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Head of the Doctoral (PhD) School:
Dr. Imre Fertő, professor
DSc. Hungarian Academy of Sciences

Name of the principal supervisor:
Dr. Konrad Wetzker, professor

**CONSEQUENCES OF OIL PRICE PLUNGES FOR THE KAZAKH
ECONOMY AND POSSIBLE MITIGATION MEASURES**

Written by: **Erjan Akhmedov**

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1. Research backgrounds and objective

The last oil prices plunge¹, which started in June 2014, affected the world economies seriously. This dissertation addresses the reasons, which resulted in this situation on the world oil market. It then analyzes consequences for oil exporting and importing countries, opportunities and challenges and suggests proactive strategies that will help them to tackle the situation prevalent after the sharp fall of crude oil prices of 2014. The world oil prices increased substantially in 2018, however, this increase (as all previous increases and decreases) is temporary as oil prices continue to be volatile. Therefore, this topic and the recommended measures remain important. This work is focusing on Kazakhstan as a typical oil-exporting country, analyses its economy and oil and gas sector as well as external environment. As additional examples it is also dealing with Azerbaijan as oil-exporting country and Turkey and China as oil-importing countries. Other countries are also considered, but to a lesser extent.

As many other similar scientific works, this dissertation uses the econometric vector autoregressive model to estimate the influence of oil price fluctuations on selected Kazakh macroeconomic variables. The research results generally reconfirm previous studies with some degree of discrepancy caused by the different timeframes. These results provide important information for the Kazakh government planning process.

Having considered the influence of oil price plunges on the selected Kazakh macroeconomic indicators, there is a need to look at potential situation developments and factors, which will affect them. For this reason, the scenario analysis approach is employed. The findings clearly show that the Kazakh government should adopt the low oil price scenario as the main one to make the country better adapted for future changes in the long run.

¹ Words “plunge”, “slump” and “negative oil shock” are used interchangeably throughout this document.

Special attention is given to the analysis of potential mitigation measures for overcoming negative consequences of oil price plunges. For this reason, the dissertation considers the experience of different oil-exporting countries and measures implemented by the government of Kazakhstan and other oil-exporting countries and addresses the problems, which prevent the economic recovery.

Based on the international experiences and previous efforts of the government of Kazakhstan, this dissertation recommends a set of measures aimed at decreasing dependence on oil price fluctuations in general and overcoming negative consequences of the last oil price plunge to the government of Kazakhstan and leadership of other oil-exporting countries.

Certain subjects such as migration and economic diversification are considered separately because of their importance.

The objective of the research is the preparation of development scenarios and recommendations for assisting government organizations of Kazakhstan in tackling the consequences of the oil crises. The author is of the view that the preparation of sound econometric models and development scenarios will help to better understand future consequences of oil price plunges for both oil-exporting and oil-importing countries. The author is also inclined to believe that these models and scenarios will help in the development of proactive strategies of responding to such crises.

2. Methods used and sources of data

The dependence of selected macroeconomic variables on oil price movements are studied using vector autoregressive (VAR) model as the relevant literature refers to VAR as an optimal model for studying the relationship between oil price fluctuations and changes in macroeconomic variables.

The research also employs the method of scenario analysis. The author is considering 3 oil price scenarios explained below. Probabilities for each scenario were assessed through interviewing 30 oil industry experts. For the purpose of this dissertation, the Pugh matrix is applied to understand which oil price scenario brings better results in the end. It is also important that this matrix allows for a simple sensitivity analysis to be performed.

The time period under consideration is 19 years (14 years prior and 5 years into the future). The statistical data are for the period from 2003 to 2016. The earlier data are not considered because the country joined the International Monetary Fund's Special Data Dissemination Standard (SDDS) in 2003 and in order to achieve this, the country amended some methodologies of data collection and processing. The data for 2017 are not yet available in full.

Sources of data include the Committee on Statistics under the Ministry of National Economy of the Republic of Kazakhstan, the National (Central) Bank of the Republic of Kazakhstan, the World Bank, US Energy Information Administration (EIA), International Energy Agency (IEA), International Monetary Fund (IMF), European Bank for Reconstruction and Development (EBRD), Asian Development Bank (ADB), Bloomberg, Massachusetts Institute of Technology Media Lab, Halyk Finance JSC and several others.

3. Results

The results received through this dissertation can be summarized as follows:

3.1. Identified causes of the last oil price plunge:

- 3.1.1. Influx of Iraq crude oil to the market;
- 3.1.2. The US is no longer the biggest buyer of crude oil;
- 3.1.3. Success of renewable sources of energy;
- 3.1.4. Development and introduction of new technologies;
- 3.1.5. Success of energy efficiency and energy conservation efforts
- 3.1.6. Expected influx of Iran crude oil to the market;
- 3.1.7. Slowdown of China's economic development;
- 3.1.8. Political instability.

3.2. Studied consequences of oil price plunges for oil-exporting and oil-importing countries.

The consequences for oil-exporting countries (Azerbaijan and Kazakhstan were taken as the main samples), including economic, social and environmental consequences, were analyzed in more detail. It was noted that considering the consequences of oil price fluctuations for oil-exporting countries, it is essential to always remember one crucial question: what will happen with the economies, the social sphere and the environment of these countries after oil revenues come to an end? Then the research shortly addressed the situations in oil-importing countries, especially in the countries importing crude oil from Azerbaijan and Kazakhstan. These countries include Mediterranean and European countries and China, but the paper is limited to China and Turkey.

3.3. As this dissertation is focusing on Kazakhstan, the situation in this oil-exporting country since the beginning of this century considered separately.

Kazakhstan experienced a tremendous economic growth from 2000 until the beginning of 2008 and was considered as one of the most dynamic

emerging economies. Two of the main catalysts for this growth were economic reforms and foreign investment, most of which were concentrated in the energy sector.

The last two economic crises have affected the country badly. By the beginning of the last crisis, the country could not fully overcome the consequences of 2008 world financial crisis. Possessing huge foreign currency reserves, the Kazakh government managed to partially alleviate its negative consequences, though not fully.

Nevertheless, having huge proved oil and gas reserves, the country continued to focus heavily on the hydrocarbons sector, which has attracted most of the foreign investments and provided most of its export revenue.

3.4. Provided general information about the Kazakh oil and gas sector and its role in the national economy

The following are three main characteristics of the Kazakh oil and gas sector:

1. Oil and gas sector is the main pillar of the national economy and internal economic stability;
2. In the foreseeable future there is no any substitution to this sector neither in terms of budget revenues nor in terms of employment (in addition to direct employment, this sector provides employment in many businesses servicing it).
3. The Kazakh oil and gas sector is closely involved into international economic cooperation.

In addition to being one of the world's major exporters of crude oil and natural gas, the country also attracted different foreign oil and gas and service companies, which can be divided into the following main groups:

- International majors. This group includes such companies as Chevron, Shell, Exxon Mobil, ENI and others;
- Chinese and Russian companies: CNPC, Sinopec, CITIC, Lukoil, etc.;

- Other foreign oil companies: Maersk Oil, Petrom, Repsol, etc.;
- Service companies: Halliburton, Baker Hughes, Schlumberger, etc.

In general, the development of oil and gas industry plays a positive role for the country and can be summarized as follows:

- The industry is the largest taxpayer;
- It provides well-paid jobs and business opportunities;
- Attracts substantial and long-term foreign investments;
- Improves infrastructure;
- Facilitates the development of other industries, new production facilities and services;
- Develops the country's human capital;
- It implements different social projects to support local population and government initiatives.

At the same time, there are serious negative consequences:

- The country is seriously dependent on oil revenues with substantial potential for Dutch disease development;
- Environmental degradation of oil-producing regions affecting the population's health in these regions negatively;
- Uneven development of different regions;
- Social polarization with salaries on the oil and gas industry (even for the same type and amount of work) substantially higher than in public sector;
- Negative affect on other industries when investments and the most capable individuals choose the oil and gas industry;
- Potential for social unrest;
 - Development of corruption.

In any case, by now positive outcomes by far outweigh negative ones and no alternative for this industry in terms of revenue generation has been

created. Government's attempts to diversify the Kazakh economy addressed further below.

3.5. External environment

Substantial deterioration of external factors affecting the economy of Kazakhstan has been observed since June 2014 when the last oil price plunge started. These factors mainly included the oil price plunge as well as the recession in Russia, the slow-down of key trading partners especially in China, indirect effect of anti-Russia sanctions and negative effects of the membership in the Eurasian Economic Union.

The oil price plunge was especially painful for the country where the oil rents amount to about quarter of GDP.

3.6. National Economy

Till 2014 except a relatively short period of economic slowdown of 2008-2009 the Kazakh economy grew rapidly. Another period of economic slowdown started in June 2014.

This was facilitated by the increase in oil prices, fiscal and tax incentives and the growth of consumer lending. The situation changed dramatically after oil prices started to decline, so did the population income. Aggregate demand began to shrink. As a result, Kazakhstan's GDP growth has slowed down. The slowdown has been observed in all sectors of the economy, but most of all fall in the production one. Over time, the slowdown has spread to other sectors of the economy. Accumulated effect of external shocks began to influence practically all sectors of the national economy.

Moreover, the budget surplus mostly created by oil revenues began to shrink when oil prices remained at a high level (above 100 dollars per barrel). The main reason for that was the government's economic and financial mismanagement.

The following information illustrates the situation well:

- During 2015, the international (gold and foreign currency) reserves of Kazakhstan, including gross reserves of the National (Central) Bank and the National Fund funds decreased by 10.6% to US\$ 91.581bn.
- Since the beginning of 2014 the Kazak tenge has devaluated by 138%.
- The current account was in deficit of US\$5.3bn in 2015 as opposed to a surplus of US\$6.0bn in 2014. This is equivalent to 2.8% of GDP.
- On 18 February 2016 Standard & Poor's Rating Services lowered its long- and short-term ratings on Kazakhstan for both local and foreign currency to 'BBB-/A-3' from 'BBB/A-2'. Outlook Negative.
- Dividend payments on foreign direct investments dropped by 58.4% year-on-year to US\$8.1bn in 2015, consistent with falling export revenues.

Sources: National Bank of Kazakhstan, Standard & Poor's Rating Services, Halyk Finance JSC.

The economic situation deteriorated further after the beginning of 2014 oil price slump. GDP growth slowed to 1.2 per cent in 2015 and remained subdued at 1.1 per cent in 2016.

There were even expectations that the Kazakhstan's economy could contract by 2% in 2016, the first decline in real GDP since 1998. Luckily this did not happen. These expectations were based on low commodity prices, which could lead to a decline in extractive industries output and exports in 2016, i.e. low commodity prices lead to smaller profits of extractive enterprises while keeping production costs at the same level.

3.7. Inflation and monetary policy

Financial conditions in Kazakhstan also tightened, with credit to the private sector contracting significantly. The roughly 40 percent depreciation of the tenge against the dollar since the August 2015 and the move to a floating exchange rate helped to reduce external imbalances, but pushed up inflation

above the 6-8 percent objective range and adversely impacted private sector balance sheets.

Kazakhstan's economy has faced the challenge of adjusting to large oil price shocks in a context of declining domestic and external demand. After a substantial drop of oil prices during the second half of 2014, the country witnessed another drop in the second half of 2015 reaching the lowest level of US\$27.67 a barrel of Brent in January 2016, its lowest since 2003.

3.8. Economic prospects

Real growth in the country suffered from lower private consumption in response to higher import prices, and from diminished private investment as commodity producers see profits fall. The situation improved significantly with the oil price growth in the second half of 2017 and the first half of 2018. Further prospects depend on the world oil price movements as no economic and policy reforms have been successful.

3.9. First reaction of the Kazakh economy on the last oil price plunge

The first reaction of the Kazakh economy on the oil price plunge demonstrated the immediate deterioration of Kazakh main macroeconomic indicators after the decline of oil prices.

It is obvious that such a short time period cannot reflect the real situation. The graphs above show the first reaction of the economy only. More detailed analysis is undertaken below using the econometric model.

3.10. Migration

Special attention should be given to the migration situation especially in the Western oil producing regions of Kazakhstan. Actually the migration situation in Kazakhstan is one of the most complex in the World. The last oil price plunge has seriously affected not only the Kazakh economy, but also expectedly the social sphere in general and the migration situation in particular. It is critical to specifically address these regions because they have attracted well more than half of all foreign labor force officially working in the country

as well as most of illegal and in-country migrants. Also, we should not omit one very important factor – in the oil producing regions of the country the relations between the local population and labor migrants are traditionally strained. Over the last 30 years, there were many cases of riots, social unrests and clashes between Kazakh and foreign workers. These facts demonstrate how critical this problem is and that neglecting it by businesses, government entities and the local population can provoke further social problems.

Changes in dimensions, characteristics, causes and consequences of migration have become one of the most significant consequences of the last oil plunge, which started in June 2014.

The dissertation suggests mitigation measures, which can improve the migration situation in the country. These measures include: promotion of small and medium businesses, improvement of investment climate, implementation of state-funded infrastructure projects, vocational training programs, special assistance projects and public awareness campaigns, etc.

3.11. Econometric model

The objective of the econometric model is to study how Kazakh macroeconomic indicators react to oil price shocks. Numerous attempts to explain the influence of oil price fluctuations on main macroeconomic indicators have been undertaken in the past. Much fewer scientific papers studied this influence in the Kazakhstan environment. The main differences with the previous works is that the current dissertation considers the time period after the beginning of the last oil price slump (June 2014) and takes into consideration the data from 2003, which is more correct methodologically.

Gronwald et al (2009) applied a VAR model in order to investigate the macroeconomic consequences of oil price shocks. They found that “all variables under consideration in the VAR model – GDP, inflation, budget revenue, exports, and the real exchange rate - exhibit a significantly negative response to oil price declines”. Another significant result of their paper is that

“a standard linear VAR model is appropriate for capturing the Kazakh oil-macro relationship. This last result is of particular importance as the oil-macro relationship for major economies such as the U.S. has found to be non-linear.” The same approach (standard linear VAR model) is applied in this dissertation.

Gretl - open-source statistical package used mainly for econometric calculations.

The following macroeconomic variables have been considered: inflation, government revenues and exports. The bigger number of macroeconomic variables requires the longer time series, which is not possible now. Also, the author has tried to avoid collinearity of considered variables.

As mentioned in “Introduction to Modern Time Series Analysis” (Kirchgässner, Wolters, & Hassler, 2013) “Contrary to the parsimony principle applied in the univariate analysis, the VAR(p) models are over-parameterised systems. The individual parameters can hardly be interpreted meaningfully. For this reason, other methods, like Granger causality tests, impulse response analyses and variance decompositions, are employed.” (page 137)

The main results received through this econometric model reconfirm earlier researches with some degree of discrepancy stipulated mostly by different timeframes – none of earlier researches targeted Kazakh macroeconomic variables during the period after the beginning of the last oil price shock, which started in June 2014. So the macroeconomic variables under consideration demonstrate significant negative response to oil price declines and *vice versa*. Another conclusion is the timing during which the impact of oil price shocks is really substantial. For the macroeconomic indicators under consideration, this impact reaches its peak at the 1st or 2nd quarter and a relaxation of its effect takes place before 8 quarters. This knowledge has important implications for the Kazakh government planning process.

3.12. Scenario analysis

Having considered the influence of oil price plunges on the selected Kazakh macroeconomic indicators, there is a need to look at potential situation developments and factors, which will affect them. For this reason, the scenario analysis approach is employed.

The recent slump in the price of crude oil once again jeopardized the economic stability of oil-exporting countries forcing them to look for ways out of the current situation and prevent economic downturns in the future. The author makes an attempt to look at the situation in the Republic of Kazakhstan in a structured way considering alternative possible outcomes of different scenarios and identify potential problems in order to increase preparedness for solving them. Recommendations are presented further below.

“Scenario analysis is a process of analyzing possible future events by considering alternative possible outcomes (scenarios). The analysis is designed to allow improved decision-making by allowing more complete consideration of outcomes and their implications. This is an important tool used extensively to make projections for the future.”²

It is essential to point out that scenarios make no claim to make precise predictions. Scenarios in this sense depict only possible futures. Considering different scenarios, it is imperative to take into account their ultimate goal – to ensure better preparedness to the future minimizing negative consequences of the chosen scenario.

The following three scenarios are considered in this dissertation: Scenario 1 or low-price scenario (20% probability). Under this scenario the oil prices range is within US\$20 to US\$50 per barrel for the next 5 years. The situation with oil prices lower than US\$20 per barrel does not look realistic though oil prices can cross this line occasionally.

² <http://www.investordictionary.com/definition/scenario-analysis>

Scenario 1: In the short run, major economic and social indicators of the country continue to deteriorate. This scenario will result in lower economic activity and government revenues, higher inflation and unemployment, lower population incomes and, as a consequence, the absence of fundamental factors for expanding aggregate demand, decreasing investments, etc. The main risks in this scenario are potential economic crisis aggravated by growing social discontent. The government will have to put a lot of efforts into improving the situation with weak chances for success. However, the medium- and especially long-term outlook are much more promising preparing the country to the life without oil revenues. This is the situation when economic difficulties of today make the country better prepared for future changes and allow to avoid even worse consequences.

Scenario 2 or medium-price scenario (50% probability). Oil prices are in the range from US\$50 to US\$80 a barrel.

Scenario 2: The economic situation in the country improves slowly. Certain increase in government revenues will be offset by earlier depletion of financial and other reserves happened after the beginning of the oil price plunge. In the short run, the main risk of this scenario is a potential decrease of oil price, which can derail all government's efforts to improve the socio-economic situation in the country. At the same time, this scenario can provide a gradual transition to the non-oil economy without serious deterioration of the population's living standards. The difficult part of this scenario is that it tempts the government to continue the previous economic policy, which already proved its ineffectiveness.

Scenario 3 or high-price scenario (30% probability). Oil prices grow higher than US\$80 per barrel.

Scenario 3: A lot in this scenario is depending on the price range. Obviously, the economic situation will be different at the oil price of US\$80 per barrel and US\$100 per barrel. However, in general the economy will be improving with

the speed depending on the oil price. In case of substantial increase, the Kazakh economy can return to the pre-crisis situation. The main risks of this scenario are (i) a potential decrease of oil price in the short-term and (ii) the country remains unprepared to future oil shocks and potential end of oil era. Even though at first glance high oil prices bring the economic prosperity, the fact is that they just postpone urgent government reforms aimed at eliminating the dependence on oil proceeds.

The Pugh matrix technique is built upon weighing different factors, which affect the situation. It is used to evaluate and choose between several alternatives. The matrix will help to understand and analyze the situation and to see how will develop and to which outcomes the country will come. For the purpose of this dissertation, the Pugh matrix is applied to understand which oil price scenario brings better results at the end. It is also important that this matrix allows for a simple sensitivity analysis to be performed. As the preparation of Pugh matrixes is a team-based procedure, the exercise was conducted with the help of two Kazakh government employees, who formed a team with the author. Based on their experience they helped to compile the lists of consequences and to assign points to each of it under each scenario.

The results received through the scenario analysis exercise much better reflect the need to achieve the ultimate goal of this scenario analysis – to ensure the better preparedness to the long-term future, minimizing negative consequences. The results clearly show that the Kazakh government should adopt the low oil price scenario as the main one to make the country better adapted for future changes in the long run. The optimal and partly implemented solution in this case is the development as if there is no oil revenues in the country. Obviously, the medium price scenario has the larger probability and it is obvious that the results received do not mean that there is a need to loose opportunities provided by the periods of high oil prices. Understanding which scenario has more probability will help the Kazakh government in financial

planning. The optimal and well-proven solution is the accumulation of oil revenues in the National Fund while creating an enabling environment for SME development, FDIs and pursuing very strict financial policy, which rules out any attempt to use oil revenues for financing current government expenses or mismanagement of these revenues.

It is essential to reiterate one more time that the oil era will not last forever. It is imperative to make the country fully ready for future changes.

3.13. Analysis of Potential Mitigation Measures

Having considered the influence of oil price fluctuations on the Kazakh economy, potential situation developments and factors, which would affect these developments, it is suggested to look at potential mitigation measures for overcoming negative consequences of oil price plunges.

The author initially addresses the general international experience of oil exporting countries (OECs) on overcoming negative consequences of oil price plunges and then examines the measures taken by the Kazakh government.

It is interesting to consider what determines successes and failures in overcoming negative consequences of oil price plunges because the problem is how oil-exporting countries should react to different consequences of the oil price plunge. To resolve this problem, oil-exporting countries develop special response measures.

Main measures used by OEC governments to mitigate negative consequences

Based on the vast body of scientific and other economic literature on this subject, the measures used by OECs' governments to protect themselves from oil price declines can be summarized as follows below.

- Financial and fiscal policy adjustments;
- Withdrawals from reserve assets;

- Increase of oil production;
- Economic liberalization, which includes privatization, economic diversification, attracting foreign direct investments (FDIs), small and medium entrepreneurship (SME) development, etc.;
- Other measures.

Having considered the information above, the author suggests to divide the mitigation measures into two main groups: (i) immediate measures, which include financial and fiscal policy adjustments; withdrawals from reserve assets; increase of oil production; privatization; and (ii) long-term measures: economic diversification; attracting FDIs; SME development. The difference between these groups is that immediate measures are implemented in the periods of oil price plunges and long-term measures should also be implemented in the periods of high oil prices. It has been repeatedly noted above that transferring the 1st group measures to the 2nd group will certainly increase their effectiveness and the implementation of the 2nd group measures should not be abandoned in the periods of high oil prices. Per the author's view, the main impediment, which prevents the implementation of all the measures mentioned above is the lack or absence of the government's commitment to continuous and difficult economic and policy reforms.

It is necessary to point out that there is always a combination of different measures used and this has become the usual practice of OECs governments. During oil price slumps, the situation is changing very quickly, but their consequences can last for a long period of time. This is why it is critical to use different measures, some of which will address short-term consequences and others long-term ones.

Based on the above-mentioned, the following three factors can be identified as playing the crucial roles in overcoming negative consequences of oil price plunges:

1. Establishment of longer-term planning horizon. Even though OECs made some important steps in this direction having recently prepared such development programs aimed at reducing dependence on oil as Saudi Vision 2030, Abu Dhabi Economic Vision 2030, Kuwait 2035 vision, etc. there is a clear need in longer-term planning because as seen on the Figure 29 below the high and low cycles can last 15-20 years.
2. Development of counter-cyclical policies. Practically no effective counter-cyclical policies have been so far developed in OECs. A good example could be the Chilean Structural Balance Policy, which already proved its effectiveness.
3. Government's commitment to the strict implementation of continuous and often difficult economic and policy reforms. As described above, this is a key and decisive element in overcoming negative consequences of oil price plunges in oil-exporting countries.

3.14. Measures implemented by the government of Kazakhstan

In Kazakhstan the government has developed and is implementing a number of different programs aimed at decreasing the dependence on oil price revenues. Understanding well that decreasing the dependence of Kazakh economy to oil and gas revenues is essential for ensuring country's stable economic development, the Government has been declaring the diversification of national economy as its first priority for many years. However, the result from implementation of all these documents is far from desired. Moreover, as it was mentioned earlier, the share of oil and gas industry in total Kazakh GDP increased from 10.9% in 2001 to 25.2% in 2012. This share again decreased to about 20% of GDP by the beginning of 2016, but this happened because of the decrease of world prices on these commodities only.

Thus, during the period of high oil prices, the Kazakhstan's raw material orientation of the economy did not decrease. *A contrario*, its

dependence on extractive industries in general and oil and gas industry in particular intensified.

The current oil crisis has once again raised questions on how to decrease the dependence of the Kazakh economy on oil price fluctuations. The need to ensure that next oil price plunges will not cause economic crises in the country is obvious. It is a time to look at the situation from another angle and understand why all previous efforts to diversify the Kazakh economy failed. This matter is addressed separately further below.

Obviously, the oil price plunge is not the only problem of the Kazakh economy. It is suggested that the main reasons, which led to the current situation and prevent economic recovery are different and include

- Already mentioned lower profitability of non-oil industries. This circumstance prevented sufficient investments to these industries and practically undermined diversification efforts;
- Spillover effects of Russia's economic crisis, including indirect effect of anti-Russian sanctions;
- Spillover effects of China's economic slowdown;
- Curtailing economic reforms in the period of high oil prices;
- Exceptionally high share of the state in the economy;
- Corruption;
- Poor management and lack of personal responsibility of responsible officials;
- Increased social spendings.

3.15. Economic diversification

Economic diversification should be considered separately as it is usually perceived and recommended as the main solution against cyclical economic downturns caused by oil price declines. However, practical implementation of economic diversification measures in different countries

brought to light a lot of problems, which need to be addressed and tackled properly. In fact most of government economic diversification programs in most of oil exporting countries failed. The author of this document does not share wide-spread optimism about such measures in the existing economic model of Kazakhstan. He is of the view that before undertaking any further step in this direction, it is necessary to understand the reasons, which resulted in failures of all previous efforts. Otherwise, new measures can become just another dissipation of limited financial resources.

4. Conclusions and recommendations

Having considered the international experience and previous efforts of the Kazakh government to decrease the dependence on oil price fluctuations in general and overcome the consequences of the last oil price plunge, the following measures are recommended for the government of Kazakhstan and other oil-exporting countries:

- Sustainable development has to be not only declared, but to really become the main development priority of the country;
- If the government cannot continue to exercise paternalistic economic policy further, it should then let the citizens to take care of themselves and where possible create incentives for SME development. This is why a thorough audit of existing legislation, regulations, practices of government agencies and law enforcement that affect business activities should be undertaken with the aim to reduce legal and regulatory barriers for businesses;
- Based on this audit, structural reforms similar aimed at providing more economic freedom to be implemented. The ultimate goal of these reforms must become the creation of business enabling environment in the country. Reforms should include decreasing tax burden on small and medium businesses, eliminating most of licensing requirements, substantial decrease of different government inspections, obligatory reporting and personal responsibility of government officials concerned;
- Keeping in mind that since 2008 financial crisis public finances deteriorated seriously, private businesses have to become a major driver of economic diversification. This is to be acknowledged and declared a national priority;

- Promotion of greater regional and international economic and trade integration. Further promotion of export of Kazakh goods through government-supported export credit guarantee schemes;
- Another measure, which could help the SME development in the country is liberalization of the Kazakh financial sector through lifting legal and regulatory barriers for foreign financial institutions with the aim to enhance access to credit, especially for small and medium enterprises;
- Serious efforts to attract foreign investors to be undertaken. However, it should be acknowledged that most likely these efforts will yield results in medium and long term;
- A thorough audit of projects implemented under different Kazakh government economic diversification programs is required. Preparation of further programs to be strictly based on the lessons learned from this audit;
- The government needs to be more careful in its spending, limiting the number of possible areas for investments. Currently, the government is implementing several investment programs to support private sector projects in different sectors. Instead of dissipation of limited financial resources, it is suggested to select areas where Kazakh products and/or services can be competitive. At the moment, transportation services, agriculture, food and pharmaceutical industries look more attractive;
- Enhancing vertical diversification in existing sectors by focusing on moving into higher value-added products in extractive industries;
- If a number of attractive domestic projects will be limited, the country can diversify into attractive foreign projects;
- To ensure improvement of environmental and social situation in the country through stricter legal enforcement of relevant legislation and increased personal responsibility of governmental officials concerned;

- Implementation of different workforce education and vocational training programs, orienting education and vocational training towards skills needed by the private sector;
- To consider a possibility of transferring the National Fund of Kazakhstan under the management of Norwegian Government Pension Fund Global.

5. New scientific results

1. This dissertation considers the period since June 2014 when the last oil price plunge started. None of previous researches was fully dedicated to the consequences of the last oil price plunge for the Kazakh economy during this period.
2. The scenario analysis exercise undertaken in this dissertation clearly shows that the Kazakh government should adopt the low oil price scenario as the main one to make the country better adapted for future changes in the long run minimizing potential negative consequences.
3. None of previous researches studied the influence of oil price plunges on the migration situation in the western oil-producing regions of Kazakhstan. The dissertation analyzes the migration situation and proposes potential mitigation measures, which can improve the migration situation and more generally the situation in social sphere in the western oil-producing regions of Kazakhstan.
4. The dissertation does not share wide-spread optimism about the economic diversification, which is usually perceived and recommended as the main solution against cyclical economic downturns. The document considers the international experience and previous efforts of the Kazakh government and identifies the main reasons of economic diversification failures.
5. Having considered the international experience and previous efforts of the Kazakh government to decrease the dependence on oil price fluctuations in general and overcome the consequences of the last oil price plunge, the dissertation recommends for the government of Kazakhstan and other oil-exporting countries a set of possible mitigation measures.

6. Summary

The last oil prices plunge, which started in June 2014, affected the world economies seriously. This dissertation addresses the reasons, which resulted in this situation on the world oil market. It then analyzes consequences for oil exporting and importing countries, opportunities and challenges and suggests proactive strategies that will help them to tackle the situation prevalent after the sharp fall of crude oil prices of 2014. The world oil prices increased substantially in 2018, however, this increase (as all previous increases and decreases) is temporary as oil prices continue to be volatile. Therefore, this topic and the recommended measures remain important. This work is focusing on Kazakhstan as a typical oil-exporting country, analyses its economy and oil and gas sector as well as external environment. As additional examples it is also dealing with Azerbaijan as oil-exporting country and Turkey and China as oil-importing countries. Other countries are also considered, but to a lesser extent.

As many other similar scientific works, this dissertation uses the econometric vector autoregressive model to estimate the influence of oil price fluctuation on selected Kazakh macroeconomic variables. The results received generally reconfirm previous researches with some degree of discrepancy caused by the different timeframe.

Having considered the influence of oil price plunges on the selected Kazakh macroeconomic indicators, there is a need to look at potential situation developments and factors, which will affect them. For this reason, the scenario analysis approach is employed. The results received clearly show that the Kazakh government should adopt the low oil price scenario as the main one to make the country better adapted for future changes in the long run.

Special attention is given to the analysis of potential mitigation measures for overcoming negative consequences of oil price plunges. For this reason, the dissertation considers the experience of different oil-exporting countries and measures implemented by the government of Kazakhstan addressing the problems, which prevent the economic recovery.

Having considered the international experience and previous efforts of the Kazakh government, the dissertation recommends for the government of Kazakhstan and of other oil-exporting countries the set of measures aimed at decreasing the dependence on oil price fluctuations in general and overcoming the negative consequences of the last oil price plunge.

Certain subjects like migration and economic diversification are considered separately because of their importance.

7. Summary in Hungarian

Az utolsó, 2014-ben kezdődött, olajár csökkenés komolyan érintette a világgazdaságot. Ezen disszertáció azokkal az okokkal foglalkozik, amelyek ehhez a szituációhoz vezettek az olaj világgpiacon. Majd az olajexportáló és importáló országokra gyakorolt hatását vizsgálja, illetve a lehetőségeket és a kihívásokat, és a nyersolaj árak 2014-es éles zuhanásából fakadó problémákra javasol proaktív stratégiákat. 2018-ban a világ olajárak jelentősen megnövekedtek, azonban ez a növekedés (mint minden előző növekedés és csökkenés) időleges, minekután az olajárak továbbra is illékonyak. Tehát, ez a téma és a javasolt intézkedések továbbra is fontosak. Ez a munka Kazahsztánra fókuszál, mivel egy tipikus olajexportáló ország, analizálja a gazdaságát, a gáz és olaj szektorát, valamint a külső környezetét. Kiegészítő példaként a disszertáció foglalkozik Azerbajdzsánnal, mint olajexportáló meg Törökországgal és Kínával, mint olajimportáló országokkal. További országok szintén figyelembe vannak véve, azonban kisebb mértékben. Más tudományos tanulmányokhoz hasonlóan, ez a disszertáció is az econometric vector autoregressive model-t alkalmazza, hogy megjósolja az olajár változások kiválasztott makroökonómiai változókra gyakorolt hatását. Az eredmények jellemzően megerősítik a korábbi kutatások következtetéseit, az eltérések a különböző időkeretnek tudható be. Ezen eredmények fontosak a Kazah kormányzati tervezés folyamatának tekintetében. Szem előtt tartva az olajár csökkenés hatását a kiválasztott makroökonómiai indikátorokra, szükségeszerű, hogy figyelembe vegyük azokat a potenciális szituációs fejlődéseket és faktorokat, amelyek hatással vannak rájuk. Ebből kifolyólag a scenario analyses approach volt alkalmazva. Az eredmények egyértelműen azt mutatják, hogy a Kazah kormány számára elsősorban az alacsony olajár szenárió alkalmazása a javasolt, hogy az országot hosszútávon is felkészítsék a jövőbeni változásokra. Kiemelt figyelmet kapott a potenciális enyhítő intézkedések analízise, amelyek az olajár csökkenés negatív következményeit hívatottak orvosolni. Ebből adódóan, ez a disszertáció figyelembe veszi más olajexportáló országok tapasztalatait és a Kazah kormány által végrehajtott intézkedéseket, amelyek megakadályozták a gazdasági felépülést. Tekintetbe véve a nemzetközi tapasztalatokat és a Kazah kormány megelőző erőfeszítéseit a probléma megoldására, a disszertáció Kazahsztán kormányának és más olaj exportáló országoknak azon intézkedések alkalmazását javasolja, amelyek csökkentik az olajár fluktuációjából fakadó függőséget, és segítenek felülkerekedni a legutóbbi olajár csökkenés negatív következményein. Bizonyos témák, mint a migráció és a gazdasági változatosság, a súlyuknak megfelelően, külön vannak kezelve.

8. Scientific papers and abstracts on the subject of the dissertation

Peer-reviewed papers published in scientific journals in English

Akhmedov E. (2018). Migration Processes in the Western Regions of Kazakhstan: Potential government measures to mitigate negative consequences of the current economic crisis. *Regional and Business Studies*. Kaposvar University, Hungary (in press).

Akhmedov E. (2018). Economic Diversification Issues in Oil-Exporting Countries. Case of the Republic of Kazakhstan. *Köztes-Európa Társadalomtudományi folyóirat (Taylor)*, No 23. ISSN: 2064-437X. Szeged, Hungary.

Akhmedov E. (2018). Possible Mitigation Measures for Overcoming Negative Consequences of Oil Price Plunges in Oil-Exporting Countries. *The Journal of Business Paradigms*. ISSN: 2584-6612. PAR Business School, Rijeka, Croatia.

Abstracts in English

Akhmedov E. Migration Processes in the Western Oil-Producing Regions of the Republic of Kazakhstan. *Challenges in national and international economic policies. 2nd Central European PhD Workshop on Economic Policy and Crisis Management*, University of Szeged and European Association for Comparative Economic Studies. Szeged, Hungary. March 2017.

Akhmedov E. Sustainable development as a main development priority in major oil-exporting countries. *Socio-economic, environmental and regional aspects of a circular economy International Conference*, ISBN: 978-963-9899-98-8. Pecs, Hungary. April 2018.

Akhmedov E. Possible mitigation measures for overcoming negative consequences of oil price plunges in oil-exporting countries. *3rd Business & Entrepreneurial Economics International Conference*. ISSN: 2459-5187. Sibenik, Croatia, May-June 2018.

