N E W S
OF THE NATIONAL ACADEMY OF SCIENCES OF THE REPUBLIC OF KAZAKHSTAN
SERIES OF SOCIAL AND HUMAN SCIENCES
ISSN 2224-5294 **https://doi.org/10.32014/2020.2224-5294.74**
Volume 3, Number 331 (2020), 127 – 136

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MANAGING THE NATURAL RESOURCE CURSE OF CENTRAL ASIA

Abstract. The goal of this paper is to examine the nature of the relationship between real GDP, real exchange rate, and oil prices. In a new insight into resource effects on commodity dependent economies, we illustrate that oil price changes have a directly an asymmetric effect on real GDP. We employ VAR approach to time series data for the period 2000-2017. Results of Wald, Granger multivariate causality, and Likelihood Ratio tests indicate that linear commodity price changes (and other oil price transformations) are significant for the dominant central Asian economy of Kazakhstan. Positive price increases have a far larger magnitude of positive effect on GDP than equivalent oil price in a second observation. Additionally, results of this research indicate that one possible channel for oil price shocks to affect the real economic activity of the country is through their effect on real exchange rate.

Keywords: GDP; Real Exchange Rate; Oil prices.

1. Introduction.

The resource curse is referred to the situation when countries abundant in natural resources have lower economic growth compared to countries with smaller endowment of natural resources. This situation has been identified among some of the former "Eastern Bloc" transition economies (Gylfason, 2000; Kronenberg, 2004). Countries with lower amount of natural resources recovered from the transition shock much faster than countries which are rich in natural resources, for them the recovery was longer. Moreover, some of these countries, such as Kazakhstan, Russia, and Moldova had negative economic growth at the beginning of transition period (Kronenberg, 2004). This fact raises the question whether Kazakhstan with its abundant oil reserves has been experiencing the curse of natural resources.

Brunnschweiler and Bulte (2008) argue that the effect of natural resources on economic growth depends on whether there is a resource abundance or resource dependence. Countries rich with natural resources may actually benefit from these resources and earn high incomes from their extraction, later they might specialize in extraction and export of these resources and become dependent on resources as a primary source of their income. However, whether resource abundant countries become dependent on their resources is mostly determined by the quality of institutions. In particular, we suggest that a Central Bank's ability to capture the upside of commodity price increases, while controlling for negative foreign exchange effects, is one of important factors determining economy's vulnerability to commodity price fluctuations. Nevertheless, one issue that remains unclear is the extent of the regional primacy of the relationship between commodity prices, GDP, foreign exchange and economic growth. In order to provide insights into this important relationship – we apply a vector autoregression approach to this issue, using the country of Kazakhstan. The relationship is important in the region since fluctuations of world oil prices have destabilizing impact on the entire region of Central Asia and Russia. Specifically we expect that the volatility in oil prices would have a direct effect on Kazakhstan´s balance of payments and directly impact Kazakhstan´s foreign reserves for the period 2000-2017. It is the nature and the extent of this relationship that is the focus of this paper.

In a new contribution to the debate, we contest the existence of symmetrical relationship between oil price changes and output growth. Rather, we find that positive price increases have a far larger magnitude of positive GDP effect than equivalent oil price decreases on real GDP. In an important learning for

commodity dependent countries – we posit that in order to manage resource curse effects, there is a real need for structural central bank management of exchange exposures to commodity price volatility.

2. Literature.

The oil price – macroeconomic relationship is likely to be dissimilar for oil importing and in oil exporting countries. A negative relationship between oil prices and economic activity has been found for oil importing countries (See Hamilton and Herrera 2004; Jimenez-Rodriguez and Sanchez 2005; Hsing 2009; Lim and Sek 2017; Kibunyi et al. 2018 among many others). Yet, for oil producing countries the relationship between in oil prices and economic growth has been found to be positive (See Lim and Sek 2017; Gurvich et al. 2009; Bjornland 2009; Korhonen, Mehrotra 2009 among many others).

Some research (Bjornland 2009; Jimenez-Rodrıguez and Sanchez 2005; Korhonen, Mehrotra 2009) find a positive effect of higher oil prices on the growth rate of Norway, Russia, Kazakhstan, Iran, and Venezuela. However, at the same time oil exporting countries like the United Kingdom and Canada have performed more like oil importing countries, displaying declining economic activity in case of higher oil prices.

Furthermore, the relationship between oil prices and growth rate has been shown to lose its significance when oil prices go down lending support to asymmetric effect of oil prices on economic performance of the country. The literature has offered several explanations to the asymmetry between oil price changes and GDP growth: the sectoral shifts hypothesis; the demand composition route; and the investment pause effect. This asymmetric effect of oil prices on GDP growth is commonly found for oil-importing countries (Mork 1989; Hamilton 2003; Jimenez-Rodriguez and Sanchez 2005; Lardic and Mignon 2008; Cologni and Manera 2009). Bjornland (2009), Aliyu (2009), and Korhonen, Mehrotra (2009) contribute to this issue by finding asymmetric effects of oil price fluctuations on GDP growth in oil-producing countries, Norway, Nigeria, and Venezuela, respectively. Though, Korhonen and Mehrotra (2009), have failed to reject the null hypothesis of linearity for Iran, Kazakhstan, and Russia.

As for the effect of oil prices on real exchange rate, it has been found that higher oil prices lead to an appreciation of the domestic currency (Nurmakhanova and Kretzschmar 2011; Huang and Guo 2007; Kutan and Wyzan 2005; Korhonen and Juurikkala 2009; Narayan et al. 2008). However, Chen and Chen (2007) suggest an opposite relationship that higher real oil prices result in a depreciation of the real exchange rate in the long-run. Korhonen, Mehrotra (2009) have found that an increase in real oil prices leads to an appreciation of the real exchange rate only for Iran and Venezuela. For Kazakhstan and Russia, the effect of oil price fluctuations on real exchange rate has been found to be negligible. Kutan and Wyzan (2005) inspect the vulnerability of Kazakhstani economy to the Dutch disease by estimating an equation for real exchange rate that includes oil prices. Their results demonstrate significant effects of fluctuations in oil prices on movements in the real exchange rate, particularly, oil price increase leads to appreciation of the real exchange rate. According to Kutan and Wyzan (2005) an increase in the oil price improves oil producing country's terms-of-trade, implying an increase in export revenues. Higher export revenues lead to an increased overall spending, which surges domestic prices relative to foreign prices, causing an appreciation of domestic currency.

There are few papers that address the effect of oil prices on overall economy of Kazakhstan. Korhonen, Mehrotra (2009) evaluate the impact of oil price fluctuations on real economic growth and real exchange rate finding a positive influence of oil prices on real GDP of Kazakhstan. Gurvich et al. (2009), on the other hand, have not found a significant effect of oil prices on real economic activity of Kazakhstan. Regarding the effect of oil prices on real exchange rate, again results are not unanimous (Korhonen and Mehrotra 2009; Kutan and Wyzan 2005).This heterogeneity of results raises a need for more empirical evidence of effect of oil prices on economic performance of Kazakhstan.

3. Data.

The quarterly data from the first quarter of 2000 to the last quarter of 2017 were utilized to estimate the VAR model that includes Kazakhstani GDP, the real effective exchange rate as endogenous variables and international oil prices as exogenous variable. The variables, consistent with most recent vector autoregression studies, are expressed in log levels (oil price, exchange rate, and GDP), so that a unit change can be interpreted as a growth rate.

4. Methodology.

We utilize the vector autoregression model of order p (or simply, VAR (p)) that includes a linear trend. To estimate the effect of oil price changes on endogenous variables, we study both the

orthogonalized and accumulated impulse-response functions, using Cholesky decomposition. Additionally, in order to determine whether there is a significant link between oil prices and macroeconomic variables the bivariate and multivariate Granger causality tests were carried out.

First, we check the stationarity of the series using Augmented Dickey Fuller (ADF) and Phillips and Perron (PP) tests. The estimated models utilize both the linear and non-linear oil price measures to examine various short run impacts. The two non-linear price transformations follow Mork's (1989) asymmetric specification (PONEG, POPOS) and Hamilton's (1996) non-linear transformation (NOPI).

5. Empirical results.

In this section we analyze the empirical results for the linear and the two non-linear models specifications outlined in the previous section. First, we check the stationarity of the series using Augmented Dickey Fuller and Phillips and Perron tests. Second, to check the joint significance of the oil price coefficients in the VAR model we carry out the Wald tests. Finally, we analyse the impulse functions and the accumulated responses and error variance decompositions.

5.1. Unit root test.

To check the stationarity of the series Augmented Dickey Fuller (ADF) and Phillips and Perron (PP) tests are employed. The estimation results are presented in Table 1. The appropriate lag level applied in the unit root test follows the Schwarz information criterion (SIC) criterion. Results demonstrate that all variables except for nonlinear oil prices are non-stationary at their levels. The real oil price, real GDP, real effective exchange rate are only stationary at the first difference level. Three nonlinear oil price measures, NOPI, asymmetric oil price increase and asymmetric oil price decrease, are stationary at their levels.

Table 1 - Unit Root Tests

	Level		First Difference	
Variable	ADF	PP	ADF	PP
GDP	-0.38	-0.8	-8.48***	-7.56***
REER	-1.64	-1.7	-3.13**	-4.05**
PO	-1.08	-1.65	-7.4***	-5.01***
POPOS	-24.36***	-25.35***	-13.99***	-74.46***
PONEG	-36.88***	-52.56***	-8.72***	-85.39***
NOPI	-8.50***	-6.42***	-6.42***	-11.48***

* (**,***) indicate significance at 10, 5, and 1 percent respectively.
Note: Lag length was chosen in line with the Schwarz information criterion.

Table 1 provides results of a Unit Root Tests are provided for both Augmented Dickey Fuller (ADF) and Phillips-Perron techniques. PO is the oil price, POPOS and PONEG are respectively positive and negative oil price changes, and NOPI is the maximum value of the oil price observed during the preceding year.

5.2. Testing for significance and Granger-causality.

To check the joint significance of the oil price coefficients in the VAR model we carry out the Wald tests. The tests are run for both linear and non-linear specifications of oil price models. Table 2 reports the results of the Wald, multivariate and bivariate Granger causality test statistics.

First, the Wald test checks the null hypothesis that all of the oil price coefficients are jointly zero in the GDP and Exchange rate equations. Based on estimation results, we reject the null hypothesis of the different oil prices variables statistical significance in the linear and non-linear models at the 5 percent level. This implies that oil prices do not have a significant direct impact on real activity in the Kazakhstan economy. However, the result of Wald test indicates that oil prices have a significant direct impact on the real effective exchange rate of Kazakhstan. Jimenez-Rodriguez and Sanchez (2005) mention that oil prices might not affect GDP directly, but through third variables in the system.

To examine this possibility, the significance of the oil price for the VAR system as a whole is tested. In order to test this hypothesis the Likelihood Ratio test is used. Let the VAR model be rewritten as follows:

$$y_{1t} = c_1 + D_1' x_{1t} + D_2' x_{2t} + \varepsilon_{1t}$$
$$o_t = c_2 + C_1' x_{1t} + C_2' x_{2t} + \varepsilon_{2t}$$

where y_{1t} is the vector of variables other than oil price, x_{1t} contains lags of y_{1t}, o_t represents the real oil price, and x_{2t} contains lags of o_t. Then the null hypothesis would be the following:

H0: All oil price coefficients are jointly zero in all equations of the system but its own equation, i.e. $D_2=0$. The statistic is as follows:

$$2 \times [L(\theta_1) - L(\theta_2)] \overset{a}{\sim} \chi^2 (rows(y_{1t}) \times p),$$

where $L(\theta_1)$ and $L(\theta_2)$ represent the value of the log likelihood function of the unrestricted and restricted models, respectively.

It is found that the all oil price variable, in the linear model, the positive and negative changes in the asymmetric models, and net oil price specification are significant for the whole model. This result implies that though there is no direct impact of oil prices on real GDP of Kazakhstan, they still affect the economy of the country through their effect on other variable in the system, real exchange rate.

Table 2 - Wald, Multivariate and Bivariate Granger Causality Test

	Model			
Test	Linear	Oil Price+	Oil Price-	NOPI
Wald (GDP)	3.14 (0.33)	3.86 (0.14)	3.53 (0.28)	2.39 (0.49)
Wald (REER)	20.56*** (0.00)	8.66*** (0.008)	7.41** (0.04)	6.97* (0.05)
Likelihood Ratio	0.032*** (0.0005)	3.45E-04*** (1.2E-0.6)	4.1E-04*** (8.7E-08)	9.2E-03*** (3.3E-05)
Block Granger causality ($A_2=0$)	3.41 (0.22)	2.00 (0.12)	2.00 (0.12)	3.89 (0.31)
Block Granger causality ($B_1=0$)	30.98*** (0.00)	15.00** (0.02)	15.00** (0.02)	10.26** (0.03)
Block Granger causality ($A_2=0$, $B_1=0$, $\Omega_{21}=0$)	12.46*** (0.00)	8.92** (0.03)	8.92** (0.03)	2.37* (0.1)

* (**,***) indicate significance at 10, 5, and 1 percent respectively.

Note: the hypothesis for the Wald test is H0: oil price coefficients are jointly equal to zero in the GDP equation of the VAR model. The Granger causality test tests the hypothesis that a given oil price measure does not Granger cause real GDP.

Table 2 provides results of Wald, multivariate and bivariate Granger causality test statistics and the corresponding p-values. Wald test was performed for both real GDP and real effective exchange rate for different model specifications: both the linear and non-linear oil price transformations. All other tests were also performed for different model specifications, both the linear and non-linear cases. PO is the oil price, POPOS and PONEG are respectively positive and negative oil price changes, and NOPI is the maximum value of the oil price observed during the preceding year. See the text for further explanation.

Finally, two multivariate Granger causality tests are performed to check the block exogeneity (Jimenez-Rodriguez and Sanchez 2005).

Two groups of variables in the VAR are considered as represented by the $(n_1 \times 1)$ vector y_{1t} and the $(n_2 \times 1)$ vector y_{2t}. The p-th order VAR is rewritten as follows:

$$y_{1t} = c_1 + A_1' x_{1t} + A_2' x_{2t} + \varepsilon_{1t}$$
$$y_{2t} = c_2 + B_1' x_{1t} + B_2' x_{2t} + \varepsilon_{2t}$$

where x_{1t} is an $(n_1 p \times 1)$ vector incorporating lags of y_{1t}, and x_{2t} is an $(n_2 p \times 1)$ vector incorporating lags of y_{2t}. $y_1(y_2)$ is block-exogenous in the time series sense with respect to $y_2(y_1)$ when $A_2=0$ ($B_1=0$). The null hypothesis H0: $A_2=0$ is tested using the following statistic:

$$T \times \left\{ \log\left|\Omega_{11}^{*}(0)\right| - \log\left|\Omega_{11}^{*}\right| \right\} \overset{a}{\sim} \chi^2(n_1 n_2 p),$$

where Ω_{11}^{*} is the variance-covariance matrix of the residuals from OLS estimation of (1) and $\Omega_{11}^{*}(0)$ that of the residuals from OLS estimation of (1) when $A_2=0$. The test statistic for testing hypothesis H0: $B_1=0$ is conducted similarly. When $A_2=0$, $B_1=0$, and $\Omega_{21} = 0$, then there is no relation at all between y_1 and y_2.

To check the causality among variables of the model, first the null hypothesis that the oil price variable under consideration is Granger-caused by the remaining variables of the system is tested. Based on the test results we reject the null hypothesis for all oil price specifications. Second, we test whether a given oil price variable Granger-causes the remaining variables of the system. Results of this test suggest that oil price variables generally Granger-cause the remaining variables of the system at the 5 % significance level. Third, we test the lack of any relationship between oil prices and the rest of the system. Based on results of this test we reject the hypothesis that there is no relationship between oil prices and the rest of the system.

In sum, the results show that the interaction between oil prices and macroeconomic variables is generally significant, with the direction of causality going from oil prices to the rest of variables.

6. Impulse response functions and accumulated responses.

Now we inspect the effects of oil prices on real GDP growth and real exchange rate using both the orthogonalized impulse-response functions and accumulated responses for the linear, net and the non-linear specifications of the model.

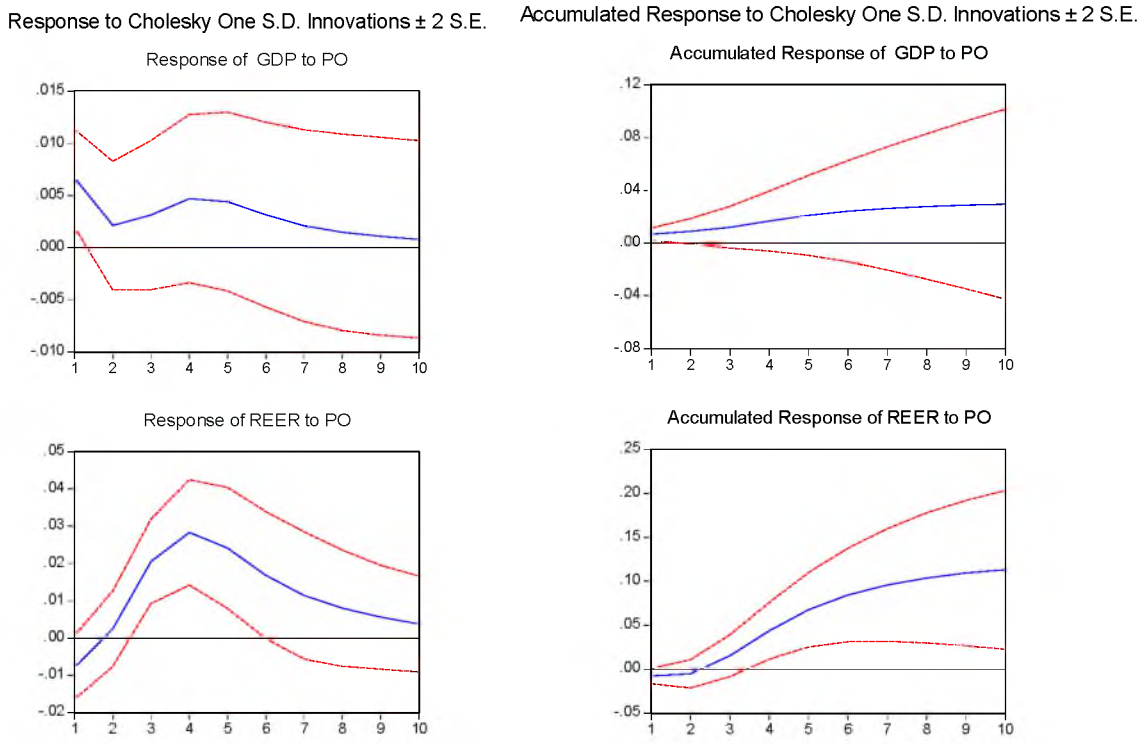

Figure 1 - Impulse responses and accumulated impulse responses with probability bands. The first column gives the responses in real GDP (GDP) and real exchange rate (REER) to an oil price (PO) shock, the second column gives the accumulated impulse responses in real GDP (GDP) and real exchange rate (REER) to an oil price (PO) shock

Oil price increases lead to higher level of GDP for both linear and asymmetric oil price specifications as positive shock to oil price induces an increase in incomes for oil exporting countries. Since Kazakhstan is the oil producing country, Kazakhstani real exchange rate appreciates when higher oil prices lead to higher inflow of foreign exchange into the economy. Figures 1-4 present the orthogonalized impulse responses functions and the accumulated responses of GDP growth and real exchange rate to one standard deviation oil price shock across the three oil price specifications, respectively.

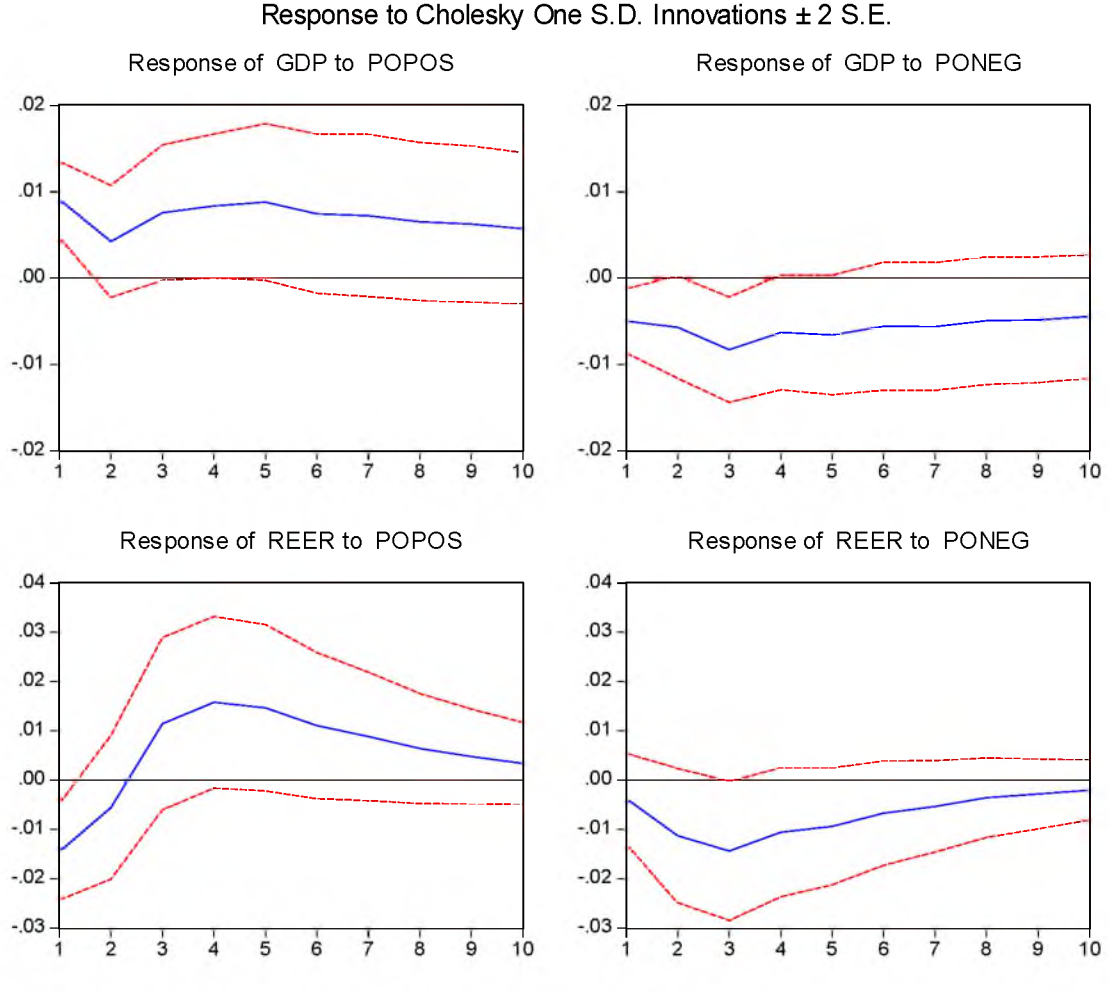

Figure 2 - Impulse responses with probability bands. The first column gives the responses in real GDP (GDP) and real exchange rate (REER) to an oil price (POPOS) shock, the second column gives the impulse responses in real GDP (GDP) and real exchange rate (REER) to an oil price (PONEG) shock

The asymmetric oil price specification´s impulse responses functions are displayed in Figures 2 and 3. Figure 3 demonstrates that the accumulated responses of an asymmetric oil price changes are positive for asymmetric price increase and negative for price decrease throughout the time horizons. However, the impact of the oil price increase on real GDP outweighs the impact of the oil price decrease. The result indicates that benefits from oil price increases exceed costs from price decreases in Kazakhstan. This result is consistent with a finding by Jimenez-Rodriguez and Sanchez (2005) for UK and Norway.

The impulse responses for the net oil price specification as presented in Figure 4 demonstrate that Kazakhstani real GDP increases by up to 0.05 percent in the first six months following the oil price shock. But, then throughout the rest time horizon this pattern changes into negative.

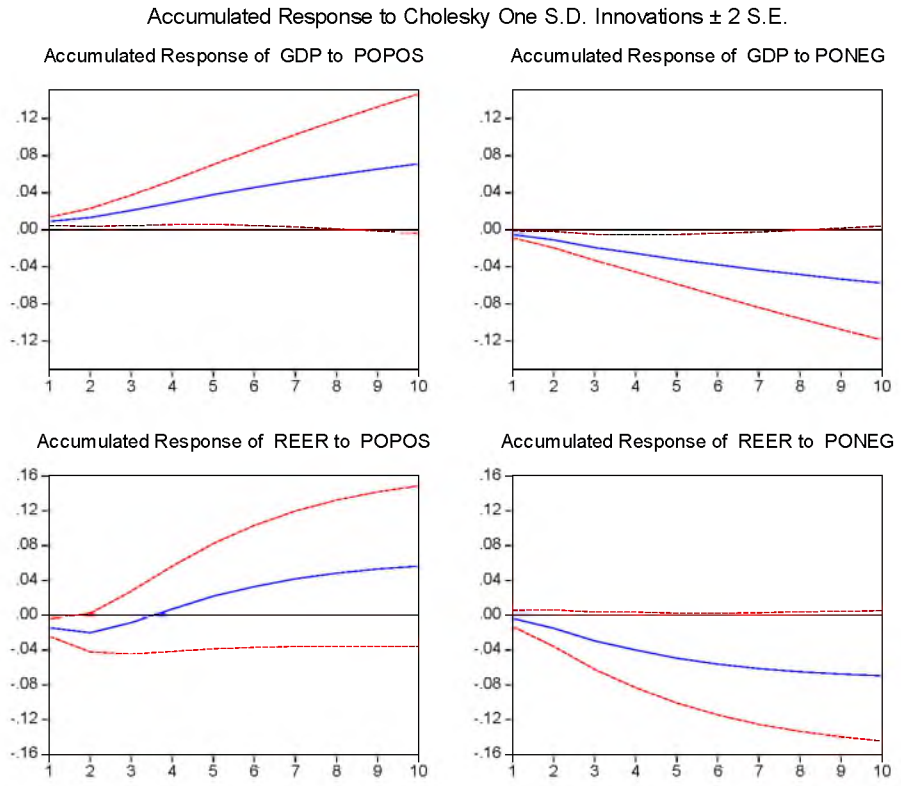

Figure 3 - Accumulated impulse responses with probability bands. The first column gives the accumulated responses in real GDP (GDP) and real exchange rate (REER) to an oil price (POPOS) shock, the second column gives the accumulated impulse responses in real GDP (GDP) and real exchange rate (REER) to an oil price (PONEG) shock

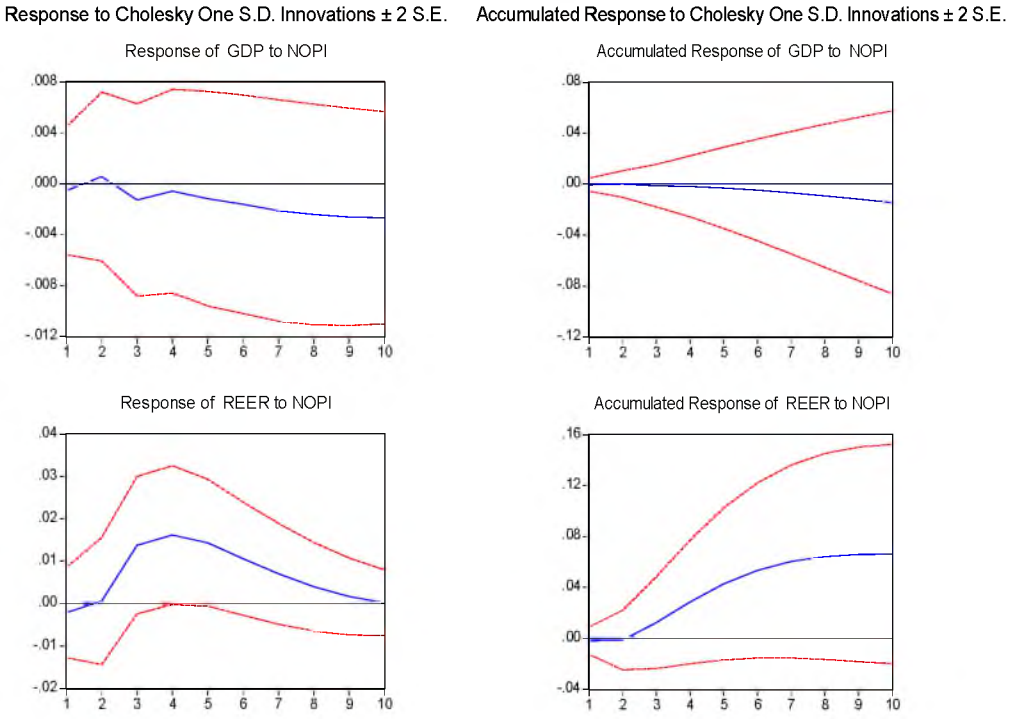

Figure 4 - Impulse responses and accumulated impulse responses with probability bands. The first column gives the responses in real GDP (GDP) and real exchange rate (REER) to an oil price (NOPI) shock, the second column gives the accumulated impulse responses in real GDP (GDP) and real exchange rate (REER) to an oil price (NOPI) shock

7. Conclusion.

The relationship between real GDP and oil prices has been attracting attention from policy makers due to recent sharp fluctuations in oil prices. There is an extensive literature on this issue that has demonstrated a strong impact of oil prices on the macroeconomic situation of the country. One strand of this literature states that oil prices positively affect the economic growth of oil exporting country. As for the influence of oil prices on the Kazakhstani economy, few research papers that address the issue have produced heterogeneous results. On this ground, we examine the impact of oil prices on real GDP and real exchange rate for an oil producing country, Kazakhstan.

Our result provide an evidence of more significant benefits of asymmetric oil price increases than adverse effects of oil price decrease on the level of real GDP in Kazakhstan. The results for both linear and net specification models are in line with the similar studies in the area. Wald and Likelihood ratio tests confirm the significance of the oil price coefficients in the VAR for both linear and asymmetric specifications.

In a new finding for the region, our results demonstrate that one of the key channels explaining the impact of oil prices on real GDP is the real effective exchange rate. Though, oil price changes do not have a direct influence on real GDP of Kazakhstan, they have indirect effect through their impact on real exchange rate. Our finding that higher oil prices result in appreciation of real exchange rate is consistent with the existent literature on oil exporting countries. From the economic policy perspective, Kazakhstan should in the long run continue to decrease its dependency on energy sector through reform policies (Djumabekova et al. 2019). Specifically, given the important role of real exchange rate, the findings of this study give support to anti-inflation monetary policies conducted by National Bank of Kazakhstan. These anti-inflationary policies could constrain the real appreciation of Tenge and, hence, support growth of real GDP.

We feel that the institutional support and interference of the Central Bank is somewhat masking the affect of oil on GDP. As result we believe that as more data become available - our study opens up an interesting avenue for future work on the connectivity between monetary policy, oil price and economic growth in Post Soviet commodity dependent economies.

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ОРТАЛЫҚ АЗИЯДАҒЫ ТАБИҒАТ ҚОРЛАРЫНЫҢ ДАМУ БАҒЫТЫН ЗЕРТТЕУ

Аннотация. Бұл жұмыстың мақсаты – нақты ЖІӨ, нақты айырбастау бағамы және мұнай бағалары арасындағы байланысты зерттеу. Нақты Жалпы Ішкі Өнім мен мұнай бағалары арасындағы байланыс жақында мұнай бағасының күрт өзгеруіне байланысты саясаткерлердің назарын аударды. Бұл мәселе бойынша мұнай бағасының елдегі макроэкономикалық жағдайға күшті әсерін көрсететін кең әдебиеттер бар. Осы әдебиет бағыттарының бірі мұнай бағасы мұнай экспорттаушы елдің экономикалық өсуіне оң әсер етеді дейді. Мұнай бағасының Қазақстан экономикасына әсері туралы айтатын болсақ, бұл мәселе бойынша бірқатар ғылыми еңбектер әртүрлі нәтижелер берді. Нәтижелердің ғетероғенділігі мұнай бағасының Қазақстанның экономикалық көрсеткіштеріне әсер ететінін дәлелдеуді қажет етеді. Осы негізде біз мұнай бағасының нақты Жалпы Ішкі Өнім -ге және мұнай өндіруші ел – Қазақстан үшін нақты айырбастау бағамына әсерін зерттейміз.

Біз векторлық ауторегрессивті тәсілді 2000-2017 жылдар аралығындағы уақыттық қатарларға қолданамыз. Вальд, Гранжер көпжақты себептер және ықтималдылық коэффициенттері сынақтарының нәтижелері тауар бағасының сызықтық өзгерісі (және басқа да мұнай бағасының өзгерістері) Қазақстанның басым Орталық Азия экономикасы үшін маңызды екендігін көрсетеді. Шикізатқа тәуелді экономикаларға ресурстардың әсерін жаңа түсіну кезінде біз мұнай бағасының өзгеруі нақты ЖІӨ-ге тікелей асимметриялық әсер ететінін көрсетеміз. Біздің нәтижелеріміз Қазақстандағы нақты Жалпы Ішкі Өнім-ге мұнай бағасының төмендеуінің жағымсыз әсерінен гөрі, мұнай бағасының асимметриялық өсуінің айтарлықтай оң әсерін көрсетеді. Сызықтық және бейсызық модель сипаттамалары бойынша нәтижелер осы саладағы ұқсас зерттеулерге сәйкес келеді. Вальд және ықтималдылық коэффициенттерінің сынақтары векторлық ауторегрессивті мұнай бағасының коэффициенттерінің сызықтық және асимметриялық ерекшеліктер үшін

мацыздылыгын растайды. Вальдтың қатынасы мен ықтималдылыққа арналған сынақтар векторлық ауторегрессивті маркасының май бағасының сызықтық және асимметриялық сипаттамалары үшін мацыздылыгын растайды.

Аймақ үшін жаңа нәтижелерде біздің нәтижелеріміз мұнай бағасының нақты Жалпы Ішкі Өнімге әсерін түсіндіретін негізгі арналардың бірі – нақты тиімді айырбас багамы екенін көрсетеді. Мұнай бағасының өзгеруі Қазақстанның нақты Жалпы Ішкі Өніміне тікелей әсер етпесе де, олардың нақты багамға әсері арқылы жанама әсер етеді. Мұнай бағасының өсуі нақты валюта багамын жогарылатады деген тұжырым мұнай экспорттаушы елдер туралы қолда бар әдебиеттерге сәйкес келеді. Экономикалық саясат тұргысынан алганда, Қазақстан болашақта реформалар жүргізу арқылы энергетикалық секторга тәуелділікті азайтуды жалгастыруы керек. Атап айтқанда, нақты айырбастау багамының мацызды рөлін ескере отырып, осы зерттеу нәтижелері Қазақстан Ұлттық Банкінің жүргізіп отырган инфляцияга қарсы ақша-кредит саясатын қолдайды. Бұл инфляцияга қарсы саясат тецгенің нақты ныгаюын шектеуі мүмкін, демек нақты Жалпы Ішкі Өнімніц өсуін қолдайды.

Орталық банктің институционалды қолдауы мен араласуы мұнайдың Жалпы Ішкі Өнімге әсерін біршама шектейді деп санаймыз. Нәтижесінде, жаңа мәліметтер пайда болганнан кейін, біздің зерттеуіміз ақша-несие саясаты, мұнай багалары және тауарларга тәуелді посткецестік кецістіктегі экономикалық өсім арасындагы байланыс үшін болашақтағы жұмысқа қызықты мүмкіндік ашады деп санаймыз.

Түйін сөздер: ЖІӨ, нақты валюта багамы, мұнай бағасы.

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УПРАВЛЕНИЕ ПРИРОДНЫМИ РЕСУРСАМИ ЦЕНТРАЛЬНОЙ АЗИИ

Аннотация. Целью данной работы является изучение характера взаимосвязи между реальным внутренним валовым продуктом, реальным обменным курсом и ценами на нефть. Взаимосвязь между реальным ВВП и ценами на нефть привлекает внимание политиков из-за недавних резких колебаний цен на нефть. По этому вопросу имеется обширная литература, которая продемонстрировала сильное влияние цен на нефть на макроэкономическую ситуацию в стране. В одном из направлений этой литературы говорится, что цены на нефть положительно влияют на экономический рост страны –экспортера нефти. Что касается влияния цен на нефть на казахстанскую экономику, то лишь немногие исследовательские работы, посвященные этой проблеме, дали неоднозначные результаты. Эта неоднозначность результатов вызывает необходимость в более эмпирических доказательствах влияния цен на нефть на экономические показатели Казахстана. На этом основании мы изучаем влияние цен на нефть на реальный ВВП и реальный обменный курс для нефтедобывающей страны – Казахстана.

Мы используем VAR-подход к данным временных рядов за период 2000 –2017 гг. Результаты тестов многомерной причинности Вальда, Грейнджера и тестов отношения правдоподобия показывают, что линейные изменения цен на сырьевые товары (и другие изменения цен на нефть) имеют большое значение для доминирующей экономики Центральной Азии в Казахстане. В новом понимании влияния ресурсов на экономики, зависящие от сырьевых товаров, мы показываем, что изменения цен на нефть оказывают прямое асимметричное влияние на реальный ВВП. Наши результаты свидетельствуют о более значительном положительном влиянии асимметричного роста цен на нефть, чем неблагоприятные последствия снижения цен на нефть на уровне реального ВВП в Казахстане. Результаты как для линейных, так и для нелинейных спецификаций модели соответствуют аналогичным исследованиям в этой области. Тесты отношения Вальда и правдоподобия подтверждают значимость коэффициентов цен на нефть в VAR как для линейных, так и для асимметричных характеристик.

В новых результатах для региона наши результаты демонстрируют, что одним из ключевых каналов, объясняющих влияние цен на нефть на реальный ВВП, является реальный эффективный обменный курс. Хотя изменения цен на нефть не имеют прямого влияния на реальный ВВП Казахстана, они оказывают косвенное влияние через свое влияние на реальный обменный курс. Наш вывод о том, что более высокие цены на нефть приводят к повышению реального обменного курса, согласуется с существующей литературой по странам-экспортерам нефти. С точки зрения экономической политики, Казахстан в долгосрочной перспективе должен продолжать снижать свою зависимость от энергетического сектора посредством политики реформ. В частности, учитывая важную роль реального обменного курса, результаты этого исследования поддерживают антиинфляционную монетарную политику, проводимую Национальным Банком Казахстана. Эта антиинфляционная политика может ограничить реальное укрепление тенге и, следовательно, поддержать рост реального ВВП.

Мы считаем, что институциональная поддержка и вмешательство Центрального банка несколько маскируют влияние нефти на ВВП. В результате мы считаем, что по мере появления новых данных наше исследование открывает интересную возможность для будущей работы по взаимосвязи между денежно-кредитной политикой, ценами на нефть и экономическим ростом в постсоветских странах, зависящих от сырьевых товаров.

Ключевые слова: ВВП, реальный обменный курс, цена на нефть.

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REFERENCES

[1] Gylfason, T. (2000). "Resources, Agriculture, and Economic Growth in Economies in Transition," Kyklos, Wiley Blackwell, 53(4): 545-79.

[2] Kronenberg, T. (2004). "The curse of natural resources in the transition economies". *Economics of Transition,* 12 (3): 399-426.

[3] Brunnschweiler C.N. and E.H. Bulte. (2008). "The Resource Curse Revisited and Revised:A Tale of Paradoxes and Red Herrings". *Journal of Environmental Economics and. Management*,55**:** 248-254.

[4] Hamilton, J.D., A.M. Herrera. (2004). "Oil shocks and aggregate macroeconomic behavior: the role of monetary policy". *Journal of Money, Credit, and Banking,* 36: 265-286.

[5] Jimenez-Rodriguez, R., M. Sanchez. (2005). "Oil Price Shocks and Real GDP Growth: Empirical Evidence for Some OECD Countries". *Applied Economics,* 37 (2): 201-28.

[6] Hsing, Y. (2009). "Estimating the Impacts of Changing Crude Oil Prices and Macroeconomic Conditions on Real Output for Norway", *International Journal of Economics,* 3 (1): 23-31.

[7] Lim, K. B., S. K Sek. 2017. Examining the impacts of oil price changes on economic indicators: A panel approach. AIP Conference Proceedings 1830, https://doi.org/10.1063/1.4981000.

[8] Kibunyi, A., Nzai, C.C., Wanjala, K. (2018). Effect of Crude Oil Prices on GDP Growth and Selected Macroeconomic Variables in Kenya. *Journal of Economics and Business,* 1(3): 282-298.

[9] Gurvich, E.; Vakulenko, E.; Krivenko, P. (2009). "Cyclicality of Fiscal Policy in Oil-Producing Countries", *Problems of Economic Transition,* 52 (1): 24-53.

[10] Bjornland, H.C. (2009). "Oil Price Shocks and Stock Market Booms in an Oil Exporting Country". *Scottish Journal of Political Economy,* 56 (2): 232-54.

[11] Korhonen, I., A. N. Mehrotra. (2009). "Real Exchange Rate, Output and Oil: Case of Four Large Energy Producers". Bank of Finland. Institute for Economies in Transition. Discussion Papers 6.

[12] Mork, K.A. (1989). "Oil and the Macroeconomy When Prices Go Up and Down: An Extension of Hamilton's Results". *Journal of Political Economy,* **97**: 740-744.

[13] Lardic, S., V. Mignon. (2008). "Oil Prices and Economic Activity: An Asymmetric Cointegration Approach", *Energy Economics,* 30: 847-855.

[14] Cologni, A., M. Manera. (2009). "The Asymmetric Effects of Oil Shocks on Output Growth: A Markov-Switching Analysis for the G-7 Countries", *Economic Modelling,* 26 (1): 1-29.

[15] Aliyu, S.U.R. (2009). "Impact of Oil Price Shock and Exchange Rate Volatility on Economic Growth in Nigeria: An Empirical Investigation", *Research Journal of International Studies,* 11: 4-15.

[16] Nurmakhanova M., G. Kretzschmar. **(**2011). "Kazakhstan - The Real Currency and Growth Challenge for Commodity Producing Countries", *Journal of Business and Policy Research,* 6: 87-105.

[17] Huang, Y., F. Guo. (2007). "The Role of Oil Price Shocks on China's Real Exchange Rate", *China Economic Review,* 18: 244-265.

[18] Kutan A.M., M.L. Wyzan. (2005). "Explaining the Real Exchange Rate in Kazakhstan, 1996–2003: is Kazakhstan Vulnerable to the Dutch Disease?" *Economic Systems,* 29: 242-255.

[19] Korhonen, I., T.Juurikkala. (2009). "Equilibrium Exchange Rates in Oil-Exporting Countries". *Journal of Economics and Finance,* 33(1): 71-79.

[20] Narayan, P. K., S. Narayan, A. Prasad. (2008). "Understanding the Oil Price-Exchange Rate Nexus for the Fiji Islands", *Energy Economics,* 30 (5): 2686-2696.

[21] Chen, S.-S., H.-C. Chen. (2007). "Oil Prices and Real Exchange Rate", *Energy Economics,* 29: 390–404.

[22] Hamilton, J.D. (1996). "This is what happened to the oil price-macroeconomy relationship," *Journal of Monetary Economics,* 38(2): 215-220.

[23] Djumabekova A.T., R.K. Sabirova, D.T. Bizhanov, B.M. Bayadilova, A.E. Zhansagimova. (2019). "Innovation in the use of fuel and energy resources of the country", *News of the National Academy of Sciences of the Republic of Kazakhstan,* 2 (324): 185-189.