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Merzliakov Aleksandr

FIMB

A “HOLLAND KÓR” TÜNETEI OROSZORSZÁGBAN

SYMPTOMS OF «DUTCH DISEASE» IN RUSSIA

Supervisor: Dr. Gáspár Tamás

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INTRODUCTION

One of the significant problems of the economy in the 21st century is «Dutch disease», which was mentioned at the first time in a magazine «The Economist» in 1977. It was happened after a big economic problem in the Netherlands in the 1960s. «Dutch disease» also has another name «The Groningen effect», this is due to the fact that in 1959 a gas field was found in the North Sea at a place which is called Groningen. In fact, the new gas field did not lead to the prosperity of the economy of the Netherlands, but rather led to negative consequences: the strengthening of the national currency, rising inflation and unemployment levels, stagnation in industry, slow-down in GDP growth, and so on. That is why this phenomenon received a great response among the scientific community, and it became one of the most discussed economic problems. For «Dutch disease», the following definition can be given – phenomenon in which the energy extractive sector is dominated others in the country's economy. Despite the growth in extraction and export of energy resources, there is decreasing and degradation in other sectors, which leads to negative consequences.

As you can understand from the name, this is «disease», and like in medicine it has bad effects on the body, but in our case, on economy of country. That is why, it is so important to study this in detail, and learn how to «heal» from it. Based on the experience of many countries, it has already been proven that this phenomenon entails negative consequences that hinder the development of the country and destroy its potential. That is why that issue has a huge relevance in our time, and it is necessary to study and analyze the causes of occurrence and possible consequences in order to further develop the required ways to "treat" the disease.

Many experts mention in their works «Dutch disease» in Russia as a modern example. However, there are still discussions about that topic. It is really «Dutch disease» or just other factors which are affecting on development of Russian economy. And if it was really «Dutch disease», Russia could manage with it or not. In my opinion, Russia is still going through those times when the economy of the country suffers from the consequences of such phenomenon. For this reason, this topic remains very relevant, since there is no consensus on this issue in the world community. Moreover, current situation leads further to confusion what will happen next. Will a relapse of this «disease» begin in the country, or maybe Russia will be able to completely «recover» from it and continue healthy development of the economy. In this regard, I want to analyze and diagnose the Russian economy for the presence of symptoms of «Dutch disease» in my research. And base on the results confirm or refute the presence of this phenomenon in the country.

The aim of the research work: to prove or disprove the presence of «Dutch disease» in the Russian economy. To achieve the aim, the following questions were posed:

- 1) How did «Dutch disease» originate?
- 2) How «Dutch disease» refers to international economics?
- 3) How is «Dutch disease» defined by the different authors?
- 4) What real cases of «Dutch disease» were in the history of the economy?
- 5) Which countries successfully overcame «Dutch disease» and why?
- 6) Which countries could not overcome «Dutch disease» and why?
- 7) What methods exist to detect the presence of «Dutch disease» in the country's economy?
- 8) What are the main symptoms of «Dutch disease»?
- 9) What results already exist about «Dutch disease» in the Russian economy?
- 10) What symptoms of «Dutch disease» can be confirmed in the Russian economy?
- 11) What symptoms of «Dutch disease» cannot be confirmed in the Russian economy?
- 12) Examined symptoms prove or disprove the presence of «Dutch disease» in Russia?

During writing the research, developing and solving the questions posed, a fundamental type of research was used with an inductive and deductive approach, a mixed view. Also the following methodological approaches and research methods were used: primer and seconder data collection; observation of case study and ground research; description, comparison, evaluation of collected data; methods of system analysis and synthesis.

1 CONCEPTUAL FRAMEWORK AND LITERATURE REVIEW

1.1 «Dutch disease» in international economics.

In our days, due to technological progress, digitalization and globalization, the world economy has also begun to develop rapidly. And in modern competitive conditions, each country seeks to increase its economic power and influence on the world stage as soon as possible. However, in the 21st century, it is becoming more and more challenging to implement it, as the «turbulence» in the world is only increasing. In this connection it is very important not only to build a strong «empire» with a strong economic base, but also to constantly improve and modernize it under conditions of uncertainty. I believe that thanks to liberalization and perfect competition, on the one hand, there are many difficulties in overcoming the barriers to entry into new markets, which may also be created by other strong players. On the other hand, it opens up new opportunities for every country— the division of labor, specialization, the introduction of disruptive innovation. Also, many people believe that the more capital (labor, resource, money, information, and so on) a country has, then it is certainly more beneficial for economy. But does it always lead to a positive effect?

From my point of view, it is not always a positive effect. I would like to give an example of «Dutch disease». The study of this phenomenon in the economies of countries is becoming more and more popular among the scientific community. First of all, this is due to the fact that the question arises why some countries such as the Netherlands, Norway, Canada— countries which are rich in natural resources could achieve a high economic level (Sadykbaeva et al., 2018), (Ramirez-Sendrero & Wirth, 2016), (policyoptions.irpp.org, 2011). But at the same time, countries such as Saudi Arabia, Venezuela and Russia still does not have the same prosperity (intereconomics.eu, 2021), (cfr.org, 2021), (Avdalyan & Vedzizheva, 2019). What is the reason for the difference in their level of well-being? And could all countries, which has a lot of natural resources, become leaders among economically developed countries? What should be done to make this happen? And how does the «Dutch disease» usually manifest itself in the country's economy? What are the consequences of this phenomenon for the country? I would like to consider all these questions and give answers to them in my work.

As a rule, the presence of «Dutch disease» in the country's economy entails negative consequences. That is why many scientists are trying to study the possible preconditions for the manifestation of this phenomenon in order to prevent the development of such «disease» (Ramirez-Sendrero & Wirth, 2016). With «Dutch disease», the energy sector begins to dominate

other sectors of the economy in the country. Because of this, the country's well-being begins to become more dependent on world prices for oil, gas and other energy resources. In other words, deindustrialization is taking place in the country. Also, there is no development in other sectors of the economy, even in those that are most important for society.

Investments are accumulated mainly in the extractive sector, and as a result, the country's economy becomes primitive and meager compared to others. It also hinders international trade cooperation and leads to dependence on imported products. Because the country no longer produces anything other than the extraction of energy resources (oil, gas, coal, etc.) (Korobeinikov, 2014).

In fact, it is easy way to generate income in the country's budget. Because the country's government does not even need to create any special programs for the country's economic development, but simply go with the flow of rising energy prices. And besides this, to receive super profits and a surplus to the budget only through the sale of energy resources and taxes from them. Unfortunately, this will not help create a favorable environment for market competition within the country and develop foreign trade relations. On the contrary, it will lead to economic stagnation or even recession. Moreover, in the future, it leads to an increase in the level of corruption and bureaucracy in the country. Therefore, I am deeply convinced that by studying the symptoms of «Dutch disease», it will help to understand what problems need to be solved in the country, and what should be changed in the management of the country's economy. By taking the right measures, the government will be able to prevent the collapse of the country's economy, and rather develop the economy in it. As the examples of many countries which overcame «Dutch disease» show, it was the successful state management that helped to form a competent policy for the rational use and distribution of energy resources. At the same time, they were able to prevent irreversible negative consequences in the country, which usually take many years to cope with it. All of the above requires a detailed study of the manifestations of «Dutch disease», ways to determine it in the country's economy, and measures to manage with it.

1.2 Ways of understanding and studying «Dutch disease» by different authors.

There are many research works which devoted to the study of «Dutch disease», ranging from studying the general concept and understanding of this phenomenon to considering real cases using examples from different countries. As a rule, researchers are more interested in studying «Dutch disease» in their own country if such a problem exists there. This is very rational,

because living in such an environment, you begin to understand what problems and difficulties the economy of your country is facing, which certainly helps you in studying this phenomenon. At the same time, in their scientific research, the authors use not only different theories and hypotheses, but also analyze them based on statistical data and create econometric models, which gives a more detailed idea of «Dutch disease».

For example, Vera Gnevasheva in her workpaper, used a regression model, thanks to which she evaluated the transformation of the process of reproduction of Russia's labor resources. That model helped the author to conclude whether the Groningen effect has really been observed in Russia. At the same time, the author gave the following definition of «Dutch disease» a certain state of the economy, in which, on the one hand, there is an increase in the production and export of energy resources. On the other hand, there is a decline in industrial production and an expansion of the service sector. The author also identified some symptoms of the manifestation of «Dutch disease». This is a distortion of the dynamics of the reproduction of labor resources, a decrease in the demand for specialists from other areas that are not related to energy. Moreover, an increase in employment in the service sector, which means a decrease in the importance of training in other areas. Based on the existing theory of «Dutch disease», as well as on the results of the econometric model, the author came to the conclusion that in Russia this phenomenon manifests itself differently than it should be according to existing theories. The author believes that the demand for higher education in Russia is described as Veblen good. As a result, the author concluded that the behavior of consumers in relation to educational services in Russia leads to the impossibility of assessing «Dutch disease», due to the fact that it does not coincide with the model described in international theories (Gnevasheva, 2016).

Krotova Marina, Andreenkova Angelina and Bondarev Sergey, in their scientific article on the presence of «Dutch disease» in Russia, on the contrary, confidently stated that it is progressing in Russia. They gave the following definition of «Dutch disease» a negative effect that occurs as a result of the strengthening of the real exchange rate of the national currency due to rapid growth in one sector of the economy. For example, in the field of energy resources, as a result of rising prices for them, industries not related to energy begin to suffer, and unemployment in the country increases. For their study, the authors used the statistical data of the main macro-indicators of the Russian economy. Their analysis makes it clear how much the manufacturing sector in Russia lags and continues to lag behind the extractive and service sectors (Krotova et al., 2013).

Nienke Oomes and Katerina Kalcheva based on one of the resource curse explanations – «Dutch disease» hypothesis, and further creation of their own econometric model, the authors

came to the conclusion that the symptoms of «Dutch disease» are confirmed in Russia. However, they cannot diagnose «Dutch disease» with certainty, as this requires evidence that the symptoms of «Dutch disease» are existed in economy of country. For example, the strengthening of the national currency, deindustrialization, the growth of services and the growth of wage level. In using the concept of «Dutch disease», they rely on the definition of Corden (1982) and Corden and Neary (1984). In whose view it is a phenomenon in which an exogenous increase in resource prices or resource output leads to an appreciation of the real exchange rate and a decline in the manufacturing sector (Oomes et al., 2007).

Iurii Korobeinikov in his work also outlined «Dutch disease» as part of the resource curse hypothesis. The author gave the following definition of «Dutch disease» as an economic phenomenon in which the growth of the natural resource sector in the country leads to a decline in the manufacturing or agricultural sector. As an object of study, the author took Venezuela, creating a simplified graphical model of «Dutch disease» base on statistical data. The author also singled out such symptoms of «Dutch disease» as: correlation of GDP with the market of natural resources; the rapid growth of the extractive sector; growth in the service sector; the decline or stagnation of the manufacturing and high value-added sectors; strengthening of the national currency; growth in real wages. The author analyzed the presence of them in the country's economy. According to the results of this study, the Venezuelan economy has had the above symptoms for the past 30 years, which indicates the presence of «Dutch disease» in the country (Korobeinikov, 2014).

Juan M. Ramirez-Sendrero, Esther Wirth showed in their work, on the contrary, a successful case of overcoming «Dutch disease» in Norway. They analyzed how Norway successfully coped with this phenomenon and what tools were used by the government of this country. According to the authors, thanks to the correct government policy, Norway was able not only to overcome «Dutch disease», but also to benefit from it, turning the country into one of the most prosperous countries in the world. The authors also stated that the Norwegian model cannot be replicated in any other country. However, it can be taken as a basis for methods of managing with «Dutch disease». First of all, it is the use of political instruments, although, according to the author, it is impossible to completely avoid this disease in any case (Ramirez-Sendrero & Wirth, 2016).

Tina Kremmidas in her study analyzed the relationship between the growth of the Canadian dollar and the decline in the manufacturing sector in Canada. The key question in this study was whether the observed situation is «Dutch disease» or is it a global trend that the Canadian economy is also following. In this article, the author is deeply convinced that such a distribution

of resources is, on the contrary, a healthy sign of the economy. And the increased demand for energy resources is associated with the growth of the economies of India and China, which leads to such an increase in demand for energy resources in the world market and rising prices. The author also wrote that the decrease in the share of Canada's exports in the world market is associated not only with the growth of the Canadian dollar, but also with problems in competition in the Canadian market, with low labor productivity compared to the US and with the structure of the market in general (Kremmidas, 2012).

Ayvazyan, Berezhnyatsky, Brodsky in their research analyzed and compared two countries at once for the presence of «Dutch disease», in Russia and Armenia. They gave the following definition of «Dutch disease» as a macroeconomic phenomenon that hinders the development of the economy of both post-communist and developing countries. Based on the econometric model developed by the authors, the authors confirmed the hypothesis of the presence of «Dutch disease» in these countries. In the case of Russia, the authors see this relationship with the export of hydrocarbons, and in the case of Armenia, this is due to the bias of labor capital in the resource-extraction sector. Also, in comparing these two economies to the susceptibility of «Dutch disease», the authors identified several similar symptoms, such as the rapid development of the service sector against the backdrop of the deindustrialization of individual economies, the bias in the development of industrial sectors towards resource-producing ones, the dominance of imports in the structure of consumption, etc. (Ayvazyan et al., 2014).

Another interesting approach to the study of «Dutch disease» is the phenomenon of the institutional trap, which was presented by the following authors Grosheva and Islamutdinov. They created a comparative analysis of three main concepts to study the phenomenon of «Dutch disease». This is the paradox of the development in an open economy, the paradox of the abundance of natural resources within the resource curse and the institutional trap in the theory of neo-institutionalism (Grosheva & Islamutdinov, 2019).

Another interesting work is the study of Maltsev A.A. The author gave examples in his work proving that «Dutch disease» and deindustrialization are not always linked. The author described «Dutch disease» as a situation in which the discovery of a new energy source leads to negative consequences for non-extractive industries, especially for the industrial sector. However, this situation can also cause a sharp rise in energy prices. In his study, the author analyzed statistical data as well as the work of other authors. While the statistics show symptoms of the presence of «Dutch disease», the author, based on studies and results of other authors in other countries, applied the same statements in relation to Russia. Having made comparisons of cases from different countries, the author concluded that there are other factors

leading to the same consequences that «Dutch disease» can lead to, in other words, there is kind of substitution of concepts. The author also suggested that the case in Russia is not related to «Dutch disease» but to the Chinese syndrome (The Economist introduced this term). Besides, he concluded that «Dutch disease» is not a problem inside a country, but a global trend. The author believes, the issue of «Dutch disease» is rather turning into the issue of the correct distribution of income received from energy resources (Maltsev, 2008).

In this way, having reviewed the studies of different authors, we can combine the data obtained in Table 1.

Table 1: The presence of «Dutch disease» in economy

Authors	Research method	Results
Vera Gnevasheva	building a regression model;	in Russia, there is a bias in the reproduction of labor resources, as well as a decrease in demand for specialists not related to the energy industry; however, consumer behavior in relation to educational services is described as Veblen good, which does not allow the author to give a clear answer about the presence of «Dutch disease» in Russia;
Krotova Marina, Andreenkova Angelina, Bondarev Sergey	analyses statistical data of the main macro indicators of the Russian economy;	«Dutch disease» is progressing in Russia; the industrial sector in Russia is lagging behind the mining sector;
Nienke Oomes and Katerina Kalcheva	building an econometric model;	the symptoms of «Dutch disease» in Russia were confirmed, but the presence of other factors did not allow the authors to give an accurate answer about its presence in the economy;
Iurii Korobeinikov	building graphical model of «Dutch disease» base on statistical data;	identified the symptoms of «Dutch disease» and confirmed their presence in the economy of Venezuela;
Juan M. Ramírez-Cendrero, Eszter Wirth	analyses statistical data of the main macro indicators of the Norwegian economy and also study main tools of government management in that country;	Norway has successfully dealt with «Dutch disease», but the model used in this country to deal with this phenomenon cannot be used in other countries; except for some effective political ways of governing;
Tina Kremmidas	analyses the correlation between the growth of the Canadian dollar and the fall of the manufacturing sector in Canada by statistical data and different researches;	the Canadian dollar exchange rate depended on many factors, and not only on energy prices; this is a global trend and not «Dutch disease»;

Ayvazyan, Bereznyatsky, Brodsky	building an econometric model;	the presence of «Dutch disease» in Russia was confirmed through the growth of energy exports and in Armenia, through the outflow of labor to the energy sector; identified their common symptoms deindustrialization;
Grosheva and Islamutdinov	comparative analysis of three main concepts to study the phenomenon of «Dutch disease», and concentrate mostly on of the institutional trap approach;	«Dutch disease» causes people to become rent-seeking;
Maltsev A.A.	analyzed the statistical data of different countries, as well as the results of other researchers in other countries; he compared the results obtained for the Russian economy with the results of other countries.	in the case of Russia, deindustrialization is not related to «Dutch disease»; «Dutch disease» is a worldwide trend, not a problem of a single country.

(Made by the author)

In this way, the methods of studying «Dutch disease» were studied in detail, as well as the results obtained by different authors. We can say that among the reviewed researches there is no consensus on the study «Dutch disease». I think, it is due to the fact that which country was the object of the study. As for research on the presence of «Dutch disease» in Russia, there is also no consensus on whether it is present in the Russian economy or whether other factors give such an influence. However, what is certain is that fact that there are certain specific symptoms which are associated with «Dutch disease». That is why, it is possible to examine in detail and find the symptoms inherent in «Dutch disease» and combine them into a checklist for the research. But before that, in the next chapter I would like to pay attention to the cases of «Dutch disease» in countries such as: the Netherlands; Norway; Canada; Saudi Arabia and Venezuela. By looking at real historical examples in detail, this will help us better understand how this phenomenon manifests itself, which will help in further analysis of the Russian economy for the presence or absence of signs of «Dutch disease».

2 CASE STUDIES OF «DUTCH DISEASE»

2.1 «Dutch disease» in the Netherlands.

The concept of «Dutch disease» was born in the Netherlands, not so many years ago in the 1960s. In 1959, a new gas field was discovered in the North Sea called Groningen, that is why this phenomenon is also called the Groningen effect. The low cost of production, as well as rising prices for hydrocarbon raw materials, led to intensive development of the gas field, as well as to its export. As a result of the growth in exports, the inflow of foreign exchange also increased, which led to the strengthening of the Dutch national currency guilder. As a result, imported goods became more accessible to the population, cheaper than goods produced domestically, they began to rise in price. Also, the initial growth in incomes of the population caused an increased demand for goods, in connection with which prices began to rise, and imports to increase, in other words, inflation began to grow rapidly. And due to the fact that the extractive industry began to develop successfully in the Dutch economy, other sectors of the economy began to suffer.

Difficulties arose in business not related to gas production, the shortage of labor and investment in these areas increased, and there was stagnation. Therefore, the competitiveness of domestic goods gradually deteriorated, and the economic situation in the country as a whole began worse. The country's economic growth slowed down significantly in the 1970s. Fortunately, the Dutch government has built a policy aimed at developing the domestic market, which helped to avoid a big trouble in the country. But only by 1985 economic stability was restored in the country. In this way, it took many years before the Dutch economy got rid of the negative effect and stabilized (Sadykbaeva et al., 2018).

2.2 «Dutch disease» in Norway.

One of the successful examples of how to prevent the negative consequences of «Dutch disease» is Norway. For the first time, a large oil field in Norway was found in 1969, after which intensive production began. Thanks to competent state management in governing large oil revenues, they were able to prevent disastrous consequences for the country's economy. Also, the correct fiscal policy in conjunction with the monetary policy helped not only to avoid harmful consequences, but also to achieve prosperity in the Norwegian economy. Administrative functions in the field of the oil industry were divided between three legal entities. One legal entity

performed a commercial function, another performed a technical and advisory function, and a third was responsible for an executive function. It demonstrates us the specialization in the management of this sector, as well as the prevention of the concentration of all power over this area in one hand. As for fiscal policy, it has changed over time, but has always been aimed at not encouraging the development of the oil sector, and not making it the most attractive for investment. Therefore, in addition to the general corporate tax of 27%, a tax of 51% was also introduced on oil activities. Despite the fact that even tax incentives were established, in general, the policy that prevented investment inflows into this industry continued to be pursued.

A fund was also created to stabilize economic crises (when the price of oil decreased) and act as a savings reserve to deal with potentially higher costs in the future. That fund was placed under the management of the Norwegian Bank, which invested those funds in foreign assets in order to prevent the strengthening of the national currency. In addition, a rule was introduced according to which money could not be spent from the fund for the needs of the government in the amount of no more than 4% of its total value. At the same time, the remaining money were accumulated in the fund and invested in foreign funds, while national investments were avoided. Such a measure created the effect of sterilization and prevented the growth of the national currency. These actions helped Norway recover from «Dutch disease», and avoid the collapse of the economy from the large presence of oil in the country (Ramirez-Sendrero& Wirth, 2016).

2.3 «Dutch disease» in Canada.

The next successful example is Canada country rich in resources and a top producer and exporter of oil, gas and other natural resources. Since 2002, a new boom began in Western Canada in Ontario and Quebec, where the manufacturing sector began to shrink, and the Canadian dollar began to appreciate rapidly. In the case of Canada, «Dutch disease» started in a slightly different way than it did in the Netherlands. According to many researchers, the development of «Dutch disease» in Canada was also facilitated by the rapid economic growth in Asian countries, especially in China and India. With the development of the economies of these countries, the demand for energy resources also began to rise rapidly, which led to an increase in world prices for oil resources. In addition, a special feature is that this phenomenon began to develop in different parts of the country, and this, in turn, led to some difficulties in its struggle, unlike when it was in the Netherlands. Due to the large size of the country, it was difficult to reallocate resources and labor. In addition, some areas in Canada began to suffer more and faster. For

example, this was the case in Alberta, when this area was highly dependent on resource extraction, labor mobility was difficult, as was retraining.

Additional barriers were linguistic and cultural differences, and long distances also played a large role, as mentioned earlier. The rapid growth in resources since early 2000 has begun to impact Canada's resource economy. After all, such growth gives an incentive for the development of exports of raw materials more than for the industrial products of this country. In this way in Canada in 2006, crude oil came out on top as an export commodity, although before that there were cars. The oil industry started to develop intensively, which led to the outflow of labor to that sector from others. While there was an outflow of resources to the oil sector, others began to stagnate. The existing difference in the structure of exports between the regions of Canada led to damage when resource booms arose. For example, in Alberta the main share was occupied by revenue from oil, while the economy of Quebec and Ontario was dominated by the manufacturing industry. Therefore, when employment and productivity grew in Alberta against the backdrop of rising oil prices in Quebec and Ontario, on the contrary, it fell. In this regard, measures were needed to combat the growing polarization in the Canadian economy. Otherwise, it would lead to disastrous consequences for the country's economy. At the same time, it was impossible to use the experience of Norway for Canada, since the income from the oil industry was at the disposal of the provinces. In turn, the province of Alberta was not ready to accept the policy that was carried out in Norway, as that would have harmed the energy-dependent industrial sector in their region.

From 1976 to 1986, a fund was created in Alberta, where up to 30% of the proceeds from the sale of energy resources were directed, the fund was created to save money for the future. But after 1986, no contributions were made to this fund. On the contrary, the county increased spending on infrastructure development, especially in the housing sector, which also affected the outflow of labor. As a result, inflation increased and the asymmetry between the districts of the country increased, which complicated the implementation of a single monetary policy in the country. Nevertheless, a policy was carried out to support the industrial sector in the country, when the loan rate did not increase, but remained at the level of 1%. Also, policies aimed at increasing the mobility and retraining of workers helped to avoid unemployment in those sectors where people lost their jobs. Alternative jobs in industries began to be created, spending on R&D increased, and tax incentives were introduced for industries to enable them to exempt them from the tax burden and improve their competitiveness. In addition, the development of industry has helped reduce the gap in economic growth between counties and in wealth levels, as well as keep the Canadian economy as a whole competitive (policyoptions.irpp.org, 2011).

2.4 «Dutch disease» in Venezuela.

In history there were not only successful examples of the fight against «Dutch disease», but also those that led to the collapse of the country's economy. I would like to consider the situation in Venezuela. Venezuela has some of the highest oil reserves in the world, which unfortunately led to dependence from that resource. A significant share of the country's GDP comes due to oil and gas revenues. In the early 2000s, when the demand for oil and, consequently, the price of oil increased, in such an oil-rich country, this made the oil and gas industry more attractive. Therefore, the government of this country focused on the development of only this sector, as it brought large incomes to the country. The country spent the income received to a greater extent on the social and economic needs of the country. Until oil prices crashed. And oil prices began to fall in 2014. They ended up falling from over \$100 a barrel to less than \$30 a barrel in early 2016. In addition, income received from oil and gas activities in dollars was spent on supporting imports. And instead of stimulating the country's domestic economy, the Venezuelan government pushed the country's economy even further into the state of «Dutch disease».

Due to the wrong government approach aimed at overspending the support of the poor in the country, that has led to a large external debt of the country. This misappropriation of funds continued until the end of oil profits, and after oil prices collapsed and the dependence on imported products that Venezuela paid for in dollars remained, all this turned out to be a collapse in the country. There was a shortage of essential products, food, medicines, etc. Thus, due to the unprofessional policy of the government on the disposal of oil revenues, that led to the economic collapse of the country. This example is a confirmation that the resource wealth in the country does not necessarily lead to the economic success of the country. And also that with the wrong policy towards oil activity, «Dutch disease» can engulf the economy and lead to serious disastrous consequences (cfr.org, 2021).

2.5 «Dutch disease» in Saudi Arabia.

Saudi Arabia is another no less tragic example. The country is one of the largest oil exporters in the world, which means that its economy is heavily dependent on oil revenues. In general, oil revenues had a positive impact on the country's GDP. Also, due to the relatively small population of the country, incomes could be invested in industrialization. Yet Saudi Arabia's economy weaker and behind the economies of many East Asian countries such as Vietnam,

Indonesia and Thailand. However, after the oil boom, the economy of Saudi Arabia was partially hit. As usual, this is manifested in the «Dutch disease», the national currency of Saudi Arabia- Saudi rial, has risen in price. That led to a reduction in the cost of imports, a reduction in the national non-oil industry, an increase in the cost of local labor, and most importantly, it hindered industrialization in the country. As a result, about 2/3 of the entire labor force in the country were migrant workers.

Therefore, before Saudi Arabia is the main question of the transformation of the economy, making it less dependent on oil revenues. In 2016, Saudi Arabia adopted the Saudi Vision 2030 policy, which is aimed at diversifying investments as well as increasing industrialization. But this is strongly impeded by the political factor, when many politicians, especially during the period of rising oil prices, talk about the impossibility of reducing the importance of the oil sector in the country. Moreover, to implement this program, they doubled oil production before the price of it depreciates in the future, in their opinion. However, all it only leads to an even greater dependence of the country's economy on oil prices. Therefore, it is of great importance how the policy towards the oil sector will be built. How will the income from the sector be distributed, will they invest in the industrialization of their own economy, which, in the event of a sharp drop in oil prices, will serve as a buffer and help prevent a collapse in their country (intereconomics.eu, 2021)

2.6 Synthesis: the main features of «Dutch disease».

Having examined in detail the history of the occurrence of «Dutch disease», as well as analyzing several different cases, it is possible to identify and analyze the main signs of «Dutch disease». It can also be argued that «Dutch disease» appears either in connection with the discovery of a new field of gas or oil, or with a significant increase in the prices of these resources. Therefore, the following main symptoms can be distinguished.

First of all, it is an increase in the production and extraction of energy resources, growing in their prices and a raise in exports. This was the beginning of the case of one or another country that we considered earlier. This was also easily traced through the statistical data that the above researchers analyzed in their works. Such behavior in the economy is quite logical. Since after the discovery of a new field, its intensive development begins. And high price of the resource only stimulate it stronger to produce and export more in order to increase profits.

That is why the country easily replenishes its budget with large oil and gas revenues, which is actually a trap from which it is difficult to get out.

Also, as real cases in countries show, as well as what researchers say, due to the growth of oil and gas revenues, the national currency begins to strengthen, and the incomes of the population begin to grow. At the same time, imported products become cheaper, demand for them increases, however, inflation starts to accelerate.

Because of the energy sector becomes the most profitable, other sectors of the economy become less important. In other words, such a symptom as deindustrialization can be taken to diagnose «Dutch disease» in the country's economy. Also, the predominance of the energy sector over others can be taken into account as another symptom. And due to the fact that the energy sector is becoming the most developing in the country's economy, the demand for labor also begins to increase in this industry. While in others there is stagnation due to which a bias in labor capital begins. That is why some of the previously mentioned researchers used the dynamics of labor capital as the object of research for the presence of «Dutch disease», and by it they proved the presence of «Dutch disease».

Below is a list of symptoms for which I would like to analyze the Russian economy for the presence of «Dutch disease» in it:

- 1) increase in the production of energy resources;
- 2) increase in energy resource exports;
- 3) increase in the price of energy resources in the world market;
- 4) dependence of the country's economy on world energy prices;
- 5) growing importance of the energy sector and its dominance in the country's economy;
- 6) strengthening of the national currency;
- 7) growth of inflation in the country;
- 8) growth of incomes of the population in the country;
- 9) increase in imports;
- 10) outflow of labor to the energy industry;

In my opinion, this is one of the main signs of «Dutch disease» in the country that can be also found in the economic literature. But the presence of only a few of these signs does not prove 100% that «Dutch disease» exists in the country. To do this, it is necessary to consider each feature in more detail and after it make conclusion about the presence of «Dutch disease» in the Russian economy.

3 SYMPTOMS OF «DUTCH DISEASE» IN THE RUSSIAN ECONOMY

3.1 «Dutch disease» in Russia.

Nowadays, discussions are underway about whether there is «Dutch disease» in Russia and, if so, how to deal with it and whether it should be cope at all. For the first time they started talking about it in the early 2000s. Already at that time, Herman Gref Minister of Economic Development and Trade of Russia, warned about possibility of «Dutch disease» in Russia. In 2005, the international rating agency Standard & Poor's assigned the status of Russia as a country suffering from «Dutch disease». Also, economist Vladimir Osakovsky discussed in 2012 that Russia would suffer from Dutch disease even in 2020. On the other hand, the head of the economic expert group Yevsey Gurvich in 2013 denied the presence of «Dutch disease» in Russia (Avdalyan& Vedzizheva, 2019).

In my personal experience, in years when the price of oil is critically low, the crisis in the country is felt more strongly, high inflation in consumer prices is observed. At the same time, imported goods become noticeably more expensive, and domestically produced goods are of poor quality or are not produced at all. The level of tension in the labor market is also growing, and from personal experience I can say that in Russia it has always been considered that working in Gazprom or in any oil company is the best and most profitable option. That is why so many people are trying to get job at such companies.

Besides, during the period when there was a significant increase in oil prices, government management in the country noticeably degraded, but the level of corruption and bureaucracy increased. In one program in 2005, in which Boris Nemtsov a politician and statesman, was an invited guest, he also mentioned the problem associated with oil and gas activities in Russia. He argued that the case in Russia is of a psychiatric nature, since such a high oil price has never been in the country (more than 60 dollars per barrel). In addition, he mentioned the former Minister of Finance of Russia Jedor Gajdar, or, to be more precise, the formula that he derived. The formula was that the government's IQ is inversely related to the price of oil (Pamyati Borisa Nemtsova, 2015).

Unfortunately, the problem still exists and, as my experience shows, it has a negative impact on the country's economy. Therefore, it is important for me to study it and find out whether it is related to the presence of «Dutch disease» in the country or not. In this connection I would like to analyze those data about the Russian economy with the main symptoms of «Dutch disease» that were mentioned earlier.

3.2 Was the increase in energy resources production?

Before diagnosing symptoms for the presence of them in the Russian economy, it is also worth considering that only a number of factors will be taken in the study. Due to the impossibility to take into account all the factors at once, one cannot be completely sure that this or that symptom is caused (has a correlation) with the factor that will be taken into account by me. Therefore, for my research, I tried to take exactly those indicators that can most logically and correctly demonstrate situation about «Dutch disease». Also the data that the researchers cited in the works that were previously studied by me.

As you know, Russia occupies a leading position in the world in terms of reserves of energy resources such as coal, oil and gas. According to OPEC statistics for 2019, Russia's oil reserves amounted to approximately 80 billion barrels, or about 6% of all world oil reserves. In terms of natural gas reserves for 2019, Russia ranked first in the world, namely 50279 billion cubic meters or almost one quarter of all world reserves. As for coal reserves, according to the statistics of the Ministry of Natural Resources of the Russian Federation at the end of 2019, they were equal to 275.4 billion tons. Thus, there is no doubt about the fact that Russia has a lot of raw material deposits, which may already indicate the prerequisites for the «Dutch disease» or resource curse (ru.wikipedia.org., 2021).

However, only the large availability of resources in the country cannot speak about how intensively they are mined, since this requires large investments and good profitability. To answer the question of whether there was an increase in the production of energy resources in Russia, I took statistical data on the dynamics of oil production in Russia from 2000 to 2021. Analyzing Figure 1, we will see that during the period under review, oil production in Russia increased by 213.1 million tons, or 65.9%. Despite the fact that there were periods of decline in oil production, the general trend shows growth, which means that this industry in Russia is becoming more and more popular. Thus, we can say for sure that the growth in the production of energy resources in Russia took place. In addition, such a symptom as a significant increase in the production of energy resources in the country can be confirmed on the basis of the statistical data taken (rosstat.gov.ru, 2022).

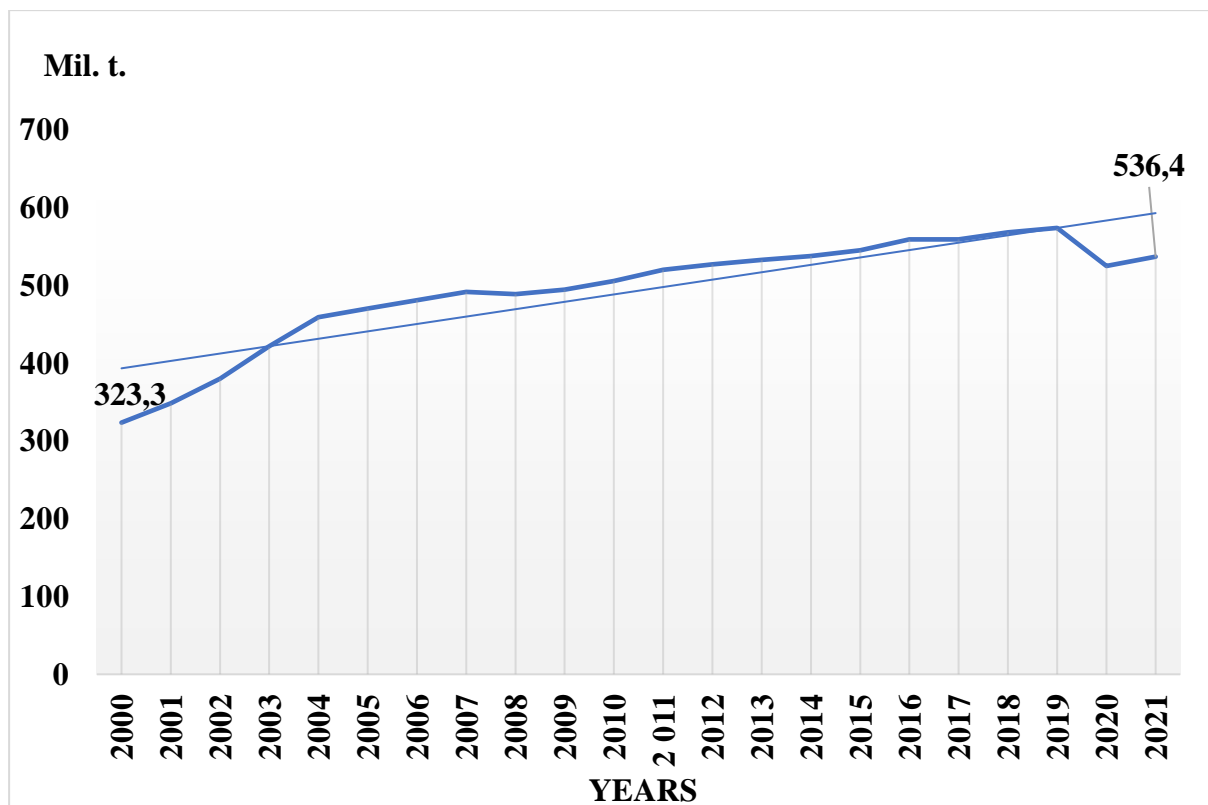


Figure 1: Oil production in million tons (rosstat.gov.ru, 2022)

3.3 Was the export of energy resources increasing?

On the other hand, one cannot exclude the possibility that with the development of the economy in the country, the oil sector also developed, and maybe not even as rapidly as other industries in the country. I would like to consider at what pace the development of the oil industry took place in comparison with other industries. To do this, it is necessary to analyze the share of fuel and mineral products in the structure of exports from 2000 to 2018. Figure 2 shows the export structure consisting of two categories: 1) fuel and mineral products; 2) other products. The first thing to note is that the share of fuel and mineral resources has never been below 50%, which may already suggest the predominance of this industry in the country's economy (rosstat.gov.ru, 2022).

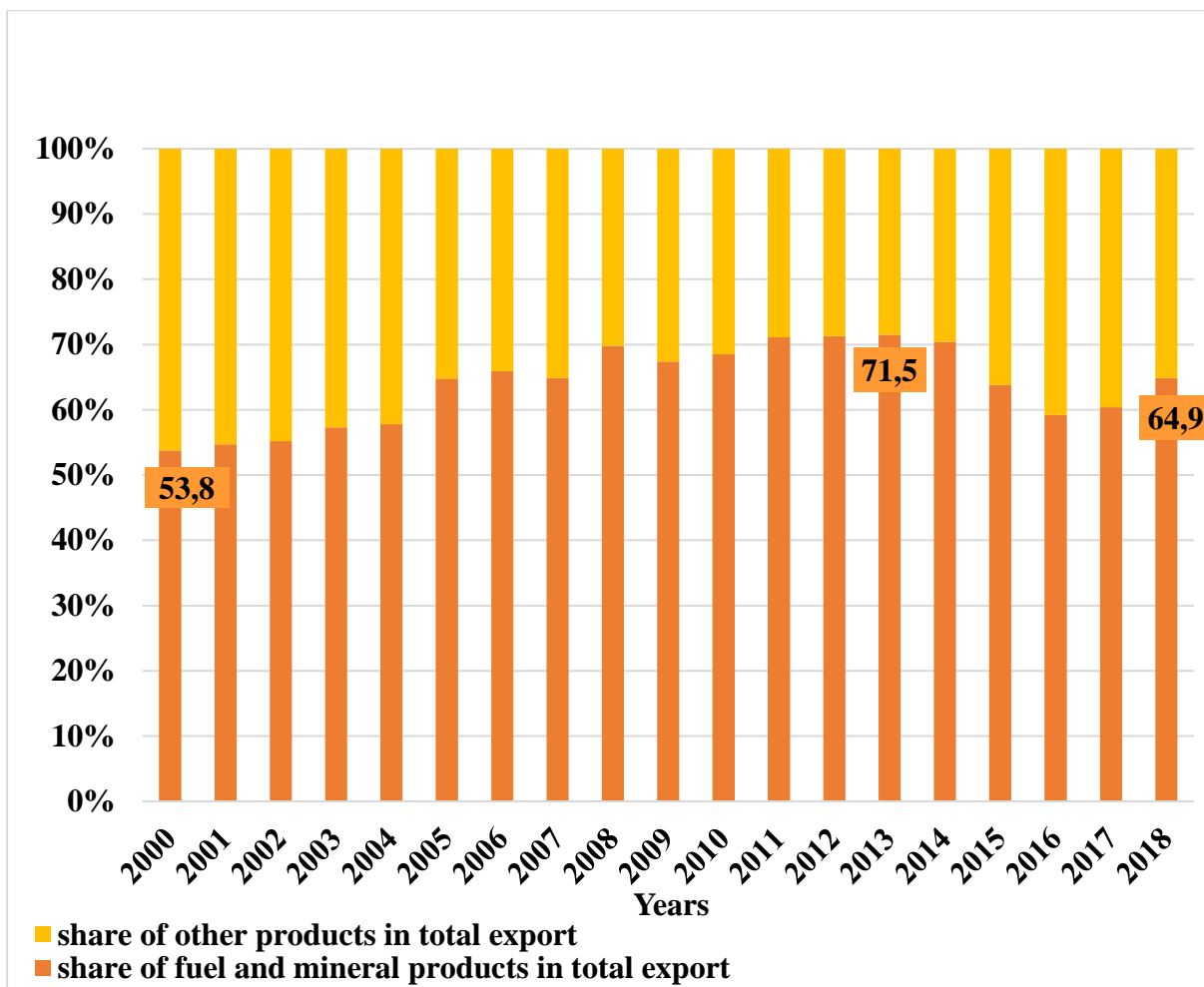


Figure 2: Export structure, % (rosstat.gov.ru, 2022)

The minimum was observed in 2000, before the rise in energy prices. And the maximum was in 2013 (before the imposition of sanctions), then the share was 71.5% of total exports. In total, for the period under review, the growth rate of the share of fuel and mineral products in the structure of total exports amounted to 20.6%. Analyzing these data, one cannot deny the fact that a significant and largest part of exports is occupied by the energy sector. And the general trend for the period under review showed a significant increase in the share of fuel and mineral products in the structure of total exports. Therefore, to the question whether the export of fuel and mineral resources increased, based on statistical data, the following answer can be given that there was an increase in the structure of total exports (data.worldbank.org, 2022) Although in absolute terms we cannot be sure that exports were growing, for this we need to look at the dynamics of exports over the same period (Figure 3).

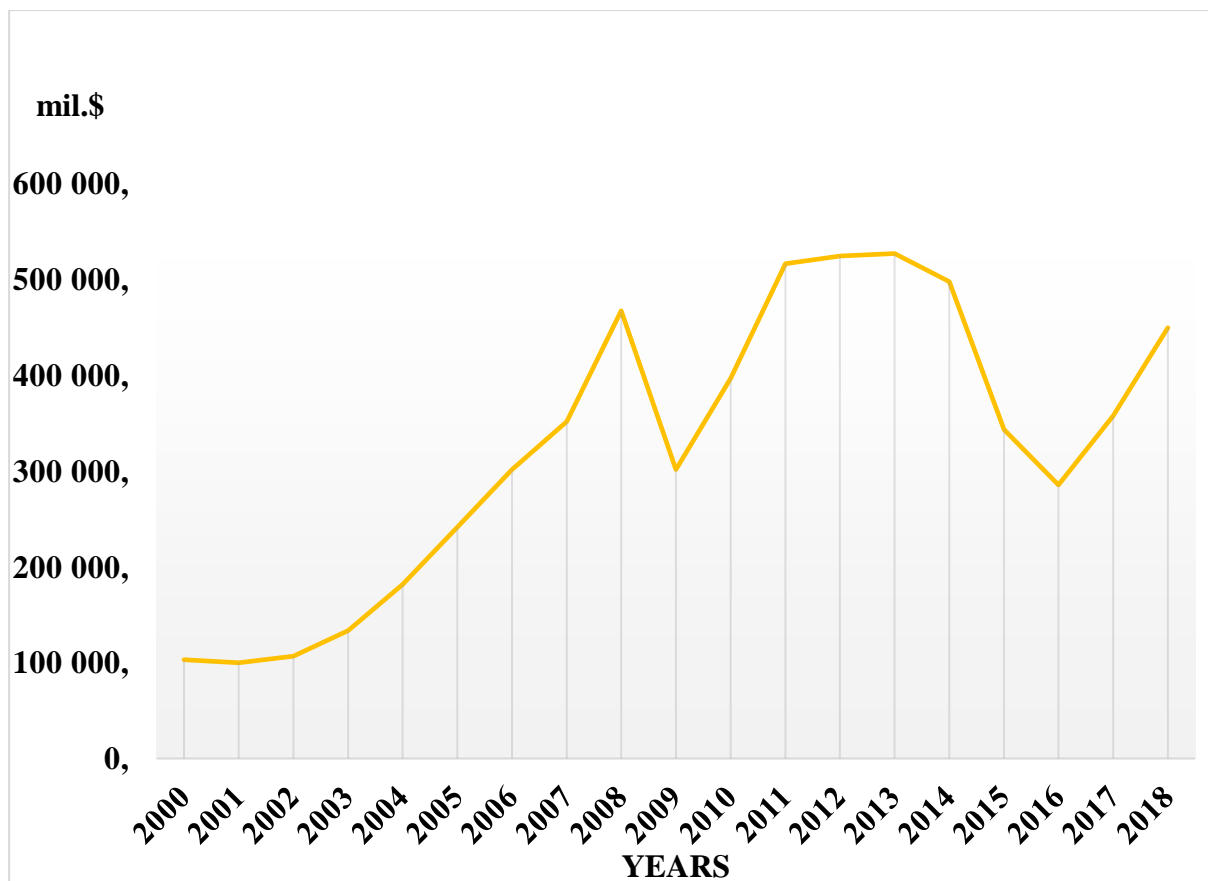


Figure 3: Dynamics of export in Russia, mil.\$ (data.worldbank.org, 2022)

Analyzing Figure 3, we can see that the dynamics of Russian exports repeats the same dynamics of changes in the share of fuel and minerals in the structure of exports, this easily traced through the peaks of maximum and minimum. For example, the peaks of the minimum of Russian exports were in 2009 and 2016, and if we look at Figure 2, there is also a drop in these years. However, in 2009 it is not as noticeable as it was in 2016. I think that this is due to the imposed sanctions that affected, among other things, the trade in fuel and mineral resources, which affected such a fall. In 2009, there was a global crisis, which did not greatly hinder the continuation of trade in these resources. Also, if you look at the peaks of the maximum in the dynamics of exports, they were in 2008 and 2013, which coincides with the peaks in Figure 2. This confirms the correlation and the statement that not only the share of fuel and mineral resources in the structure of total exports grew, but also the dynamics itself exports in absolute terms. Thus, for question whether the export of energy resources grew, we can confidently say that yes, there was growth, which means that another symptom of «Dutch disease» was confirmed.

3.4 Was there an increase in the price of energy resources on the world market and was there a dependence of the Russian economy on the price of energy resources?

To answer the question, it is necessary to consider the dynamics of oil prices. For example, I took oil «Brent». Analyzing Figure 4, it can be said that from the beginning of 2000 to August 2022, the price increase was 293.77% (from \$25.51 to \$100.45 per barrel). This is a very significant growth rate. Therefore, it is very rational to produce and sell more when this product is more expensive on the market in order to get more revenue for the country, thereby strengthening its own economy. But on the other hand, this leads to a certain dependence of the country's economy, especially its budget, if it is formed only at the expense of the proceeds from this activity, then at the time of the fall this will mean a deficit in the budget. Thus, another symptom an increase in energy prices can also signal the presence of «Dutch disease» in Russia (eia.gov, 2022).

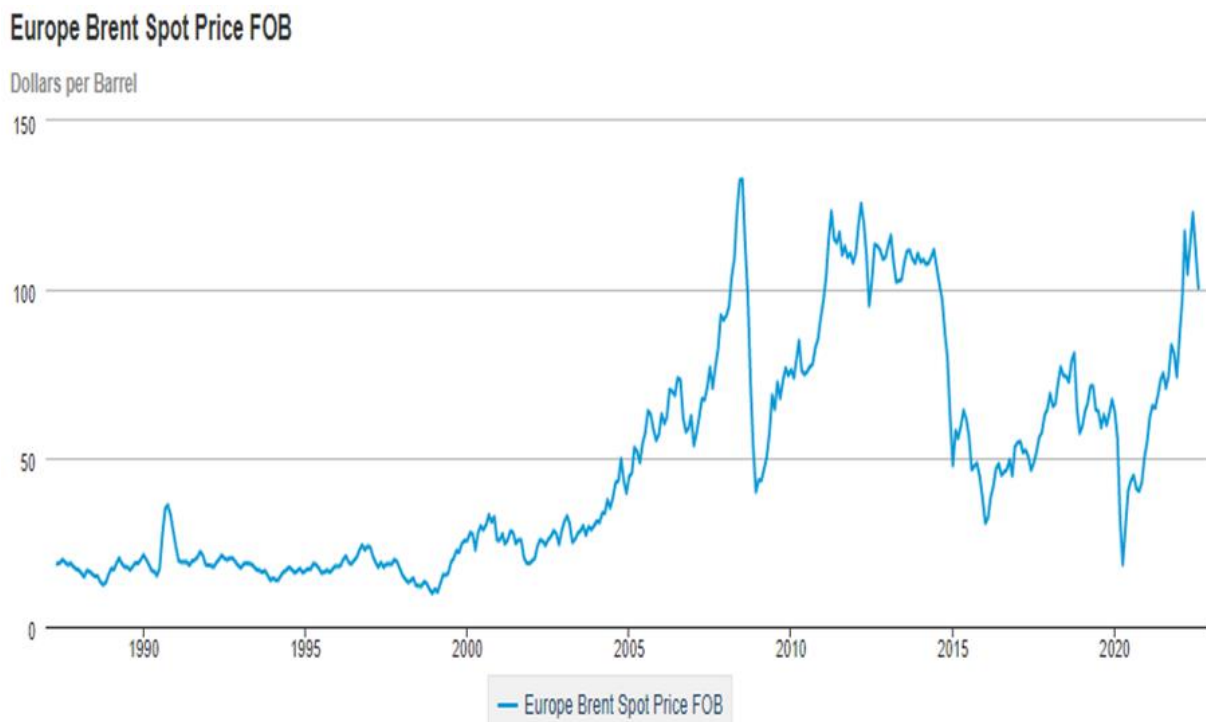


Figure 4: Dynamics of price oil «Brent», \$ per barrel (eia.gov, 2022)

I would also like to consider a graph of the dynamics of exports of mineral products in value terms for the period from 2000 to 2018. Analyzing Figure 5, a significant increase in the value of exports from 2000 to 2008 can be noticed. The rapid growth continued until the fall in 2009 due to the global crisis. But already from 2010, there was an increase until 2014, when a

new crisis began in Russia, and sanctions were also introduced (including on energy resources). At the same time, the maximum export in value terms is observed in 2013, which coincides with the maximum share of total exports. Thus, during the period under review, the value of exports of fuel and mineral products increased by \$236,955 million, or 427%. This clearly confirms the importance of the energy industry in the Russian economy. Also, due to the fact that the Figure 5 looks approximately the same as Figure 4 of the oil price, this may also indicate a possible correlation and indirectly confirm the symptom of the dependence of the economy on this industry. To give an accurate answer to the question, it is necessary to consider several factors at once, through an econometric model (rosstat.gov.ru, 2022).

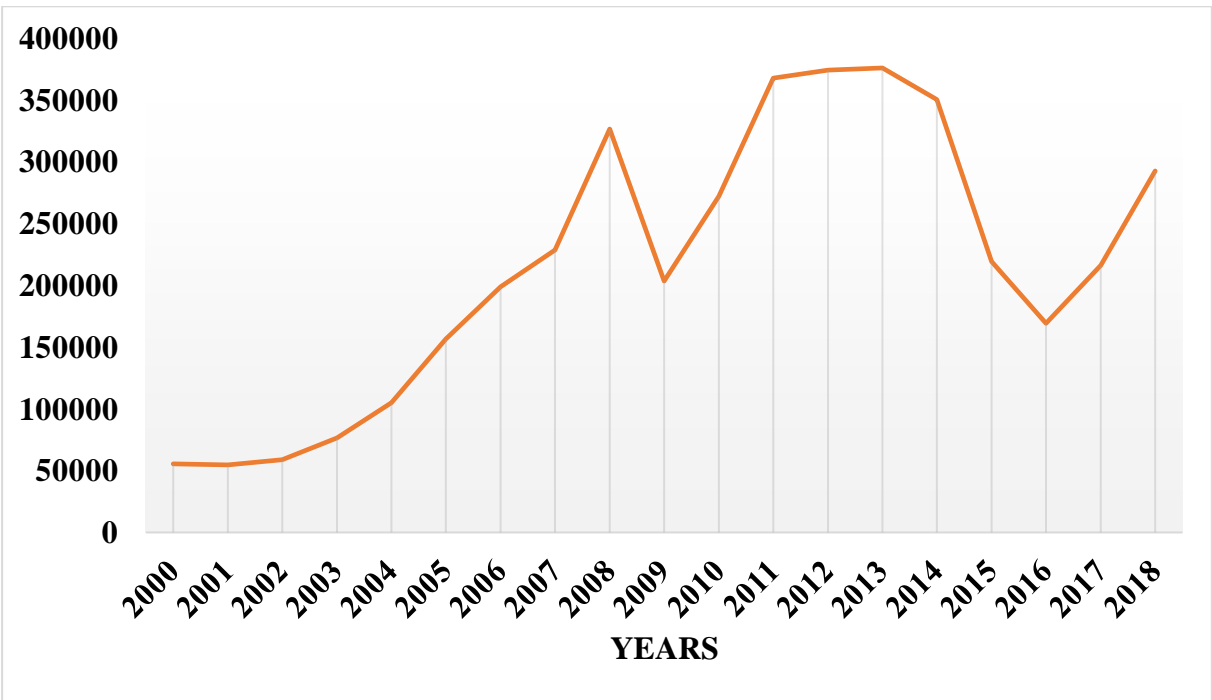


Figure 5: Export value of fuel and mineral products, mil. \$ (rosstat.gov.ru, 2022)

3.5 Has the energy sector dominated the Russian economy?

In order to understand the position and importance of the energy sector in the Russian economy, I would like to analyze the Input-Output Table. For my analysis, I changed the table and took only the main sectors of the country's economy. Table 2 shows how the Mining and extraction of energy producing products sector is distributed among other sectors of the economy in different years (oecd.org, 2022). Also below will be the full name of each sector presented in the table header in the same order:

- 1) agriculture, forestry and fishing;

- 2) mining and extraction of energy producing products;
- 3) coke and refined petroleum products;
- 4) chemicals and pharmaceutical products;
- 5) basic metals;
- 6) machinery and equipment, nec;
- 7) electricity, gas, water supply, sewerage, waste and remediation services;
- 8) wholesale and retail trade; repair of motor vehicles;
- 9) transportation and storage;
- 10) other business sector services.

Table 2: The intermediate use of Mining and extraction of energy producing products

Sector to/ Year	Agric	Mining	Petrol prod.	Chem. prod.	Metals	Mach	Electr., gas, water	Retail-trade	Transp	Oth. busin sect. serv.
2005	232,8	2856,8	13091,8	402,6	1749,1	23,1	5592,3	376,8	1142,3	158,9
2010	320,7	2811,5	22738,5	478,8	1740	30,6	7869,4	522,3	1441,2	202,5
2015	337,1	4821,9	36567	903,8	2160,5	40	11538,6	868,8	2343,6	278,2

(Made by the author based on data oecd.org)

Analyzing Table 2, we can conclude that over the entire period, the largest contribution from Mining and extraction of energy producing products occurs in energy-related industries. The largest shares are in: 1) coke and refined petroleum products; 2) electricity, gas, water supply, sewerage, waste and remediation services; 3) mining and extraction of energy producing products (to own sector). It should also be taken into account that «Transportation and storage» also includes the service of transportation of oil and gas products, that is why it is also significant. At the same time, the distribution to other industries is many times less and it can be seen how mining and extraction of energy producing products prevailed over other significant sectors of the economy such as agriculture, forestry and fishing; chemicals and pharmaceutical products; machinery and equipment, nec; wholesale and retail trade; repair of motor vehicles; other business services. This characterizes the country's economy as mainly extractive

and clearly shows and confirms another symptom of «Dutch disease» the predominance of the energy sector over other sectors of the economy.

3.6 Was there a strengthening of the national currency?

In Russia, the national currency is the ruble. To answer the question, I would like to analyze Figure 6, which shows the dynamics of the exchange rate of the ruble against the dollar from 1998 to 2020. In 1998 a default occurred in Russia, as a result, the ruble exchange rate against the dollar fell from 6 to 14-15 rubles per dollar. And by the end of 1999, it dropped to the level of 28 rubles per dollar. This was due to the decline in the potential of the Russian economy. However, in the period from 2000 to 2008, the ruble appreciated, so the exchange rate was fixed at the level of 23.5 rubles per dollar in 2008. Experts say that it was due to foreign exchange earnings from the sale of energy resources, including primarily oil and gas, that the ruble was able to gain a foothold at a level no higher than 24 per dollar. But as you can see below, since 2008 and especially in 2009, the ruble exchange rate has weakened, this is primarily due to the global crisis, but also the geopolitical events associated with South Ossetia influenced the course. And in January 2009, the ruble weakened to 36 per dollar. But along with the recovery of the international economy during 2009, the ruble also strengthened at 29 per dollar. Further, a slight weakening can be seen in 2012, at the same time there was a drop in oil prices, from \$120 to \$90 per barrel. And the ruble weakened to 33 per dollar.

The next crisis in Russia was the events after 2013, again connected with geopolitical events in Ukraine. As a result, a package of sanctions against Russia was imposed, which undoubtedly affected the country's economy. In addition, oil prices also fell significantly. The day (December 16, 2014) when the ruble fell against the dollar to 80 is called «Black Tuesday». Mainly thanks to the actions of the Central Bank of the Russian Federation, it was possible to stabilize the exchange rate. The next jump was the events in 2020, when the OPEC countries failed to agree on limiting oil production, after which oil prices collapsed, as did the ruble depreciate. Thus, we can conclude that the ruble both strengthened and weakened in the period under review. At the same time, the exchange rate was influenced not only by oil and gas revenues, but also by other factors. Therefore, it is impossible to give an exact answer to the question of whether it was only the strengthening of the national currency. Thus, I cannot confirm or refute another symptom of «Dutch disease» base only on these data (cbr.ru, 2022).

Dynamic of currency



Figure 6: Exchange rate of the ruble against the dollar (cbr.ru, 2022)

3.7 Was there an increase in inflation and incomes of the population?

Usually, inflation and incomes of the population are interconnected, and these processes are inevitable. But on the one hand, when this level is low and within the normal range, and on the other hand, as in the case of «Dutch disease», the inflation rate becomes too high. Therefore, firstly I would like to consider how the inflation rate in Russia has changed by analyzing Figure 7, which shows the dynamics of consumer price inflation. If we consider the period when energy prices were rising, namely from 2000 to 2008, then the general inflation trend in the country was declining. The peak was observed in 2001, in 2008 (during the global crisis) and in 2015 (crisis and sanctions in the country). Therefore, it is impossible to conclude that there was an increase in consumer price inflation in the country during the period under review (data.worldbank.org., 2022).

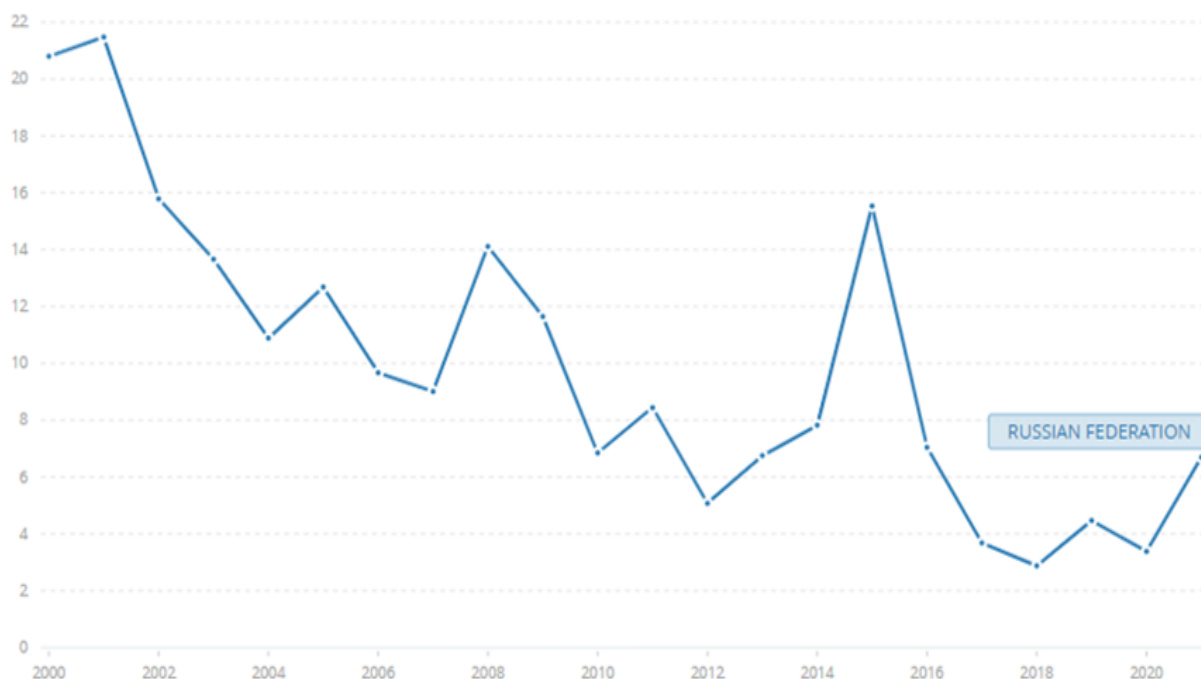


Figure 7: Dynamics of consumer price inflation (data.worldbank.org., 2022)

On the other hand, according to BBC Russia, the accumulated consumer price index from 2000 to 2019 amounted to 550%, while only 10% of all lists of goods and services decreased in price over that period. I would also like to analyze Figure 8 and compare the dynamics of income growth and the consumer price index on it. And I can make the following conclusion that until 2014, the income of the population grew faster than the consumer price index. However, the trend in per capita income was declining and in 2014 the growth of the consumer price index became higher. Thus, experts say that in 2016 the level of income of the population became at the same the level as it was in 2010. Returning to the question of whether there was an increase in inflation as well as an increase in the income of the population, an exact answer cannot be given. Because consumer price inflation both decreased significantly and grew at times, which cannot confirm the symptom of «Dutch disease». However, during the period of rising prices and incomes from oil and gas activities, the incomes of the population also grew, which, on the other hand, confirms the symptom of an increase in the incomes of the population (bbc.com, 2019).

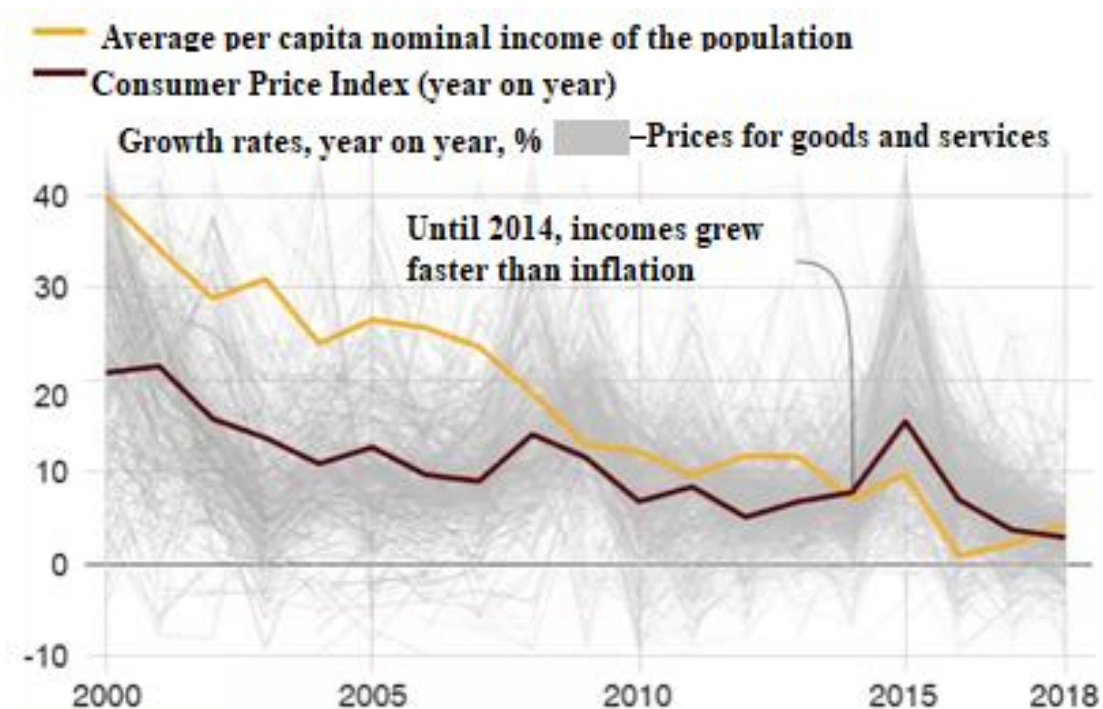


Figure 8: Dynamics of income and consumer price index (bbc.com, 2019)

3.8 Was there an increase in imports?

As was studied earlier, with «Dutch disease», there is a trend in the growth of imported products, as they become cheaper and the demand for them increases. And in order to answer the question, I would like to draw attention to Figure 9. On this graph, you can see the dynamics of imports of goods and services from 2000 to 2021 in Russia. In the period from 2000 to 2008, it can be observed that imports grew rapidly, until the global crisis time. And after a low in 2009, it continued to rise again significantly, reaching a peak in 2013. And after that minimum in 2009, it continued to rise again significantly, reaching a maximum peak in 2013. I suppose that the peak also happened due to Russia's entry into the WTO in 2012. Since 2014, after the imposition of sanctions, imports have almost halved, but then growth began again. Despite the economic and political difficulties in the country, the trend of imports is growing. In this way imports rose from \$62.42 billion to \$378.03 billion in the period 2000-2021. In the framework of «Dutch disease», in my opinion, this symptom can also be confirmed, since the analyzed data show the correlation described in «Dutch disease» hypothesis. Due to the predominance of the energy sector over others, the strengthening of the national currency and the increase in incomes of the population all this stimulates a higher demand for imported products due to their cheapness and availability (data.worldbank.org., 2022).

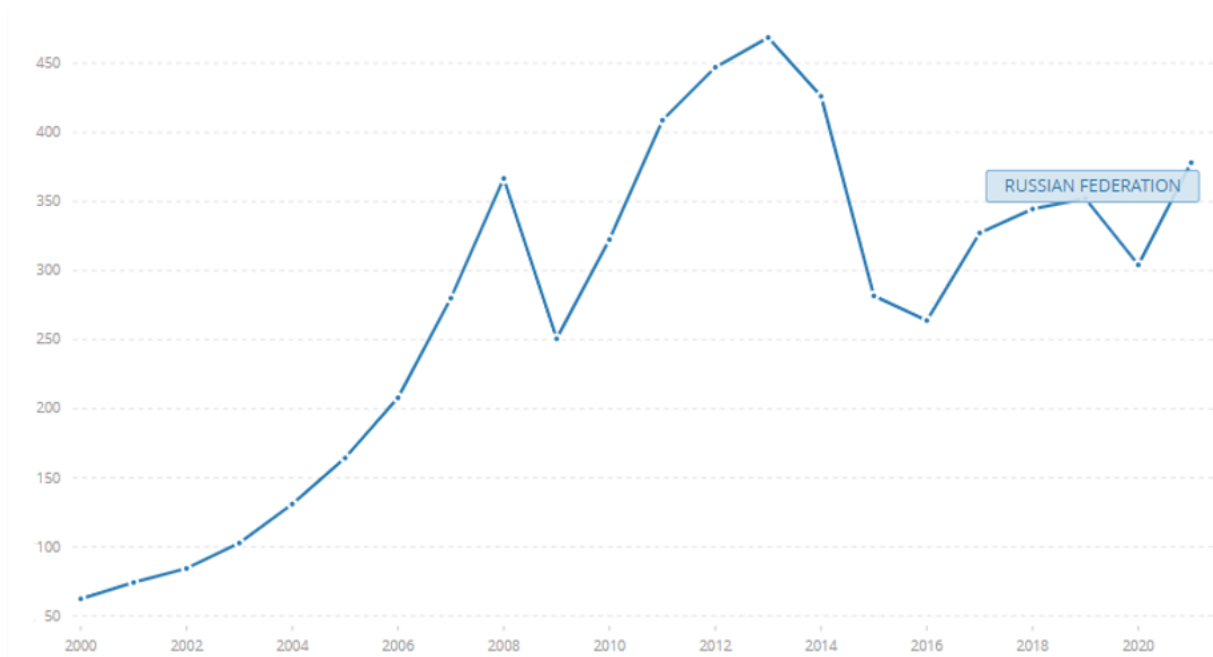


Figure 9: Dynamics of imports of goods and services (data.worldbank.org., 2022)

3.9 Was there an outflow of labor to the energy industry?

With «Dutch disease», the energy sector becomes the most attractive for the population in terms of highly paid and required work. In order to answer the question, I would like to consider the dynamics of the share of people employed in the extractive industry, presented in Table 3. Analyzing it, we can say that over the entire period the share of those employed in the extractive industry has grown, but not significantly, only by 1%. At the same time, the share in the overall structure is not significant and did not exceed 5%. Such a small share can be explained by the fact that not all regions of Russia have resource fields. Moreover, such fields usually are located in harsh climatic zones where the infrastructure for life is not equipped. In spite of the fact that salaries in such places of work are high, the population of Russia does not seek to go there. That is why, I cannot conclude that workplaces in that industry has become the most attractive for the population in connection with the economic potential in it (rosstat.gov.ru., 2022).

Table 3: Share of people employed in the extractive industry

Year	2005	2010	2015	2020
Share of people employed in the energy sector, %	3,6	3,9	4,1	4,6

(Made by the author based on rosstat.gov.ru)

3.10 Synthesis-is «Dutch disease» present in Russia?

In summarizing this chapter, the main symptoms of «Dutch disease» have been examined. Based on the analyzed statistical data, the results can be combined in Table 4.

Table 4: Summary results of «Dutch disease» symptoms

Symptom	Confirmed/Not Confirmed
increase in the production of energy resources	Confirmed
increase in energy resource exports	Confirmed
increase in the price of energy resources in the world market	Confirmed
dependence of the country's economy on world energy prices	Confirmed
growing importance of the energy sector and its dominance in the country's economy	Confirmed
strengthening of the national currency	Not Confirmed
growth of inflation in the country	Not Confirmed
growth of incomes of the population in the country	Confirmed
increase in imports	Confirmed
outflow of labor to the energy industry	Not Confirmed

(Made by the author)

As can be seen from this table, most of the symptoms were confirmed. As for the 3 signs that I could not give a definite answer to or this was definitely not confirmed, it is possible to carry out other ways to study these signs for further explored. For example, using econometric models, which will more clearly indicate the correlation of factors. This is still doubtful also because some researchers and experts have claimed that these symptoms are present in Russia which in my work I could not confirmed. However, as part of my work and analysis, I can make the following conclusion that due to the fact that many symptoms were confirmed, this may mean that there is a high probability that «Dutch disease» was present in the Russian economy. For a more in-depth analysis, an econometric analysis can be further carried out using the most appropriate models for each symptom. It will allow the most extensive look at Russian case and obtain new results that will help to make the most accurate conclusion.

CONCLUSIONS

In this research, answers were given to the questions posed, and the goal of this research was achieved. The presence of «Dutch disease» in the Russian economy was proved. The history of «Dutch disease» has been studied in detail. In my study, I considered different points of view and approaches to the study of this phenomenon, as well as what definition the authors give for this. Based on the studied economic works about this topic, a definition for «Dutch disease» was given: a phenomenon in which the energy extractive sector is dominated by others in the country's economy and, as a result, there are negative consequences for the country's economy.

The cases of the countries that faced «Dutch disease» were considered in detail. The causes of «Dutch disease» in these countries, its consequences and methods of dealing with it, were clarified as well. On the basis of the theoretical knowledge studied in the economic literature and studies, the key points of the manifestation of «Dutch disease» in different countries were identified, on the basis of which a list of the main symptoms was compiled. For the presence of which the «Dutch disease» was diagnosed in the Russian economy. Opinions and studies on the presence of «Dutch disease» in Russia were reviewed. And as it found out, there was not consensus about that issue.

After examining the main macroeconomic indicators of Russia for the presence of symptoms, the following results were obtained. 7 of the 10 features selected in my study were confirmed based on statistical data and further analysis and comparison. The remaining 3 signs were either refuted or, based on the data taken, it was impossible to give an exact answer, since there was no complete coincidence with the model of manifestation of this characteristic described in the theory. Thus, it was concluded that for further analysis of these symptoms, it is recommended to use econometric models. Since this method can more accurately show the correlation.

From these obtained results it can be concluded that since most of the symptoms have been confirmed, the presence of «Dutch disease» in the Russian economy is most likely proved. And I also consider it necessary to do further econometric analysis in order to obtain additional results on the basis of which it will be possible to give an accurate answer to the question posed.

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