60152] | [ 5.63520] | | |
| LUSEPU(-1) | 14.58093 | -1.268305 | | |
| | (2.13298) | (0.21188) | | |
| | [ 6.83593] | [-5.98606] | | |
| C | 0.486145 | -0.023242 | | |
| | (0.17136) | (0.01702) | | |
| | [ 2.83702] | [-1.36545] | | |
| Error Correction: | D(LOIL) | D(LGDP) | D(LUKEPU) | D(LUSEPU) |
| CointEq1 | -0.054834 | -0.229013 | 0.526176 | -0.171823 |
| | (0.16693) | (0.03396) | (0.54374) | (0.37542) |
| | [-0.32849] | [-6.74395] | [ 0.96770] | [-0.45768] |
| CointEq2 | -1.470726 | -2.638374 | 4.861495 | 0.124779 |

| | | | | |
|---|---|---|---|---|
| | (1.89269) | (0.38504) | (6.16520) | (4.25675) |
| | [-0.77705] | [-6.85228] | [ 0.78854] | [ 0.02931] |
| D(LOIL(-1)) | -0.430701 | 0.299854 | -1.600169 | -0.332298 |
| | (0.28313) | (0.05760) | (0.92226) | (0.63677) |
| | [-1.52121] | [ 5.20599] | [-1.73506] | [-0.52185] |
| D(LOIL(-2)) | -0.347647 | 0.317615 | -2.004962 | 0.060084 |
| | (0.33871) | (0.06891) | (1.10332) | (0.76178) |
| | [-1.02637] | [ 4.60942] | [-1.81721] | [ 0.07887] |
| D(LOIL(-3)) | -0.534136 | 0.129880 | -1.342922 | 0.175142 |
| | (0.28996) | (0.05899) | (0.94451) | (0.65213) |
| | [-1.84210] | [ 2.20182] | [-1.42182] | [ 0.26857] |
| D(LGDP(-1)) | -0.525880 | 0.949030 | -1.821720 | 0.666075 |
| | (1.10377) | (0.22454) | (3.59538) | (2.48242) |
| | [-0.47644] | [ 4.22650] | [-0.50668] | [ 0.26832] |
| D(LGDP(-2)) | 0.958113 | 0.901711 | -1.781474 | -1.826440 |
| | (0.88893) | (0.18084) | (2.89557) | (1.99924) |
| | [ 1.07783] | [ 4.98631] | [-0.61524] | [-0.91357] |
| D(LGDP(-3)) | 1.270544 | 0.609482 | -2.051467 | -0.246797 |
| | (0.75607) | (0.15381) | (2.46280) | (1.70044) |
| | [ 1.68046] | [ 3.96257] | [-0.83298] | [-0.14514] |
| D(LUKEPU(-1)) | 0.602612 | -0.031323 | 0.100557 | -1.391092 |
| | (0.23621) | (0.04805) | (0.76943) | (0.53125) |
| | [ 2.55113] | [-0.65183] | [ 0.13069] | [-2.61850] |
| D(LUKEPU(-2)) | 0.273375 | -0.047877 | 0.265523 | -1.196623 |
| | (0.19687) | (0.04005) | (0.64128) | (0.44277) |
| | [ 1.38860] | [-1.19543] | [ 0.41405] | [-2.70259] |
| D(LUKEPU(-3)) | 0.329011 | -0.042240 | -0.045110 | -0.759508 |
| | (0.12744) | (0.02593) | (0.41513) | (0.28662) |
| | [ 2.58164] | [-1.62925] | [-0.10867] | [-2.64984] |
| D(LUSEPU(-1)) | -0.684934 | 0.012739 | -1.413335 | 1.155177 |
| | (0.29332) | (0.05967) | (0.95546) | (0.65970) |
| | [-2.33508] | [ 0.21348] | [-1.47922] | [ 1.75107] |
| D(LUSEPU(-2)) | -0.446345 | -0.026450 | -1.103521 | 0.608333 |
| | (0.21746) | (0.04424) | (0.70836) | (0.48909) |
| | [-2.05249] | [-0.59789] | [-1.55785] | [ 1.24381] |
| D(LUSEPU(-3)) | -0.240259 | 0.018932 | -0.694132 | 0.411359 |
| | (0.14021) | (0.02852) | (0.45672) | (0.31534) |
| | [-1.71354] | [ 0.66374] | [-1.51982] | [ 1.30448] |
| D1 | 0.207288 | 0.031498 | 0.246571 | -0.095061 |
| | (0.07613) | (0.01549) | (0.24797) | (0.17121) |
| | [ 2.72299] | [ 2.03389] | [ 0.99437] | [-0.55523] |
| R-squared | 0.905187 | 0.948196 | 0.666065 | 0.862667 |
| Adj. R-squared | 0.757699 | 0.867612 | 0.146611 | 0.649038 |
| Sum sq. resids | 0.116384 | 0.004817 | 1.234883 | 0.588692 |
| S.E. equation | 0.113717 | 0.023134 | 0.370418 | 0.255754 |
| F-statistic | 6.137374 | 11.76656 | 1.282240 | 4.038160 |

| | | | | |
|---|---|---|---|---|
| Log likelihood | 29.89245 | 68.11052 | 1.550408 | 10.44034 |
| Akaike AIC | -1.241037 | -4.425877 | 1.120799 | 0.379971 |
| Schwarz SC | -0.504754 | -3.689593 | 1.857083 | 1.116255 |
| Mean dependent | -0.002095 | 0.008431 | 0.006402 | 0.020811 |
| S.D. dependent | 0.231019 | 0.063580 | 0.400976 | 0.431711 |
| Determinant resid covariance (dof adj.) | 7.57E-09 | | | |
| Determinant resid covariance | 1.50E-10 | | | |
| Log likelihood | 135.2523 | | | |
| Akaike information criterion | -5.437696 | | | |
| Schwarz criterion | -2.001705 | | | |

**Lag-2:**

| | |
|---|---|
| Akaike information criterion | -2.194373 |
| Schwarz criterion | 0.438399 |

**Lag-1:**

| | |
|---|---|
| Akaike information criterion | -2.020140 |
| Schwarz criterion | -0.181383 |

## 4. Analysis of Impulse Response

| Response of LOIL: | | | | |
|---|---|---|---|---|
| Period | LOIL | LGDP | LUKEPU | LUSEPU |
| 1 | 0.113717 | 0.000000 | 0.000000 | 0.000000 |
| 2 | 0.048749 | -0.087490 | 0.023275 | 0.038071 |
| 3 | 0.050029 | 0.011593 | -0.033649 | 0.018625 |
| 4 | 0.008266 | -0.049660 | 0.070799 | 0.013838 |
| 5 | 0.130840 | 0.012674 | -0.081731 | -0.002112 |
| 6 | 0.020697 | -0.082285 | 0.085713 | 0.032390 |
| 7 | 0.026473 | 0.036535 | -0.056319 | -0.008836 |
| 8 | 0.037177 | -0.045960 | 0.066163 | 0.038318 |
| 9 | 0.064135 | -0.018364 | -0.022861 | -0.007179 |
| 10 | 0.104830 | -0.038245 | -0.041396 | 0.023686 |
| 11 | -0.009045 | -0.046054 | 0.077504 | 0.025495 |
| 12 | 0.053848 | 0.035936 | -0.028920 | -0.009280 |
| 13 | 0.058649 | -0.064208 | 0.025176 | 0.031246 |
| 14 | 0.062946 | -0.003799 | -0.028614 | -0.002863 |
| 15 | 0.051667 | -0.049479 | 0.018011 | 0.031024 |
| 16 | 0.027067 | -0.014121 | 0.034175 | 0.013844 |
| 17 | 0.059113 | -0.012624 | -0.021026 | 0.000630 |
| 18 | 0.064876 | -0.033791 | -0.005500 | 0.020114 |
| 19 | 0.036680 | -0.020894 | 0.030423 | 0.012797 |
| 20 | 0.052524 | -0.022777 | -0.004308 | 0.015761 |
| 21 | 0.048901 | -0.028971 | 0.010179 | 0.017654 |
| 22 | 0.053111 | -0.021718 | -0.007719 | 0.005166 |
| 23 | 0.061603 | -0.025699 | 0.005926 | 0.019703 |

| | | | |
|---|---|---|---|
| 24 | 0.030366 | -0.026871 | 0.030819 | 0.014491 |
| 25 | 0.056647 | -0.008510 | -0.022456 | 0.006567 |
| 26 | 0.052839 | -0.039057 | 0.016798 | 0.022548 |
| 27 | 0.052074 | -0.019064 | 0.003566 | 0.007668 |
| 28 | 0.056410 | -0.029720 | 0.001089 | 0.019228 |
| 29 | 0.034926 | -0.022313 | 0.018707 | 0.012911 |
| 30 | 0.056030 | -0.012777 | -0.009904 | 0.007057 |
| 31 | 0.056393 | -0.035336 | 0.013070 | 0.021171 |
| 32 | 0.045520 | -0.021199 | 0.006801 | 0.010332 |
| 33 | 0.053386 | -0.024908 | -0.003175 | 0.016075 |
| 34 | 0.044343 | -0.025535 | 0.017866 | 0.014947 |
| 35 | 0.055599 | -0.018585 | -0.004958 | 0.008284 |
| 36 | 0.053521 | -0.029653 | 0.006900 | 0.018893 |
| 37 | 0.040611 | -0.021339 | 0.012873 | 0.011930 |
| 38 | 0.056238 | -0.021236 | -0.004122 | 0.013225 |
| 39 | 0.050671 | -0.030872 | 0.012687 | 0.017033 |
| 40 | 0.050858 | -0.019856 | -0.000886 | 0.009587 |
| 41 | 0.050929 | -0.026213 | 0.007037 | 0.017357 |
| 42 | 0.043640 | -0.021987 | 0.012984 | 0.012375 |
| 43 | 0.056724 | -0.021368 | -0.005570 | 0.011860 |
| 44 | 0.050795 | -0.030515 | 0.010633 | 0.017794 |
| 45 | 0.047389 | -0.020602 | 0.005592 | 0.011058 |
| 46 | 0.052904 | -0.024873 | 0.003065 | 0.015544 |
| 47 | 0.046827 | -0.024318 | 0.010356 | 0.013339 |
| 48 | 0.053575 | -0.021050 | -0.001934 | 0.011606 |
| Response of LGDP: | | | | |
| Period | LOIL | LGDP | LUKEPU | LUSEPU |
| 1 | 0.005660 | 0.022431 | 0.000000 | 0.000000 |
| 2 | -0.000695 | -0.016531 | 0.013186 | 0.001977 |
| 3 | 0.005642 | 0.010619 | -0.019999 | -0.003340 |
| 4 | -0.023473 | -0.021430 | 0.020660 | 0.009505 |
| 5 | -0.019431 | 0.026518 | 0.001826 | -0.015305 |
| 6 | 0.005471 | -0.002745 | -0.010060 | 0.002097 |
| 7 | -0.012881 | 0.006853 | 0.017211 | -0.004358 |
| 8 | 0.002236 | 0.006953 | -0.018438 | -0.001070 |
| 9 | -0.007014 | -0.009944 | 0.022680 | 0.009302 |
| 10 | -0.005878 | 0.006334 | -0.009318 | -0.008956 |
| 11 | 0.006251 | -0.002228 | -0.008547 | 0.002499 |
| 12 | -0.025385 | 0.003324 | 0.025084 | -0.002582 |
| 13 | -0.001595 | 0.017456 | -0.015314 | -0.007191 |
| 14 | -0.007041 | -0.008732 | 0.013774 | 0.006381 |
| 15 | -0.002700 | 0.006968 | -0.009536 | -0.006394 |
| 16 | 0.001645 | -0.005697 | 0.001750 | 0.004684 |
| 17 | -0.015486 | 0.002334 | 0.013260 | -0.001471 |
| 18 | -0.004320 | 0.012158 | -0.008650 | -0.006971 |
| 19 | -0.005748 | -0.002108 | 0.005205 | 0.002768 |

| 20 | -0.007961 | 0.006131 | 0.004237 | -0.003753 |
|----|-----------|----------|----------|-----------|
| 21 | -0.001081 | -0.001750 | -0.004038 | 0.001624 |
| 22 | -0.008915 | 0.000124 | 0.007695 | 0.000516 |
| 23 | -0.006201 | 0.006280 | -0.002836 | -0.005231 |
| 24 | -0.002504 | 0.002016 | 0.001667 | 0.001027 |
| 25 | -0.012325 | 0.003146 | 0.009053 | -0.002263 |
| 26 | -0.001854 | 0.005635 | -0.008268 | -0.002002 |
| 27 | -0.006927 | -0.003550 | 0.009208 | 0.002592 |
| 28 | -0.005353 | 0.005354 | -0.002252 | -0.004499 |
| 29 | -0.002988 | 0.000580 | 0.000494 | 0.001035 |
| 30 | -0.012497 | 0.003713 | 0.008311 | -0.002131 |
| 31 | -0.002945 | 0.007114 | -0.005313 | -0.003206 |
| 32 | -0.005433 | -0.002789 | 0.006324 | 0.002243 |
| 33 | -0.006484 | 0.004577 | -0.000254 | -0.003323 |
| 34 | -0.003706 | 0.000518 | -0.000249 | 0.000609 |
| 35 | -0.009648 | 0.002867 | 0.007123 | -0.001413 |
| 36 | -0.004327 | 0.005742 | -0.003215 | -0.003385 |
| 37 | -0.005295 | 6.78E-05 | 0.003663 | 0.001122 |
| 38 | -0.008273 | 0.003711 | 0.003194 | -0.002309 |
| 39 | -0.003072 | 0.002074 | -0.001936 | -0.000484 |
| 40 | -0.007482 | 0.000612 | 0.005745 | -0.000256 |
| 41 | -0.005611 | 0.005089 | -0.001505 | -0.003197 |
| 42 | -0.005414 | 0.001414 | 0.002917 | 0.000425 |
| 43 | -0.008508 | 0.003470 | 0.004081 | -0.001998 |
| 44 | -0.003318 | 0.003162 | -0.002532 | -0.001318 |
| 45 | -0.006592 | -8.43E-05 | 0.004958 | 0.000379 |
| 46 | -0.006280 | 0.004397 | 0.000277 | -0.002698 |
| 47 | -0.005014 | 0.001726 | 0.001493 | -0.000121 |
| 48 | -0.008089 | 0.003128 | 0.004029 | -0.001687 |
| Response of LUKEPU: | | | | |
| Period | LOIL | LGDP | LUKEPU | LUSEPU |
| 1 | -0.140413 | 0.032734 | 0.341206 | 0.000000 |
| 2 | -0.089470 | 0.054249 | -0.030964 | 0.009290 |
| 3 | -0.137749 | 0.019756 | 0.149372 | -0.009998 |
| 4 | 0.010678 | 0.033501 | -0.061531 | -0.021102 |
| 5 | 0.006333 | -0.061758 | 0.234722 | 0.067627 |
| 6 | -0.174791 | 0.035325 | 0.104649 | -0.036627 |
| 7 | -0.011461 | 0.102293 | -0.052886 | -0.000142 |
| 8 | -0.155342 | -0.045434 | 0.290711 | 0.016712 |
| 9 | 0.074601 | 0.093434 | -0.103686 | -0.037576 |
| 10 | -0.117286 | -0.125854 | 0.235324 | 0.083912 |
| 11 | -0.133688 | 0.134955 | 0.019748 | -0.063171 |
| 12 | -0.008173 | -0.003072 | 0.106430 | 0.027424 |
| 13 | -0.079083 | 0.000777 | 0.132739 | -0.004741 |
| 14 | -0.033014 | 0.057223 | 0.003862 | -0.014932 |

| 15 | -0.120445 | -0.034341 | 0.173651 | 0.048737 |
|----|-----------|-----------|----------|----------|
| 16 | -0.065115 | 0.078930 | 0.083480 | -0.034078 |
| 17 | -0.006334 | -0.032777 | 0.040011 | 0.016709 |
| 18 | -0.089944 | 0.026129 | 0.121014 | 0.005409 |
| 19 | -0.106053 | 0.043460 | 0.108442 | -0.010607 |
| 20 | -0.042780 | 0.026002 | 0.082657 | 0.015362 |
| 21 | -0.070230 | -0.000706 | 0.103822 | -0.004505 |
| 22 | -0.028986 | 0.024723 | 0.024717 | 0.000540 |
| 23 | -0.100653 | -0.006137 | 0.177271 | 0.027051 |
| 24 | -0.081638 | 0.057905 | 0.069355 | -0.026240 |
| 25 | -0.030301 | 0.011854 | 0.056213 | 0.012742 |
| 26 | -0.092707 | 0.005360 | 0.132964 | 0.003751 |
| 27 | -0.045717 | 0.040916 | 0.058511 | -0.003267 |
| 28 | -0.079344 | -0.014750 | 0.131911 | 0.024426 |
| 29 | -0.070652 | 0.050351 | 0.061887 | -0.022450 |
| 30 | -0.043589 | 0.005511 | 0.080765 | 0.014174 |
| 31 | -0.089365 | 0.018353 | 0.135783 | 0.004587 |
| 32 | -0.059514 | 0.035568 | 0.058126 | -0.007199 |
| 33 | -0.063726 | 0.001221 | 0.100381 | 0.017376 |
| 34 | -0.073000 | 0.028130 | 0.097757 | -0.008394 |
| 35 | -0.045708 | 0.014939 | 0.073541 | 0.007549 |
| 36 | -0.087017 | 0.013515 | 0.122221 | 0.007557 |
| 37 | -0.067496 | 0.039598 | 0.067811 | -0.010484 |
| 38 | -0.053851 | 0.006786 | 0.097591 | 0.014689 |
| 39 | -0.074868 | 0.017747 | 0.104365 | -0.001565 |
| 40 | -0.053839 | 0.023335 | 0.066764 | 0.002450 |
| 41 | -0.080528 | 0.009906 | 0.118767 | 0.010290 |
| 42 | -0.065369 | 0.036427 | 0.078921 | -0.009835 |
| 43 | -0.053187 | 0.008801 | 0.087492 | 0.011428 |
| 44 | -0.080330 | 0.019090 | 0.107268 | 0.001424 |
| 45 | -0.059220 | 0.026839 | 0.074150 | -0.000108 |
| 46 | -0.067661 | 0.008248 | 0.107664 | 0.010562 |
| 47 | -0.067573 | 0.028225 | 0.084421 | -0.006228 |
| 48 | -0.058457 | 0.015643 | 0.084859 | 0.007856 |
| Response of LUSEPU: | | | | |
| Period | LOIL | LGDP | LUKEPU | LUSEPU |
| 1 | -0.055795 | -0.098175 | 0.206559 | 0.099961 |
| 2 | -0.109553 | 0.087485 | 0.101699 | -0.050822 |
| 3 | 0.010087 | 0.023563 | -0.118372 | -0.040825 |
| 4 | -0.074336 | 0.041205 | 0.174915 | 0.022588 |
| 5 | -0.120436 | 0.017556 | 0.148983 | -0.007258 |
| 6 | 0.009091 | 0.024712 | -0.035255 | 0.021223 |
| 7 | -0.082722 | -0.061721 | 0.100245 | 0.014837 |
| 8 | 0.009400 | 0.073063 | -0.001919 | -0.036695 |
| 9 | -0.070893 | -0.038139 | 0.177477 | 0.045663 |

| | | | | |
|---|---|---|---|---|
| 10 | -0.127762 | 0.095536 | 0.060247 | -0.046578 |
| 11 | -0.012110 | 0.025895 | -0.018633 | 0.008728 |
| 12 | -0.047429 | -0.041726 | 0.153771 | 0.029082 |
| 13 | -0.017031 | 0.022621 | 0.015819 | -0.018155 |
| 14 | -0.064886 | -0.018375 | 0.076929 | 0.031226 |
| 15 | -0.124953 | 0.073724 | 0.113268 | -0.033547 |
| 16 | 0.004309 | 0.039043 | 0.006567 | -0.007527 |
| 17 | -0.051328 | -0.031953 | 0.125178 | 0.029531 |
| 18 | -0.065789 | 0.032567 | 0.023677 | -0.015855 |
| 19 | -0.041927 | -0.003586 | 0.076918 | 0.026083 |
| 20 | -0.077146 | 0.019883 | 0.111867 | -0.013779 |
| 21 | -0.012035 | 0.040803 | -0.003498 | -0.015945 |
| 22 | -0.084254 | -0.008650 | 0.123976 | 0.025282 |
| 23 | -0.074924 | 0.053102 | 0.065051 | -0.019032 |
| 24 | -0.011678 | -0.009458 | 0.043324 | 0.018433 |
| 25 | -0.061053 | -0.003410 | 0.089231 | 0.001787 |
| 26 | -0.047759 | 0.036549 | 0.036806 | -0.011536 |
| 27 | -0.071339 | 0.008613 | 0.111699 | 0.016726 |
| 28 | -0.067022 | 0.041816 | 0.065653 | -0.018822 |
| 29 | -0.017675 | 0.005858 | 0.024852 | 0.008460 |
| 30 | -0.068448 | -0.005852 | 0.111006 | 0.013613 |
| 31 | -0.052313 | 0.032428 | 0.050047 | -0.010657 |
| 32 | -0.048211 | 0.005401 | 0.073953 | 0.011839 |
| 33 | -0.070201 | 0.029364 | 0.075652 | -0.012374 |
| 34 | -0.033534 | 0.023138 | 0.043591 | 0.001555 |
| 35 | -0.066176 | -0.002259 | 0.105953 | 0.014429 |
| 36 | -0.051738 | 0.030272 | 0.043928 | -0.011152 |
| 37 | -0.040183 | 0.001947 | 0.063774 | 0.011752 |
| 38 | -0.068085 | 0.019751 | 0.090617 | -0.004337 |
| 39 | -0.043058 | 0.027644 | 0.047276 | -0.003646 |
| 40 | -0.062524 | 0.005835 | 0.088214 | 0.010539 |
| 41 | -0.055739 | 0.028239 | 0.058135 | -0.008791 |
| 42 | -0.036288 | 0.004615 | 0.060802 | 0.009822 |
| 43 | -0.064615 | 0.011199 | 0.088381 | 0.001634 |
| 44 | -0.050097 | 0.028304 | 0.048920 | -0.005994 |
| 45 | -0.056468 | 0.010084 | 0.082387 | 0.008322 |
| 46 | -0.057432 | 0.024466 | 0.068748 | -0.006439 |
| 47 | -0.039536 | 0.011335 | 0.054706 | 0.005730 |
| 48 | -0.063592 | 0.008688 | 0.086666 | 0.005183 |
| Cholesky Ordering: LOIL LGDP LUKEPU LUSEPU | | | | |

Response to Cholesky One S.D. Innovations
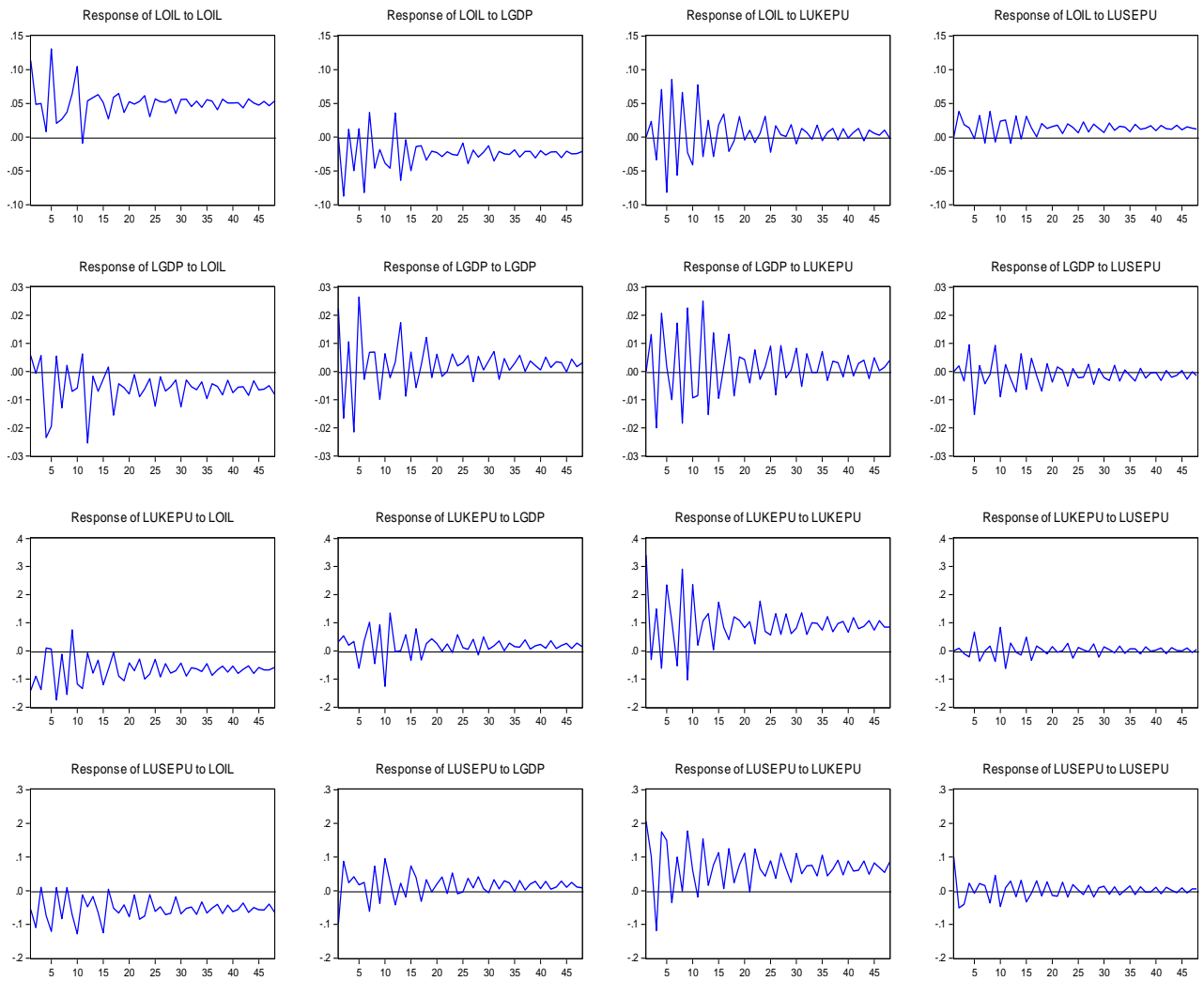
## 5. Analysis Variance Decomposition

| Variance Decomposition of LOIL: | | | | | |
|---|---|---|---|---|---|
| Period | S.E. | LOIL | LGDP | LUKEPU | LUSEPU |
| 1 | 0.113717 | 100.0000 | 0.000000 | 0.000000 | 0.000000 |
| 2 | 0.157967 | 61.34577 | 30.67503 | 2.170894 | 5.808309 |
| 3 | 0.170500 | 61.26887 | 26.79368 | 5.758368 | 6.179086 |
| 4 | 0.191855 | 48.57382 | 27.86051 | 18.16540 | 5.400265 |
| 5 | 0.246521 | 57.58908 | 17.13875 | 21.99402 | 3.278148 |
| 6 | 0.276347 | 46.38972 | 22.50493 | 27.12286 | 3.982487 |
| 7 | 0.285750 | 44.24512 | 22.68284 | 29.25172 | 3.820318 |
| 8 | 0.301651 | 41.22236 | 22.67589 | 31.05995 | 5.041795 |
| 9 | 0.309868 | 43.34902 | 21.84047 | 29.97887 | 4.831637 |
| 10 | 0.332784 | 47.50766 | 20.25693 | 27.53970 | 4.695712 |
| 11 | 0.345839 | 44.05694 | 20.52973 | 30.52199 | 4.891349 |
| 12 | 0.353154 | 44.57548 | 20.72346 | 29.94120 | 4.759855 |
| 13 | 0.365911 | 44.09078 | 22.38285 | 28.36339 | 5.162972 |
| 14 | 0.372417 | 45.42054 | 21.61804 | 27.97136 | 4.990064 |
| 15 | 0.380918 | 45.25549 | 22.35108 | 26.96030 | 5.433126 |
| 16 | 0.383914 | 45.04893 | 22.13886 | 27.33352 | 5.478687 |
| 17 | 0.389213 | 46.13752 | 21.64543 | 26.88625 | 5.330806 |
| 18 | 0.396575 | 47.11643 | 21.57520 | 25.91642 | 5.391955 |
| 19 | 0.400179 | 47.11178 | 21.46096 | 26.02972 | 5.397545 |
| 20 | 0.404584 | 47.77701 | 21.31316 | 25.47740 | 5.432424 |
| 21 | 0.409065 | 48.16510 | 21.35037 | 24.98421 | 5.500310 |
| 22 | 0.413174 | 48.86419 | 21.20410 | 24.52463 | 5.407083 |
| 23 | 0.419036 | 49.66774 | 20.99110 | 23.86323 | 5.477936 |
| 24 | 0.422368 | 49.40397 | 21.06591 | 24.02058 | 5.509542 |
| 25 | 0.426877 | 50.12690 | 20.66304 | 23.79260 | 5.417450 |
| 26 | 0.432819 | 50.25046 | 20.91394 | 23.29448 | 5.541127 |
| 27 | 0.436438 | 50.84396 | 20.75924 | 22.91634 | 5.480457 |
| 28 | 0.441492 | 51.31929 | 20.73994 | 22.39537 | 5.545397 |
| 29 | 0.444015 | 51.35641 | 20.75743 | 22.31906 | 5.567104 |
| 30 | 0.447883 | 52.03802 | 20.48176 | 21.98405 | 5.496174 |
| 31 | 0.453484 | 52.30710 | 20.58620 | 21.52749 | 5.579212 |
| 32 | 0.456423 | 52.63023 | 20.53763 | 21.27332 | 5.558822 |
| 33 | 0.460501 | 53.04625 | 20.46809 | 20.90299 | 5.582672 |
| 34 | 0.463920 | 53.18078 | 20.47045 | 20.74430 | 5.604482 |
| 35 | 0.467709 | 53.73577 | 20.29802 | 20.42079 | 5.545417 |
| 36 | 0.472123 | 54.02079 | 20.31475 | 20.06210 | 5.602354 |
| 37 | 0.474671 | 54.17432 | 20.29933 | 19.92083 | 5.605531 |
| 38 | 0.478663 | 54.65489 | 20.15899 | 19.59736 | 5.588757 |
| 39 | 0.482794 | 54.82513 | 20.22438 | 19.33250 | 5.617997 |
| 40 | 0.485967 | 55.20685 | 20.12812 | 19.08123 | 5.583800 |
| 41 | 0.489689 | 55.45240 | 20.10984 | 18.81290 | 5.624863 |
| 42 | 0.492448 | 55.61814 | 20.08449 | 18.67221 | 5.625160 |

| 43 | 0.496337 | 56.05596 | 19.95629 | 18.39330 | 5.594444 |
|---|---|---|---|---|---|
| 44 | 0.500292 | 56.20418 | 20.01409 | 18.14887 | 5.632864 |
| 45 | 0.503106 | 56.46440 | 19.95851 | 17.95876 | 5.618331 |
| 46 | 0.506738 | 56.74769 | 19.91429 | 17.70585 | 5.632163 |
| 47 | 0.509758 | 56.92126 | 19.90664 | 17.53799 | 5.634109 |
| 48 | 0.513132 | 57.26514 | 19.81396 | 17.30949 | 5.611409 |
| Variance Decomposition of LGDP: | | | | | |
| Period | S.E. | LOIL | LGDP | LUKEPU | LUSEPU |
| 1 | 0.023134 | 5.985483 | 94.01452 | 0.000000 | 0.000000 |
| 2 | 0.031412 | 3.295282 | 78.68641 | 17.62224 | 0.396064 |
| 3 | 0.039274 | 4.171779 | 57.64760 | 37.20382 | 0.976800 |
| 4 | 0.055406 | 20.04469 | 43.92455 | 32.59698 | 3.433787 |
| 5 | 0.066243 | 22.62664 | 46.75322 | 22.87972 | 7.740413 |
| 6 | 0.067314 | 22.57292 | 45.44337 | 24.39062 | 7.593084 |
| 7 | 0.071129 | 23.49640 | 41.62818 | 27.69946 | 7.175959 |
| 8 | 0.073850 | 21.88868 | 39.50379 | 31.92958 | 6.677944 |
| 9 | 0.078758 | 20.03871 | 36.32784 | 36.36698 | 7.266467 |
| 10 | 0.080278 | 19.82329 | 35.58784 | 36.35027 | 8.238600 |
| 11 | 0.081042 | 20.04593 | 34.99518 | 36.77991 | 8.178977 |
| 12 | 0.088652 | 24.95146 | 29.38595 | 38.74261 | 6.919981 |
| 13 | 0.091938 | 23.22963 | 30.92743 | 38.79703 | 7.045906 |
| 14 | 0.093856 | 22.85291 | 30.54217 | 39.38174 | 7.223175 |
| 15 | 0.094850 | 22.45727 | 30.44479 | 39.57104 | 7.526907 |
| 16 | 0.095167 | 22.33795 | 30.60091 | 39.34197 | 7.719175 |
| 17 | 0.097365 | 23.87042 | 29.29210 | 39.44012 | 7.397355 |
| 18 | 0.098842 | 23.35317 | 29.93591 | 39.03567 | 7.675246 |
| 19 | 0.099207 | 23.51748 | 29.76134 | 39.02444 | 7.696741 |
| 20 | 0.099875 | 23.83920 | 29.74138 | 38.68407 | 7.735356 |
| 21 | 0.099991 | 23.79564 | 29.70306 | 38.75748 | 7.743817 |
| 22 | 0.100684 | 24.25343 | 29.29604 | 38.81023 | 7.640291 |
| 23 | 0.101245 | 24.36048 | 29.35703 | 38.45972 | 7.822769 |
| 24 | 0.101315 | 24.38796 | 29.35610 | 38.43370 | 7.822244 |
| 25 | 0.102536 | 25.25549 | 28.75528 | 38.30345 | 7.685775 |
| 26 | 0.103059 | 25.03213 | 28.76304 | 38.55915 | 7.645680 |
| 27 | 0.103794 | 25.12407 | 28.47394 | 38.80187 | 7.600111 |
| 28 | 0.104191 | 25.19683 | 28.52122 | 38.55325 | 7.728701 |
| 29 | 0.104242 | 25.25445 | 28.49655 | 38.51797 | 7.731034 |
| 30 | 0.105404 | 26.10644 | 27.99589 | 38.29527 | 7.602394 |
| 31 | 0.105867 | 25.95608 | 28.20318 | 38.21300 | 7.627746 |
| 32 | 0.106255 | 26.02826 | 28.06645 | 38.28861 | 7.616687 |
| 33 | 0.106603 | 26.22853 | 28.06777 | 38.03949 | 7.664212 |
| 34 | 0.106671 | 26.31596 | 28.03453 | 37.99177 | 7.657742 |
| 35 | 0.107390 | 26.77163 | 27.73134 | 37.92428 | 7.572753 |
| 36 | 0.107732 | 26.76345 | 27.83980 | 37.77321 | 7.623552 |
| 37 | 0.107930 | 26.90600 | 27.73775 | 37.74985 | 7.606406 |
| 38 | 0.108382 | 27.26474 | 27.62418 | 37.52257 | 7.588502 |

| | | | | | |
|---|---|---|---|---|---|
| 39 | 0.108464 | 27.30391 | 27.61913 | 37.49790 | 7.579062 |
| 40 | 0.108875 | 27.57018 | 27.41394 | 37.49344 | 7.522441 |
| 41 | 0.109195 | 27.67270 | 27.47047 | 37.29275 | 7.564080 |
| 42 | 0.109378 | 27.82519 | 27.39534 | 37.23917 | 7.540296 |
| 43 | 0.109858 | 28.18275 | 27.25661 | 37.05293 | 7.507709 |
| 44 | 0.109990 | 28.20584 | 27.27354 | 37.01664 | 7.503979 |
| 45 | 0.110300 | 28.40492 | 27.12075 | 37.01122 | 7.463106 |
| 46 | 0.110599 | 28.57379 | 27.13219 | 36.81174 | 7.482273 |
| 47 | 0.110736 | 28.70807 | 27.08930 | 36.73877 | 7.463864 |
| 48 | 0.111161 | 29.01855 | 26.96175 | 36.58976 | 7.429942 |
| Variance Decomposition of LUKEPU: | | | | | |
| Period | S.E. | LOIL | LGDP | LUKEPU | LUSEPU |
| 1 | 0.370418 | 14.36924 | 0.780954 | 84.84980 | 0.000000 |
| 2 | 0.386267 | 18.57938 | 2.690611 | 78.67217 | 0.057838 |
| 3 | 0.437012 | 24.45065 | 2.306400 | 73.14542 | 0.097526 |
| 4 | 0.443223 | 23.82816 | 2.813498 | 73.03685 | 0.321494 |
| 5 | 0.509871 | 18.02132 | 3.593160 | 76.38339 | 2.002135 |
| 6 | 0.551418 | 25.45594 | 3.482508 | 68.90854 | 2.153008 |
| 7 | 0.563430 | 24.42343 | 6.631753 | 66.88263 | 2.062187 |
| 8 | 0.654554 | 23.72889 | 5.395599 | 69.28234 | 1.593169 |
| 9 | 0.674462 | 23.57218 | 7.000863 | 67.61607 | 1.810887 |
| 10 | 0.739536 | 22.12155 | 8.719150 | 66.36562 | 2.793674 |
| 11 | 0.766406 | 23.64029 | 11.21916 | 61.85996 | 3.280592 |
| 12 | 0.774296 | 23.17212 | 10.99327 | 62.49509 | 3.339524 |
| 13 | 0.789577 | 23.28708 | 10.57198 | 62.92582 | 3.215122 |
| 14 | 0.792486 | 23.28998 | 11.01589 | 62.46707 | 3.227065 |
| 15 | 0.822344 | 23.77463 | 10.40486 | 62.47229 | 3.348224 |
| 16 | 0.833577 | 23.74843 | 11.02291 | 61.80293 | 3.425730 |
| 17 | 0.835371 | 23.65227 | 11.12956 | 61.76713 | 3.451037 |
| 18 | 0.849288 | 24.00501 | 10.86244 | 61.78964 | 3.342915 |
| 19 | 0.863886 | 24.70768 | 10.75152 | 61.29483 | 3.245970 |
| 20 | 0.869410 | 24.63684 | 10.70478 | 61.42230 | 3.236076 |
| 21 | 0.878410 | 24.77375 | 10.48659 | 61.56693 | 3.172727 |
| 22 | 0.879584 | 24.81630 | 10.53764 | 61.48175 | 3.164306 |
| 23 | 0.903323 | 24.77064 | 9.995672 | 62.14384 | 3.089851 |
| 24 | 0.911871 | 25.10993 | 10.21239 | 61.56268 | 3.115000 |
| 25 | 0.914270 | 25.08817 | 10.17567 | 61.61806 | 3.118096 |
| 26 | 0.928551 | 25.31922 | 9.868417 | 61.78781 | 3.024556 |
| 27 | 0.932419 | 25.34998 | 9.979271 | 61.67001 | 3.000741 |
| 28 | 0.945471 | 25.35916 | 9.729990 | 61.92564 | 2.985207 |
| 29 | 0.951723 | 25.57819 | 9.882476 | 61.53758 | 3.001758 |
| 30 | 0.956259 | 25.54389 | 9.792271 | 61.66852 | 2.995319 |
| 31 | 0.970161 | 25.66557 | 9.549430 | 61.87268 | 2.912327 |
| 32 | 0.974397 | 25.81594 | 9.599826 | 61.69172 | 2.892517 |
| 33 | 0.981779 | 25.85048 | 9.456157 | 61.81286 | 2.880506 |

| 34 | 0.989766 | 25.97892 | 9.384930 | 61.79475 | 2.841396 |
| 35 | 0.993688 | 25.98588 | 9.333609 | 61.85573 | 2.824786 |
| 36 | 1.005070 | 26.15024 | 9.141488 | 61.94145 | 2.766822 |
| 37 | 1.010444 | 26.31901 | 9.198080 | 61.73468 | 2.748234 |
| 38 | 1.016702 | 26.27655 | 9.089652 | 61.89842 | 2.735380 |
| 39 | 1.024938 | 26.38954 | 8.974141 | 61.94449 | 2.691830 |
| 40 | 1.028788 | 26.46627 | 8.958550 | 61.90289 | 2.672288 |
| 41 | 1.038845 | 26.55720 | 8.795027 | 62.01717 | 2.630609 |
| 42 | 1.044568 | 26.65857 | 8.820512 | 61.91020 | 2.610723 |
| 43 | 1.049674 | 26.65662 | 8.741948 | 62.00419 | 2.597243 |
| 44 | 1.058367 | 26.79660 | 8.631462 | 62.01701 | 2.554932 |
| 45 | 1.062952 | 26.87634 | 8.620918 | 61.96980 | 2.532941 |
| 46 | 1.070615 | 26.89239 | 8.503887 | 62.09718 | 2.506545 |
| 47 | 1.076450 | 26.99568 | 8.480691 | 62.04084 | 2.482791 |
| 48 | 1.081512 | 27.03569 | 8.422402 | 62.07702 | 2.464879 |
| Variance Decomposition of LUSEPU: | | | | | |
| Period | S.E. | LOIL | LGDP | LUKEPU | LUSEPU |
| 1 | 0.255754 | 4.759281 | 14.73511 | 65.22944 | 15.27616 |
| 2 | 0.313036 | 15.42468 | 17.64637 | 54.09614 | 12.83281 |
| 3 | 0.338122 | 13.30973 | 15.61060 | 58.62264 | 12.45703 |
| 4 | 0.390712 | 13.58765 | 12.80325 | 63.94558 | 9.663516 |
| 5 | 0.435566 | 18.57877 | 10.46457 | 63.15316 | 7.803501 |
| 6 | 0.438297 | 18.39097 | 10.65246 | 63.01554 | 7.941027 |
| 7 | 0.461547 | 19.79703 | 11.39455 | 61.54395 | 7.264467 |
| 8 | 0.468831 | 19.22687 | 13.47185 | 59.64818 | 7.653099 |
| 9 | 0.509771 | 18.19665 | 11.95464 | 62.57310 | 7.275614 |
| 10 | 0.539551 | 21.85043 | 13.80660 | 57.10312 | 7.239854 |
| 11 | 0.540700 | 21.80788 | 13.97737 | 56.97957 | 7.235188 |
| 12 | 0.566425 | 20.57305 | 13.27922 | 59.29122 | 6.856509 |
| 13 | 0.567644 | 20.57485 | 13.38110 | 59.11465 | 6.929402 |
| 14 | 0.577633 | 21.13117 | 13.02346 | 58.86135 | 6.984024 |
| 15 | 0.607177 | 23.35994 | 13.26123 | 56.75265 | 6.626179 |
| 16 | 0.608528 | 23.26133 | 13.61404 | 56.51254 | 6.612085 |
| 17 | 0.624903 | 22.73289 | 13.17137 | 57.60231 | 6.493427 |
| 18 | 0.629845 | 23.46859 | 13.23285 | 56.84326 | 6.455298 |
| 19 | 0.636453 | 23.41777 | 12.96268 | 57.12965 | 6.489899 |
| 20 | 0.651247 | 23.76914 | 12.47363 | 57.51409 | 6.243148 |
| 21 | 0.652839 | 23.68733 | 12.80350 | 57.23678 | 6.272387 |
| 22 | 0.670360 | 24.04502 | 12.15965 | 57.70429 | 6.091039 |
| 23 | 0.680007 | 24.58160 | 12.42689 | 56.99374 | 5.997767 |
| 24 | 0.681800 | 24.48178 | 12.38084 | 57.09804 | 6.039346 |
| 25 | 0.690330 | 24.66265 | 12.07920 | 57.36646 | 5.891687 |
| 26 | 0.694018 | 24.87484 | 12.22853 | 57.03975 | 5.856877 |
| 27 | 0.706810 | 25.00128 | 11.80475 | 57.49118 | 5.702793 |
| 28 | 0.714483 | 25.34715 | 11.89510 | 57.10739 | 5.650369 |

| 29 | 0.715207 | 25.35689 | 11.87772 | 57.11248 | 5.652919 |
| 30 | 0.727151 | 25.41682 | 11.49721 | 57.58218 | 5.503794 |
| 31 | 0.731543 | 25.62391 | 11.55608 | 57.36088 | 5.459130 |
| 32 | 0.736965 | 25.67620 | 11.39202 | 57.52688 | 5.404899 |
| 33 | 0.744838 | 26.02455 | 11.30788 | 57.34874 | 5.318838 |
| 34 | 0.747226 | 26.05990 | 11.33161 | 57.32315 | 5.285334 |
| 35 | 0.757737 | 26.10466 | 11.02031 | 57.69904 | 5.175983 |
| 36 | 0.761454 | 26.31209 | 11.07103 | 57.46987 | 5.147019 |
| 37 | 0.765269 | 26.32614 | 10.96158 | 57.59286 | 5.119418 |
| 38 | 0.773881 | 26.51745 | 10.78410 | 57.68921 | 5.009246 |
| 39 | 0.777019 | 26.61078 | 10.82375 | 57.59440 | 4.971071 |
| 40 | 0.784599 | 26.73417 | 10.62117 | 57.75112 | 4.893536 |
| 41 | 0.789276 | 26.91699 | 10.62368 | 57.61122 | 4.848118 |
| 42 | 0.792520 | 26.90673 | 10.54027 | 57.72913 | 4.823870 |
| 43 | 0.800126 | 27.04973 | 10.36041 | 57.85685 | 4.733007 |
| 44 | 0.803705 | 27.19790 | 10.39237 | 57.71322 | 4.696511 |
| 45 | 0.809993 | 27.26325 | 10.24714 | 57.85518 | 4.634429 |
| 46 | 0.815324 | 27.40408 | 10.20362 | 57.81204 | 4.580259 |
| 47 | 0.818212 | 27.44447 | 10.15091 | 57.85172 | 4.552890 |
| 48 | 0.825305 | 27.56848 | 9.988268 | 57.96434 | 4.478913 |
| Cholesky Ordering: LOIL LGDP LUKEPU LUSEPU | | | | | |

Variance Decomposition