Effects of Oil Price Changes on Regional Real Income Per Capita in Kazakhstan: Panel Data Analysis

Sabit Baimaganbetov, Dinmukhamed Kelesbayev*, Rima Yermankulova, Bibigul Izzatullaeva, Botagoz Almukhambetova

Khoja Akhmet Yassawi International Kazakh-Turkish University, Turkestan, Kazakstan.
*Email: dinmukhamed.kelesbayev@ayu.edu.kz

ABSTRACT

The study examines the effect of Brent oil prices on the regional real per capita income in Kazakhstan by a panel data analysis of sixteen states and a quarterly time series between the years of 2008 and 2015. The long-term relationship between the series was examined with the help of Westerlund (2007) cointegration test. In this context, a positive and significant relationship was found between long-term oil price changes and per capita regional real income growth. In addition, causal relations between variables were investigated by Dumitrescu and Hurlin (2012) using panel Granger causality test. Empirical findings from both the co-integration and the Granger causality test show that the increase in oil prices has an important positive effect on the real income of the Kazakhstan regions.

Keywords: Kazakhstan, Oil Prices, Cross Sectional Dependence, Panel Cointegration
JEL Classifications: C23, E64, R11

1. INTRODUCTION

While the increase in oil prices is a good development in terms of income increase for oil exporting countries, it is considered a bad development because it causes cost inflation and the current account deficit to increase in oil importing countries. Therefore, the change in oil prices for Kazakhstan, which is economically dependent on oil revenues, is of great importance in terms of regional real income per capita.

The rapid decline in oil prices causes some macroeconomic problems such as real exchange rate and inflation as well as slowing down the growth rate of Kazakhstan economics. The economic structure of Kazakhstan and the analysis of existing export capacity indicate that the most effective external factor on economic variables is oil prices. The drop in oil prices in 2014 resulted in the depreciation of the national currency Tenge, the

increase in the prices of imported goods, the depreciation of export goods and the per capita gross domestic product (GDP), known as an indicator of the country's growth, to US $ 12807 and the following $ 10510 in 2015 caused its regression.

The oil shocks that occurred in the 1970s adversely affected the developed countries and caused economic problems. Hamilton (1983) argues that the increase in oil prices has a negative effect on economic variables. There is a large literature on the impact of fluctuations in oil prices on macroeconomic variables. In contrast to it, empirical studies carried out for Kazakhstan are limited.

The study of Korhonen and Mehrotra (2009) can be considered as an example of these limited studies. In this study, in the research conducted within the framework of structural vector autoregression (SVAR) model using 3 months data for Kazakhstan between 1995 and 2006, they found that the positive shocks in oil prices have an

effect that increases the Kazakhstan economic growth. They also showed that the effect of positive shocks in oil prices on the real exchange rate remained low enough to be neglected.

Kazakhstan can be divided into 16 regions including 14 regions and 2 cities with special status. There is no econometric study investigating the effect of oil prices on income in Kazakhstan. In contrast to previous studies on Kazakhstan's economy, this study deals with the analyzes estblished panel data analysis and the impact of oil prices on Kazakhstan's income as a result of analyzes.

Brief information about the regional income distribution for Kazakhstan was given in the first part of the study. In the second section, literature review was performed and in the third section, the results obtained from the panel unit root, cointegration and panel causality test were taken into consideration because of the horizontal cross-sectional dependence in the panel data. The study ends with the evaluation of the econometric findings.

2. REGIONAL INCOME DISTRIBUTION FOR KAZAKHSTAN

The administrative organization of Kazakhstan consists of two cities with special status and 14 states. These are regions of Akmola, Aktobe, Almaty, Atyrau, East Kazakhstan, Jambyl, Karagandy, Kostanay, Kyzylorda, Mangystau, North Kazakhstan, Pavlodar, Turkistan (formerly South Kazakhstan), West Kazakhstan, and cities of Astana and Almaty. Geographically, it consists of five regions. These are Central Kazakhstan, North Kazakhstan, East Kazakhstan, South Kazakhstan and Western Kazakhstan, respectively. As in the rest of the world, the level of economic development and living standards vary among the regions of Kazakhstan. The reasons for this difference can be listed as the investments in the regions, the regional development potential and the regions distance from the centers of commercial or strategic importance. The main indicators of regional development are real income, per capita income and the average salary per person (Kakizhanova and Rakhmatullaeva, 2014).

The Institute of Economics of the Republic of Kazakhstan analyzes the regions by dividing the regions into four groups. The regions in the first group are defined as industrialized regions. These regions are distinguished as Karagandy, East Kazakhstan, Pavlodar, Kostanay and North Kazakhstan. The second group regions are the regions where strategic natural resources are located. This group of the regions are Atyrau, Aktobe and Mangystau regions. In these regions, there are petroleum deposits with strategic importance. Since Kazakhstan has gained its independence, most of the investments made up to nowadays have been made to petroleum fuels and these regions have high growth rates compared to other regions. The third group of regions are trade centers and developed industries, which can be listed as South Kazakhstan region, Almaty, Jambyl, Kokshetau, Akmola, West Kazakhstan and Taldykorgan respectively. The fourth group regions are known as undeveloped regions (Doskeyeva and Kuzembekova, 2014).

As it is given in Table 1, the income growth level of Kazakhstan regions varies. Overall, per capita income in 1998 was 108 300 tenge, while in 2018 (first 9 months) it increased to 2 179 500

Table 1: Gross regional income per capita (in thousand tenge)

Region	Years		
	1998	2008	2018*
Almaty region	55.7	409.2	944,2
Akmola region	53.8	641.4	1 454,0
Aktobe region	122.3	1231.1	2 244,9
Atyrau region	226.6	3626.0	7 850,9
Wst Kazakhstan region	87.4	1339.4	3 083,3
Doğu Kazakhstan region	116.1	627.9	1 677,2
Turkistan region (former South Kazakhstan)	48.9	310.4	559,5
Jambyl region	46.7	316.9	868,0
Karagandy Eyaleti	131.7	1088.4	2 291,8
Kyzylorda region	60.7	1075.9	1 553,8
Kostanay region	109.5	789.7	1 585,3
North Kazakistan region	86.4	619.0	1 474,0
Mangystau region	191.2	2631.0	3 554,0
Pavlodar region	153.2	1153.6	2 285,4
Astana	186.8	2080.2	3 802,0
Almaty	265.1	2193.2	4 133,7
Kazakhstan	108.3	1024.2	2 179,5

*First 9 months of 2018

tenge. In the regional analysis, we can examine the regions by dividing the average income of Kazakhstan over and below. As can be seen from the table above, most of the Kazakhstan regions are below average. These regions can be named as the first group regions and we can list these regions as Almaty, Akmola, East Kazakhstan, South Kazakhstan, Jambyl, Kyzylorda, Kostanay and North Kazakhstan. Second group regions can be called as developed regions with high per capita income. Atyrau region, which is about two and a half times above the average income of Kazakhstan, is the most contributing region to Kazakhstan's income. This is the region where the oil reserves are concentrated. However, the cities of Almaty and Astana, which have special status, are about 2 times higher than the average income of Kazakhstan. The fact that these cities are higher than the average income in Kazakhstan is due to the fact, that Almaty is the financial center of Kazakhstan and Astana is the capital of the country.

According to the data in Figure 1, the shares of regions in GDP are included. According to this data, the region with the largest share is the city of Almaty. The share of this city in GDP is 21.8 percent; the reason of it is that all banks and companies of Kazakhstan are located mostly in Almaty city. The second place is Atyrau region which is known as the oil center of Kazakhstan. The reason is that the region has oil reserves. In the third place is Astana city. Astana city is the capital of Kazakhstan and the headquarters of all national companies are located in Astana.

3. LITERATURE REVIEW

There are many studies dealt with the impact of oil prices on economic growth. The empirical findings have shown that the increase in oil prices is positive for the oil-exporting countries, while the effect for oil importing countries is generally negative.

In Jimenez-Rodrigues and Sanchez (2005), the relationship between oil prices and economic growth in OECD countries was
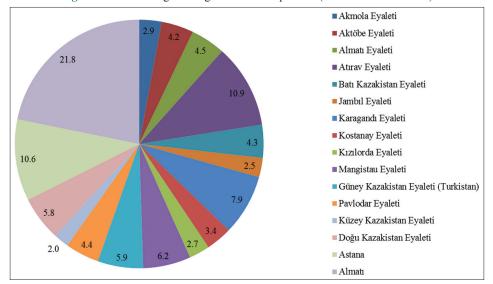
Figure 1: Share of regions in gross domestic product (first 9 months of 2018)

analyzed for oil exporters and oil importers by using 1972-2001 annual data. According to the results, it was found that the increase in oil prices positively affected the oil importing countries except Japan, while the negatively affected by the oil exporting countries.

Roger (2005) examined the relationship between oil prices and economic growth in the EU and OECD countries. The findings show that the increase in oil prices had a negative impact on the income of oil importing countries.

In Lescaroux and Mignon studies (2008), the countries were divided into three groups (OPEC member states, major oil exporting countries and oil importing countries) and analyzed with the help of panel data analysis. In the scope of research, the effect of oil prices on GDP, CPI, unemployment rate and shares with the help of Granger causality and panel cointegration methods were examined. According to the results of other variables in the price of oil it has proven to be a long-term relationship.

Jayaraman and Lau (2011) examined the effects of oil prices on economic growth for 14 countries in the Pacific Ocean by panel data analysis. As a result, it is determined that there is a negative relationship between oil price and economic growth in the long run.

In the study conducted by Mehrara and Mohaghegh (2011), the effect of oil prices on macroeconomic variables of developing oil exporting countries was investigated with the help of panel VAR method. In the study which used annual data between 1989 and 2005, the effect of oil prices on GDP, CPI, M2 was investigated for 8 countries that are not OPEC member countries and 8 non-OPEC members. According to the results of variance decomposition and effect-response analysis, it was found that inflation was affected by internal dynamics and the main source of uncertainty in macroeconomics was money supply. In addition, it was determined that oil crises were effective on GDP and money supply, and their shocks, production and money supply shocks were the most effective on oil prices.

In the study by Akıncı et al. (2012), it was researched whether there is a relationship between oil prices and economic growth for

the period of 1980-2011 in 127 countries in which 11 are OPEC and 116 are oil importers, if there is any positive or negative relationship with the help of panel data analysis. For OPEC countries the unidirectional causality relationships have been reached from GDP to oil prices and from oil prices to GDP for oil importing countries.

In the study conducted by Yardımcıoğlu and Gülmez (2013), the researches was carried out on the long-term relationship between oil prices and economic growth in the 10 OPEC countries for the period of 1970-2011. Also, it was studied whether the Dutch disease in OPEC countries is valid. According to the results, it was shown that there is a bidirectional causality relationship between oil prices and economic growth in the long run. On the other hand, the risk of Dutch disease for OPEC countries was found to be valid.

In the study by Mercan et al. (2015), the Dutch disease hypothesis was examined for Central Asia (Azerbaijan, Kazakhstan, Kyrgyzstan and Tajikistan) Republics with the data of 1990-2011 period. As a result of the analysis, it was determined that the increase in oil prices in these countries negatively affected the real exchange rate and the hypothesis was not valid. On the other hand, it was found that openness, foreign direct investment and public expenditures affected the real exchange rate positively.

In the research of Kose and Baimaganbetov (2015), using the monthly data covering 2000-2013 periods, the effects of asymmetric shocks in real Brent oil prices on Kazakhstan's production, inflation and real exchange rate were analyzed empirically in the framework of SVAR model. In this study, we try to show that, the positive shock in oil prices is positive and negative shocks negatively affect Kazakhstan's industrial production. It was also determined that, the response of industrial production to negative shocks was greater than the response in positive shocks.

According to the results, there was a positive correlation between the GDP per capita representing the economic growth and the crude oil price, and the positive relationship between the CPI and the crude

oil exports. The result of the regression analysis shows that one unit increase in crude oil exports increased the per capita GDP by 0.14.

In Demiral et al. studies (2016), 12 oil-producing countries were selected to examine the relationship between incomes from petrol selling and economic growth. Data between 2000 and 2010 were collected and panel regression analysis was applied. According to the results, there was a positive correlation between the GDP GSYİH per capita representing the economic growth and the ham crude oil price, and the positive relationship between the CPI TÜFE and the crude oil exports. The result of regression analysis shows that one unit increase in crude oil exports increased the per capita GDP by 0.14.

4. ANALYSIS

4.1. Data Set and Model
Quarterly data for the period of 2008-2015 belonging to Kazakhstan regions were used in the analysis. In this study, regional real income per capita (tenge) and Brent barrel price (US Dollar) were used. The data concerning the country is taken from the data of Kazakhstan Statistical Institute, the price of crude oil from Brent is taken from Energy Information Administration database.

4.2. Methods
One of the first studies to demonstrate that cross-sectional dependence should be taken into account in panel data analysis is carried out by O'Connell (1998). In his study, it was shown that the panel unit test, which does not consider the cross-sectional dependence of Levin, Lin, Chu (LLC) with the help of the Monte Carlo analogy method, has decreased the significance level and the test power decreased. Therefore, the unit root tests performed without considering the cross-sectional dependency for panel data can give misleading results (Pesaran, 2004). After this criticism, second-generation panel unit root tests and cointegration analyzes were developed which take into account the cross-sectional dependence (Tatoğlu, 2012. p. 200).

In this study, it is T = 32, N = 16 for the regional real income per capita, as the data of the three months between 2008 and 2015 and the cross-sectional data of 16 provinces are combined. To test the cross-sectional dependence, Pesaran and Yamagata (2008) used LM testing.

As a result of this test, a horizontal cross-sectional dependency was determined and Dickey-Fuller approach, extended under the horizontal cross correlation, presented by Pesaran (2007) was used in unit root test. The long-term relationship between the series was investigated with a panel cointegration test developed by Westerlund (2007) and based on error correction model taking into account the cross-sectional dependence.

Finally, the Granger causality test proposed by Dumitrescu and Hurlin (2012) gives information about the direction of causal relationships between variables.

4.3. Horizontal Cross-sectional Dependency Test
The fact that there is no cross-sectional dependence in the panel data analysis is important in terms of showing which generation

unit root test test will be performed. Pesaran and Yamagata (2008) showed that when the mean of the group is zero and the individual averages are non-zero, deviant results are obtained in the estimation of panel data based model parameters. In the studies conducted by Pesaran et al. (2008), a new cross-sectional dependency test with a mean of zero for the case where the time series size T has a small value has been demonstrated.

In order to eliminate this deviation, it is assumed that x_{it} has a solid external and u_{it} is normally distributed, and the variance values and mean values of the Breusch Pagan LM statistics are corrected. This test maintains consistency even if the horizontal cross-sectional dependency (CSD) test in the Pesaran (2004) study is inconsistent. Statistics developed by Pesaran and Yamagata corrected LM (2008) is defined as following:

$$LM_{adj} = \sqrt{\frac{2}{N(N-1)} \sum_{i=1}^{N-1} \sum_{j=i+1}^{N} \frac{(T-K)\hat{\rho}_{ij}^2 - \mu_{T_{ij}}}{\upsilon_{T_{ij}}}} \tag{1}$$

Here, when $\mu_{T_{ij}} = E\left[(T-k)\hat{\rho}_{ij}^2\right]$, it is $\upsilon_{T_{ij}} = V\left[(T-k)\hat{\rho}_{ij}^2\right]$. This test hypotheses for all T's and i≠j in the following form:

$$H_0 : Cov(u_{it}, u_{jt}) = 0$$

$$H_1 : Cov(u_{it}, u_{jt}) \neq 0 \tag{2}$$

Under the zero hypothesis (H_0), LM_{adj} test statistic has the standard normal distribution for all T and $N \rightarrow \infty$.

As seen in the Table 2, the probability values calculated for the per capita income variable are <0.05. In this case, the hypothesis H_0 can be rejected at 5% significance level. This result shows that there is horizontal cross-sectional dependence. According to these data, all of the shock-forming panel regions are affected by the error term. As a result, it is necessary to use second generation approaches that take into account the cross-sectional dependence in the panel unit root and panel cointegration tests.

4.4. Panel Unit Root Test
In his study Pesaran (2007) used the averaged cross-sectional averages of ADF regression with extended form. This test eliminates the cross-correlation between the error terms of the units (regions) (Tatoglu, 2012. p. 210). This test is referred to it as horizontal cross section generalized Dickey Fuller (CADF) unit root test. Simple CADF regression is given below:

$$\Delta Y_{it} = a_i + \rho_i^* Y_{it-1} + d_0 \bar{Y}_{t-1} + d_1 \Delta \bar{Y}_t + \varepsilon_{it} \tag{3}$$

Here, according to the time t, $\bar{Y}_t$ is the average of the units in the horizontal section. Delayed cross-sectional averages and the presence of first differences take account of inter-unit correlation through a factor structure. If there is an autocorrelation in the error term or factor, the regression can be extended in the univariate case by the addition of the delayed first differences of Y_{it} and $\bar{Y}_t$.

Table 2: Results of horizontal section dependence tests

Pesaran and Yamagata (2008) LM test	419.2	0.000

Table 3: Panel unit root test results by Pesaran for regional real income per capita

Level				First order difference			
Model	$\bar{t}$	Critical values (%5)	Critical values (%10)	Model	$\bar{t}$	Critical values (%5)	Critical values (%10)
Fixed term	−1.334	−2.100	−2.210	Fixed term	−3.845*	−2.100	−2.210
Fixed term and trendy	−1.879	−2.630	−2.730	Fixed term and trendy	−4.462*	−2.830	−2.720

*H_0 hypothesis at 5% significance level can be rejected

$$\Delta Y_{it} = a_i + \rho_i^* Y_{it-1} + d_0 \bar{Y}_{t-1} + \sum_{j=0}^{p} d_{j+1} \Delta \bar{Y}_{t-j} + \sum_{k=1}^{p} c_k \Delta Y_{i,t-k} + \varepsilon_{it} \quad (4)$$

The degree of expansion can be selected by an information criterion or by sequential tests. After estimating the CADF regression, the CIPS statistics obtained by taking the t-statistics of the delayed variable are calculated as follows:

$$CIPS = \frac{1}{N} \sum_{i=1}^{N} CADF_i \quad (5)$$

Since the combined asymptotic limit of CIPS statistics does not have a standard normal distribution, the critical values are calculated based on the T and N values and are given in Pesaran's study (2007).

In this study, as a cross-sectional dependency was determined for the gross domestic regional production variable, a unit root test was performed with CADF (Pesaran, 2007) approach which takes into account horizontal cross-section dependence.

In the Table 3, constant term and trendy CADF test results are seen. According to these results, the first-line difference in the regional income growth series is stable. In other words, the order of integration for this series is 1.

4.5. Westerlund Panel Cointegration Test

The cointegration is the linear connection between two or more variables containing unit roots (Sevüktekin and Çınar, 2014). Westerlund (2007) proposed four panel cointegration tests based on error correction model to test the existence of co-integration when working with panel data. The error correction model for these tests is defined as follows

$$\Delta y_{it} = \delta_i' d_t + a_i \left(y_{i,t-1} - \beta_i' x_{i,t-1} \right) + \sum_{j=1}^{p_i} a_{ij} \Delta y_{i,t-j} + \sum_{j=-q}^{p_t} \gamma_{ij} \Delta x_{i,t-j} + e_{it}$$

$$(6)$$

Here, $t=1,2,...,T$ and $i=1,2,...,N$ respectively correspond to the time series and the horizontal section units. In addition, the term d_t refers to deterministic components, where $d_t = 0$, where no deterministic component exists by Westerlund (2007), $d_t=1$ with only the fixed term, and $d_t=(1,t)'$ which both the constant and linear trend component is present state. In addition, K-dimensional x_{it} is defined as a pure random walk process, so that the Δx_{it} error terms are independent from e_{it}. The error terms are assumed to be independent of both i and t.

(6)- equation can also be written as follows:

$$\Delta y_{it} = \delta_i' d_t + a_i y_{i,t-1} + \lambda_i' x_{i,t-1} + \sum_{j=1}^{p_i} a_{ij} \Delta y_{i,t-j} + \sum_{j=-q}^{p_i} \gamma_{ij} \Delta x_{i,t-j} + e_{it} \quad (7)$$

Table 4: Westerlund (2007) cointegration analysis results

Statistics	Value	Z value	P value	P-robust
Gt	−2.932	−2.869	0.002	0.290
Ga	−22.953	−6.648	0.000	0.097
Pt	−12.032	−4.170	0.000	0.151
Pa	−22.037	−8.761	0.000	0.047

Here, $\lambda_i' = -\alpha_i \beta_i'$, the parameter α_i is the error correction rate. If $a_i < 0$ then the error correction term is negative and this result shows that there is a long-term cointegration relationship between Y_{it} and X_{it}. However, if $a_i = 0$ means that there is no long-term relationship between Y_{it} and X_{it}, i.e., no co-integration. For the first two tests discussed in Westerlund's (2007) study, there is no need to assume that the error correction coefficients are equal to the units. These tests are called group average tests and hypotheses can be written as follows:

$$H_0:\alpha_i=0 \text{ (for all i's) and } H_1:\alpha_i<0 \text{ (for at least one i)} \quad (8)$$

The other two tests assume that the error correction coefficients are not changed according to the units. These tests are called panel tests and the H_0 hypothesis given above is tested against alternative hypothesis $H_1:\alpha_i=\alpha<0$ for all units (i).

Westerlund (2007) uses the bootstrap method to consider the cross-sectional dependence between the series forming the panel. The following Table 4 shows the results of the Westerlund panel cointegration test for four different statistics.

For Westerlund (2007) cointegration test, the prediction and lag length were determined as 1. As a deterministic component, 1000 repetitive extractability probability values were obtained by using both fixed and trendy model. According to the resistance P-values obtained from G_a and P_a statistics, long-term equilibrium relationship was found at 10% significance level between per capita regional real income variable and Brent brand oil price.

4.6. Estimating Long Term Cointegration Coefficients

In this part of the study, after the cointegration relationship between the series was determined, the long-term individual co-integration coefficients were estimated by dynamic ordinary least squares (DOLS) method proposed by Kao and Chang (2000). Panel DOLS is valid under the assumption that the variables are I (1), that is, the unit contains root and that there is a cointegration relationship between the variables (Tatoğlu, 2012. p. 242). In the study, the long-run equilibrium parameter between the regional real income per capita and Brent oil price is estimated and the results given in Table 5.

Table 5: Estimation of long term cointegration coefficients

Dependent variable	Regional real income per capita			
Variable	Coefficient	Standard error	z statistic value	P-value
Oil prices	0.5691	0.0978	5.8185	0.000

Table 6: Dumitrescu and Hurlin (2012) test results

H_0 hypothesis	w-statistics	z-bar statistics	Probability value
Change in oil prices in Granger means is not the ause of GDRP per capita	19.939	21.7199	0.0000
GDRP per capita is not the reason for the change in oil prices	2.2141	0.3737	0.9702

The long-run equilibrium coefficient for the Brent crude oil price is statistically significant. This result indicates that oil prices are an effective factor in per capita regional real income. According to the results of panel dynamic (DOLS) estimation, while everything else is fixed, the 1% increase in Brent crude oil price increases the per capita regional real income by 0.57%.

4.7. Panel Causality Test Results

In present times, the determination and testing of relationship between the variables depends primarily on determination of the variables internally or externally. However, due to the complexity of economic relations, it is very difficult to determine which variable is internal and which variable is external. The most commonly referred test for examining causality between variables is the Granger causality test. Dumitrescu and Hurlin (2012) proposed an extended version of the Granger causality test for heterogeneous panels. This test represents the average of the individual Wald tests calculated for the horizontal section units within the Granger causality test. This test can be used both for the series containing the cross-sectional dependency and for heterogeneous panel series (Dumitrescu and Hurlin, 2012). In study by Dumitrescu and Hurlin (2012) panel causality tests were performed and the findings obtained from this test are given in Table 6.

According to the results shown in Table 6, the change in Brent crude oil prices was the reason for the regional real income per capita in the sense of Granger. The results of co-integration and causality test point out that oil prices are an effective variable for the real increase in per capita income in Kazakhstan.

5. CONCLUSION

In this study, the long-term relationship between oil price and regional real income per capita of 14 regions of Kazakhstan and 2 cities with special status has been investigated for 2008-2015 period by using Westerlund cointegration test (2007). The existence of CSD between the states that formed the panel was examined with LM_{adj} test where deviation was corrected by Pesaran and Yamagata (2008) and it was decided that CSD was among the regions tested in the analysis. In the analysis, the existence of unit

root in the series was analyzed by (Pesaran, 2007) using CADF test taking into account the CSD in the series and it was seen that the series were not stable at the level and became static when the first differences were taken.

The long-term relationship between the series was examined with the help of Westerlund (2007) cointegration test and it was concluded that there was a cointegration relationship. In this context, a positive and significant relationship was found between long-term oil price changes and per capita regional real income growth.

In the next step, the long-term parameter estimation coefficients after the cointegration relationship between the series are determined; the average panel proposed by Pedroni (2001) was estimated by the DOLS method. In the long-run equilibrium relationship, the coefficient for the change in Brent crude oil prices was found to be statistically significant. According to the panel results, 1% increase in oil price increases the per capita income in Kazakhstan by 0.57%.

Finally, the fact that regional real income increase per capita in oil prices is the reason for Granger is examined by Dumitrescu and Hurlin (2012). This test showed that the change in the price of Brent crude oil was the reason for the Granger-related regional real income growth per capita. In sum, empirical findings from both co-integration and Granger causality test indicate that the change in oil prices is an important factor in the increase of regional real income per capita in Kazakhstan.

The result of this study put forth, that oil prices of policy makers in Kazakhstan should not ignore the macroeconomic variables impact such as the regional real income per capita in Kazakhstan. Because, Kazakhstan accounts for about 60% of its exports and about 25% of its are brought a profit from oil. Incomes from oil revenues are collected in the national fund of Kazakhstan. Most of the incomes collected in this fund are saved and some are transferred to the budget. Regional real income is also increasing due to investment and public expenditures from this budget. This poses a risk for Kazakhstan's economic development. For this reason, it is important to ensure the sustainable economic growth for Kazakhstan by evaluating the large profits earnt due to the increase in oil prices, especially through investments in the goods subject to trade and directing them to the purchase of machinery and equipment for the development of human and physical capitals.

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