Assessment of value of resource curse concept for a practical solution of the problem of industrial and innovative development of Kazakhstan

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Abstract. Abundance of natural resources has to be a basis of creation of national wealth in connection with growth of export which allows to import bigger number of means of production and to use a rent from natural resources for capital investments. However in many cases and in many regions of the world the return situation is observed. In this regard research of economy of Kazakhstan, being characterized high security with natural resources is of special interest. It is important to define, whether the resource wealth can influence development of industrial and innovative development of the country. It makes an essential contribution to a current situation explanation, allows to predict development of economy of Kazakhstan and to correct the directions of economic policy in the country rich with natural resources. In article is given the assessment of value of resource curse concept for a practical solution of the problem of industrial and innovative development of Kazakhstan.

Keywords: resource curse; paradox of plenty; Dutch disease; industrial and innovative development; oil and gas sector

1. Introduction

The economies based on export of natural resources, has a number of significant differences from exporting other goods economies: in particular, weak manufacturing communications with other sectors; high concentration of the natural rent generally received from tax revenues; and also relatively small number of workplaces created by extractive industry directly. It is especially actual for case, when the main export resource is oil. Resource prosperity of the country has prevailing impact on macroeconomic indicators such as budget deficit, rate of inflation, accumulation of gold and foreign exchange reserves, real exchange rate. Researching the policy of undercutting of internal fuel prices, we assume that such policy reduces efficiency of energy use, nevertheless it can promote its growth.

Kazakhstan disposes almost all Mendeleev’s table and ranked among the largest exporters of mineral resources. Our country came closer to the group of the leading countries which own world reserves of hydrocarbon raw materials and are engaged in their production. These are the countries of the Middle East, and also Turkmenistan, Brunei, Trinidad and Tobago, and Equatorial Guinea. Among the most developed western states there are Norway, Australia and Canada where indicators of "possession" and "production" of mineral resources (more than 10 tonnes per capita of oil equivalent) are crossed to a considerable extent. Kazakhstan, as well as Russia, Venezuela, Denmark produces from 5 tonnes of oil fuel per capita. Previous experience of Kazakhstani economy transformation, as well as the economy of all Post-Soviet countries, revealed that universal approaches to the solution of national economy fundamental problems did not always lead to identical results. While pursuing an economic policy it demands careful studying of environmental characteristics where the policy is carried out, including the institutional environment and formed macroeconomic features.

In this regard it has particular interest to research the economy of Kazakhstan which is determined by huge natural resources provision; first of all it is a question of huge oil and gas reserves. It is important to find out whether the resource prosperity has a great influence on industrial and innovative development of the country. After clarifying this question we are allowed to forecast the development of Kazakhstani economy to some extend and correct the directions of economic policy in the country. After clarifying this question we are allowed to forecast the development of Kazakhstani economy to some extend and correct the directions of economic policy in the country. After clarifying this question we are allowed to forecast the development of Kazakhstani economy to some extend and correct the directions of economic policy in the country. After clarifying this question we are allowed to forecast the development of Kazakhstani economy to some extend and correct the directions of economic policy in the country. After clarifying this question we are allowed to forecast the development of Kazakhstani economy to some extend and correct the directions of economic policy in the country. After clarifying this question we are allowed to forecast the development of Kazakhstani economy to some extend and correct the directions of economic policy in the country. After clarifying this question we are allowed to forecast the development of Kazakhstani economy to some extend and correct the directions of economic policy in the country.

In long-term prospect Kazakhstan stakes on creation of innovative model of the economy based on high technologies, innovations and knowledge that will allow to leave a condition of catching-up modernization. The theory and practice of development of the countries rich with concentrated resources are far from end, and the way of the development of Kazakhstan which is under the pressure of the "natural resources curse" and which has started to solve practically the problem of industrial and innovative development, is able to evolve in a special way. These circumstances define
relevance of current research as with theoretical, so with practical points of view.

2 Theories of “resource curse” and research

The term “resource curse” was entered by R. Auty (Auty, 2001) in 1993 for the description of a situation at which the countries rich with natural resources, weren't able to use this wealth for development of the economy and, contrary to intuition, had lower economic growth, than the countries which own smaller natural resources. However, the thought that natural resources can be rather an a curse of the country, than advantage, began to arise in the 1980th of the XX century.

Influence of the abundance of natural resources on economic development is manifested in symptoms of so-called "Dutch disease". The term was first proposed in the journal «The Economist» in 1977 to explain the phenomenon that emerged in the 1960s when in the Netherlands a rapid growth in raw materials export has begun after the discovery of large deposits of natural gas in its sector of the North Sea. Strengthening of the Dutch gulden had a negative impact on other export-oriented industries of the country (especially on instrument-making industry) and the economy in the whole.

We use this term that has been widely used since the publication of M. Corden and P. Neary's work in 1982. Authors developed central model of "Dutch disease" on the basis of theories of international trade, supply and demand of factors of production and macroeconomic dynamics (Corden, Neary, 1982). "Dutch disease" affects countries with different levels of economic development and political system.

A. Gelb systematized theory and raised a question of principle about objective features of the economy under conditions of abundance of natural resources (A. Gelb).

In different researches, including known work of J. Sachs and A. Warner (Sachs and Warner, 1995), the interrelation between prosperity of natural resources and poor economic development of the country was traced. Tendencies to backwardness of countries rich in natural resources based on econometric model were confirmed in the middle of the 1990s by J. Sachs and A. Warner. The International Monetary Fund and World Bank note a phenomenon of resistant inverse relationship between rates of economic growth of the countries and wealth (existence of considerable volume) natural resources. The interrelation between the size of stocks ("abundance") of resources and low indicators of economic activity became a subject of special researches and received the name “resource curse” or “paradox of plenty".

Test results on the Prebisch-Singer hypothesis, which states that relative commodity prices follow a downward secular trend, are mixed but with a majority of series showing negative trends (Rabah Arezki, Kaddour Hadri, Prakash Loungani, Yao Rao, 2013). IMF researched the market of raw materials since 1650 and confirmed the main theories: the prices of all raw materials are really connected and controlled by cycles and in the long term prices for any type of raw materials are reduced in comparison with the prices of manufactured goods. The theory essence of resource curse consists in the following: considerable volumes of natural resources can be harmful for national economy and serve as the reason of economic recession (in the worst option – social and economic decline). Therefore, theoretic literature identifies several basic approaches to explaining the "paradox of abundance": Prebisch-Singer hypothesis; Staple Trap Theory; overshooting model, etc.

Techniques of research are presented in large generalizing work of M. Humphreys, J. Sachs and J. Stieglitz "Escaping the resource curse" (Escaping the Resource Curse, 2007). It is necessary to pay attention to multilateral research "Economic policy, quality of institutes and mechanisms of "a resource curse" (Polterovich, Popov, Tonis, 2007), the monograph "Oil, Gas, Society Modernization" (Oil, gas, modernization of society, 2008), in which the considerable attention is paid to institutional features of the countries provided with natural resources. At weak institutes the resource wealth can promote their further deterioration. Though there are no bases to claim that the countries rich with resources grow "on the average" more slowly than others, it is necessary to conclude that they use resources inefficiently. Researches in the sphere of the theory of the branch markets, including researches in line with new institutionalism, also do not give extensive theoretical base in this direction.

3. Methods

During research some main methods were used. For initial detection of the main properties of the economy rich with natural resources, and formations of hypotheses concerning their influence on the competition are used methods of deduction and scientific abstraction. They allow to pass logically from general characteristics of the national economies rich with natural resources, to those private characteristics which reveal the major factors and parameters "curse of natural resources", typical for Kazakhstan. Finally, at research of the concrete problem situations connected with development of the competition in the certain countries, the analysis of statistical data and legal sources is applied.
4. Factors of "curse of natural resources"

Key basis of development of Kazakhstan are its oil and gas resources. Economic development of Kazakhstan for many years is depending on production and development of natural resources in a country subsoil. Exhaustion of these stocks at insufficient development of production sector will inevitably lead eventually to recession of economic growth. For this reason paramount value has now country transition to industrial and innovative model of development of economy.

Essence to industrial and innovative model of development of economy which became the dominating doctrine of economic growth in economically and technologically developed countries of the world, and also in the countries with positive dynamics of economic changes, is large-scale introduction in the industry through innovative processes of such products of intellectual work, as advanced technologies, scientific and technical development and other objects of intellectual property rights of the scientific and technical sphere, and also introduction of effective organizational administrative decisions for the purpose of their commercialization or receiving social and economic effect (Mehlum, Moene and Torvik, 2006). As the certificate of the statement of industrial and innovative model of development of economy distribution of innovative processes to the industries acts.

<table>
<thead>
<tr>
<th>Resource curse factors</th>
<th>Emergence reasons</th>
<th>Results</th>
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<tbody>
<tr>
<td>Fight for a rent</td>
<td>Imperfection of the market. Indistinct definition of the property rights and their bad protection. Weakness of institutes and state</td>
<td>Protectionism of branches of national economy because of growth of a rate of national currency and, as a result, decrease in volumes of trade and degree of openness of economy, probably further rise in price of national currency due to decrease in import, preservation of structural imbalances and decrease in rates of economic growth</td>
</tr>
<tr>
<td>Strengthening of a real exchange rate</td>
<td>Growth of the export income promotes additional inflow of foreign currency to the country</td>
<td>To growth of a nominal rate of national currency there is a real strengthening of an exchange rate</td>
</tr>
<tr>
<td>Deindustrialization</td>
<td>The resource boom promotes “pulling” of factors of production from processing sector in resource sector</td>
<td>Deterioration of conditions for production sector and its reduction, to competitiveness loss</td>
</tr>
<tr>
<td>Degradation of education and human capital</td>
<td>The most part of the income from use of natural resources isn't connected with a salary. Extracting branches – not knowledge-intensive also don't demand highly skilled labor. The labor occupied in extracting branches, is deeply specialized and can't be used in other branches</td>
<td>There is no strict dependence between an education level and remuneration level that reduces incentives to investments into the human capital. Extracting branches owing to the specifics aren't interested in scientific researches. Such specifics of labor and the capital impose restrictions on a free overflow of resources from sector in sector and reduces efficiency of their distribution</td>
</tr>
<tr>
<td>Failures in policy</td>
<td>High security with natural resources can generate “carelessness” in carrying out economic policy while the countries poor in resources, aren't able to afford similar luxury</td>
<td>Delay of economic growth</td>
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For an assessment of value of resource curse concept for a practical solution of the problem of industrial and innovative development of Kazakhstan it is necessary to consider existence of resource curse factors in Kazakhstan (Alexeev and Conrad, 2009). Resource curse factors and their consequence are shown in Table 1.

Also, it is expedient to consider manifestations resource curse in the Republic of Kazakhstan.

4.1 Weakness of institutes

The basis of the analysis of the institutional environment in Kazakhstan is made by databases of World Bank WGI (Worldwide Governance Indicators). Each index can accept values from -2.5 to 2.5.

For the situation analysis the following estimates (table 2) can serve in Kazakhstan.
Table 2. The analysis of the institutional environment in Kazakhstan (Worldwide Governance Indicators, 2013)

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Kazakhstan</th>
<th>Other countries (for comparison)</th>
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</thead>
<tbody>
<tr>
<td>Efficiency of state management</td>
<td>-0.92</td>
<td>-0.56</td>
</tr>
<tr>
<td>Quality of regulating institutes</td>
<td>-0.73</td>
<td>-0.35</td>
</tr>
<tr>
<td>Quality of legal institutes</td>
<td>-1.12</td>
<td>-0.87</td>
</tr>
<tr>
<td>Efficiency of anti-corruption control</td>
<td>-1.06</td>
<td>-0.91</td>
</tr>
</tbody>
</table>

Table 2 shows that in comparison with Norway where are noted low level of corruption, the reasonable regulatory bureaucracy, transparent counterbalancing forces in decision-making system, indicators of the institutional environment in Kazakhstan is much lower that testifies to weakness of institutes in the country.

4.2 Strengthening of a real exchange rate

Growth of raw export involves inflow of foreign currency to the country. For payment of internal expenses exporters sell this currency that leads to rise in price of national currency. To growth of a real rate of national currency there is an increase in expenses in all branches of economy. Resource sectors to a lesser extent react to a change of course of currencies, partly due to bigger efficiency to growth of a rate of national currency. Processing branches are more sensitive to changes of course of national currency and at its increase lose competitiveness in favor of growth of cheaper import.

The average exchange rate of tenge for 2012 made 149,08 tenges for US dollar. In 2012 in nominal terms the tenge weakened in relation to US dollar for 1,58%. In 2012 the official rate of tenge in relation to euro weakened for 3,73%, to Russian ruble – for 7,16%.

In 2012 the index of a real effective exchange rate was 12,0% higher than a basic level of competitiveness in 2000. Thus, concerning level of December, 2011 strengthening made 0,1%. In 2012 decrease in real effective exchange rate index calculated to a basket of currencies of CIS countries made 3,3%.

As the reason of strengthening of real rates of tenge presence of excess quantity of foreign currency at the republic, caused by high prices of oil served.

It should be noted that strengthening of an index of a real effective exchange rate of tenge could happen also because of growth of the relative prices of not traded goods which reasons of growth salary growth in resource sector and as result the equation of salaries among other sectors is.

4.3 Salary growth in resource sector

The average monthly salary in Kazakhstan in 2012 made 101 thousand tenges, having increased in comparison with 2011 by 12,5%.

Inflows of investments to resource sector led to salary growth in this sector. On a labor market the compensation imbalance that compelled production sector of economy and the state to raise a salary of the employees was established.

The average monthly real wage of employees of the mining industry of Kazakhstan in 2012 made 178 thousand tenges, in 2011 – 169 thousand tenges, in 2010 – 148 thousand tenges. In manufacturing industry: in 2012 I made 103 thousand tenges, in 2011 – 90 thousand tenges, in 2010 – 78 thousand tenges (Figure 1). Thus, growth rate of absolute measures of the average monthly real wage in the mining industry made in 2012 in comparison with an indicator of 2010 – 23%, in manufacturing industry – 32%.

Figure 1. Growth of the average monthly real wage in resource sector, % (Kazakhstan in figures, 2013)

For reduction of an imbalance of a salary between resource sector and budgetary the state carries constantly out increase of a salary of employees of the budgetary sphere.

4.4 Deindustrialization

Concerning Kazakhstan it is possible to note not absolute deindustrialization (negative growth of manufacturing industry), and relative deindustrialization (decrease in production sector concerning sector of services). It is possible to see the first evident signs in dynamics of change of gross domestic product which, being the aggregated indicator of production, in the structural cut reflects result of a production activity of all residents of the country in (Figure 2).
4.5 Degradation of education and human capital

Within the last 15 – 20 years the steady tendency of degradation of the Kazakhstan education system is observed.

In the course of transition to the market the distinct regressive shifts which direction remained and during economic growth were outlined in structure of the domestic industry. At increase in specific weight taken in raw branches (from 14.7% in 1990 to 24.6% in 1998 and 28.7% in 2012) the share of branches where first of all NTP materializes, namely mechanical engineering (from 37.5% in 1990 to 31.4% in 1998 and 19.7% in 2012) and the light industry which production is used directly for satisfaction of final requirements (from 11.3% in 1990 to 5.2% in 1998 and 3.8% in 2012) (Kazakhstan in figures, 2013) was reduced.

Thus there was a reduction of a share taken in processing sector due to its growth in extracting branches and production of services. Employment in the branches of non-material production providing quality of economic growth (the new knowledge connected with generation and information distribution, with accumulation of the human capital), was steadily reduced. Behind externally positive shifts of sectoral structure of economy there are the processes connected from employment. The last is shown in deindustrialization of agrarian and industrial work, increase in volumes of trade and providing simple services to the population.

4.6 High level of corruption

Corruption level in Kazakhstan is high, as the certificate to that the researches Transparency International (TI) serve, to the largest international organization which is engaged in fight against corruption. According to its data Kazakhstan in 2012 took the 133rd place from 174 countries on the Index of perception of corruption (Corruption Perceptions Index, CPI).

Figure 3 shows data on the Index of perception of corruption of the Republic of Kazakhstan.

Figure 3. Index of corruption of the Republic of Kazakhstan, 1999 – 2012 (Transparency International Corruption Perceptions Index 2013)

In 2005 - 2012 in the Republic of Kazakhstan 11089 corruption crimes were revealed. Speaking about statistical data of those crimes, it is possible to note that if in 2005 the quantity of such crimes made – 1505, by results of 2011 – 1911, i.e. increased for 27%. According to financial police in 2012 were 1 828 corruption crimes, including on the facts are revealed: bribery – 483; connected with assignment or waste of entrusted someone else's property – 380; abuses of powers of office – 389; office forgery – 368; excess of the power and powers of office – 21; connected with fraud – 158 (The review of structure and dynamics of corruption in twelve months, 2012).

The provided data testify that corruption in Kazakhstan strengthens the positions.

4.7 Failures in policy

In national economy the resource curse is shown in braking of process of restructuring of economy and lack of effective distribution of funds for these purposes. If to consider resource curse factors (table 1) in relation to Kazakhstan, it is possible to state their obvious existence.

Though Strategy of industrial and innovative development of the Republic of Kazakhstan was accepted, last years showed that in economy of Kazakhstan signs of resource curse are obviously traced. The innovative sphere aimed at the development of the knowledge-intensive productions, practically isn't created, its share in gross domestic product is very low and can't influence development of own production. Obvious development of oil sector and the related productions and also labor overflow in this branch (The annual report of National Bank of the Republic of Kazakhstan, 2012) is observed. Further development of these branches affects on all economy not in the best way.

The economists developing a subject of resource curse concept were offered two instruments of prevention of this problem. Creation of stabilization funds and development of public institutes concern to them.
In Kazakhstan the National Fund which purposes were decrease in dependence of the republican budget from an environment of the world prices and formation of accumulation of the state for future generations was created. Formation of revenues of Fund it is carried out at the expense of direct taxes from oil sale, also other operations connected with oil sector that had to increase receipts in National Fund. Expenses of National Fund make transfers on development programs which are accepted by decisions of the Government of the Republic of Kazakhstan. Though all conditions for Fund activity were created, nevertheless there is no transparency in functioning of this Fund, and actually the public has no reliable information about volumes of sale of oil, the list of the companies which taxes arrive in Fund, there is also no information on Fund and activity expenses in Fund investments. Thus, Fund creation as that doesn't solve a problem of resource dependence.

The second tool is development of public institutes. The political forces, seeking to use economy in the purposes, do harm and to social development of the country, and its political image.

Excessively high share of a segment of the services, exceeding 50%, testifies to development of the sectors making not traded goods and services, i.e. not entering a foreign market. It is a characteristic sign of the Dutch disease. It should be noted that for Kazakhstan the following symptoms of the Dutch disease (Smailova, 2006) are characteristic:

1. When developing fields of hydrocarbonic raw materials the country received and continues to gain considerable income that is one of major factors of annual GDP growth on the average for 8,3% in 2001-2012. At the same time level of the income of workers of oil and gas sector grew, therefore, solvent demand of the population increased. As rates of development of processing branches considerably lagged behind growth rates of the income of the population, there was an excess demand for not traded goods which can't be imported in exchange for exported raw materials. In response to excess demand sector of services and construction reacted increase of the offer of production, and respectively stimulated labor inflow from other branches, generally labor being released of processing branches.

2. Even at full withdrawal by the state of the oil income and their fair redistribution between citizens there can be problems of regional imbalance of supply and demand of products. As it was noted above, in Kazakhstan intensively developed the branches which are rendering services and letting out nontransportable types of production, increase in demand for not traded goods led to a rise in prices for them, release of traded goods was thus reduced.

3. Stable reduction in production of a traded product and employment in processing branches means emergence of unprofitability and bankruptcy of the enterprises of manufacturing industry and agriculture. It results in structural unemployment, decrease in the income of the population and other social problems.

In Kazakhstan the oil and gas sector continues to develop excessively intensively in comparison with other industries. So, its share in gross domestic product grew from less than 1% in 1991 to 16,7% in 2012 that creates prerequisites for the Dutch disease. Tendencies of development of raw sector of economy, nature of influence of scales of a production activity of the oil and gas companies both on the macroeconomic environment, and on microeconomic factors of activity of the enterprises of processing branches give strong grounds for refusal of the concept according to which “engine” of development of economy is the increase in production of hydrocarbons, in particular, in the Kazakhstan sector of the Caspian Sea. Oil production growth on shelf fields to 150 million t. in a year and will create serious obstacles to development of processing branches above and will transfer the Dutch disease to a chronic form.

One of threats to the Dutch disease is that the excessive growth of raw sector can lead to preservation of technological backwardness of Kazakhstan, will reduce profitability of processing industries and will orient them on production of investment goods for raw branches. Mining companies, as a rule, are less knowledge-intensive, than the companies of processing branches, and don't demand a large number of highly skilled labor.

At the same time, the oil and gas sector, thanks to high profitability, distracts on itself considerable volumes of resources of economy and, respectively, creates a lack of resources for development of processing industries. In particular, the oil-extracting companies easily entice highly qualified personnel from other branches and fields of activity.

5. Key solutions for Kazakhstan

There are two ways of the order the raw material resources which are available in the country. The first is export in the raw, the second – deep processing of raw materials in the territory of the state. Such practice is used in the developed countries: USA and Norway. In Norway development of the knowledge-intensive industrial complexes, capable to replace future reduction of oil production is actively conducted. Such researches allow to create perspective productions instead of the extracting. Such experience is very important for Kazakhstan as oil production according to forecasts of the World
Bank considerably will decrease by 2020. Therefore it is important to reconsider now priorities of development of economy from resource-selling to the resource-saving. Reorientation of the general state programs, development of public institutes and expansion of transparency of National Fund are for this purpose necessary.

Thus, consideration of resource curse factors in relation to Kazakhstan stated their obvious existence. Though Strategy of industrial and innovative development of the Republic of Kazakhstan was accepted, last years showed that in economy of Kazakhstan signs of resource curse are obviously traced. The innovative sphere aimed at the development of the knowledge-intensive productions, practically isn’t created, its share in gross domestic product very low and can't influence development of own production. Obvious development of oil sector and the related productions and also labor overflow in this branch is observed. Further development of these branches affects on all economy not in the best way.

Economic development of Kazakhstan for many years is depending on production and development of natural resources in country subsoil. Exhaustion of these stocks at insufficient development of production sector will inevitably lead eventually to recession of economic growth. For this reason paramount value has now the balanced development of industrial production in Kazakhstan. The requirement of transition to industrial and innovative model of development of national economy shows a question of efficiency of investment policy in the industry. The important directions of its realization is stimulation of attraction of investments, legislation improvement in the sphere of attraction of investments, reorganization of system of the state investment, development of the investment market, development of state-private partnership and improvement of organizational forms of housekeeping at the state enterprises. The embodiment of these directions will allow to increase investment receipts in the industry of the country which will promote modernization of production and technological base of the enterprises, increase of profitability of productions and ensuring growth of industrial production.

The main task of industrial and innovative development of the Republic of Kazakhstan consists in ensuring industrialization on the basis of innovations. Prospects of industrial development of Kazakhstan are connected, first of all, with technological development and structural transformations to the industries. Structural transformations are promoted by methods of the state industrial and innovative policy. Overcoming of disproportions in the ratio raw both processing industries and formation of progressive structure of production have to lead to transition from raw structure of economy to the late industrial.

References