# Assessment of the Efficiency of Implementation of a Joint Investment Project of Geological Exploration Works

Olga A. Fatkhutdinova[1], Olga V. Demyanova[2], Svetlana M. Nuryiakhmetova[3]
[1]*Almetyevsk state technological university "Petroleum high school" , Almetyevsk , Republic of Tatarstan , Russia*
[2]*Kazan Federal University, Kazan, Republic of Tatarstan, Russia*
*fathutdinovaoa@mail.ru, 89053185835@mail.ru, Svetanur-agni@mail.ru*

Keywords: Investment project; Taxes; Oil producing industry; Performance evaluation; Investment project; Taxes; Oil production industry; Efficiency assessment.

Abstract: In the modern world, where international cooperation and globalization play an important role, various companies seek to expand their activities beyond their countries by entering into foreign projects. The purpose of this work is to study the taxation systems of enterprises in the oil industry in the Russian Federation and the Republic of Uzbekistan to assess the effectiveness of the implementation of a joint investment project. In accordance with this goal, the authors solve the following problems in the work: studying domestic and foreign experience in distributing natural rent between the state and oil industry companies, assessing the effectiveness of investment projects in various conditions, and assessing the effectiveness of the implementation of an investment project for geological exploration (GE) jointly with the Republic of Uzbekistan . The object of the study is a model of an investment project for geological exploration in the Republic of Uzbekistan.

## 1 INTRODUCTION

At present, Russia has a relatively strict system of natural rent distribution, which allows the state to receive a significant portion of income from the oil industry. However, the natural rent distribution system continues to improve, and new changes are possible in the future.

The main principles of distribution of natural rent in Russia:

1. The state is the owner of natural resources, including oil.
2. Oil companies obtain the right to extract oil under licensing agreements with the state.
3. The state receives part of the natural rent in the form of taxes and other mandatory payments.
4. Oil companies receive a portion of the natural resource rent in the form of profits.

Mechanisms for the distribution of natural rent in Russia:

1. Taxation is the main mechanism for distributing natural rent. Russia applies several types of taxes on the oil industry, including the mineral extraction tax (MET), the export duty on oil, and the corporate income tax.
2. Royalty is a payment that oil industry companies make to the state for the right to use subsoil resources. Royalty is calculated as a percentage of the cost of the oil produced.
3. Production sharing agreements (PSA) are a mechanism under which the state and oil industry companies jointly develop a field and share the resulting product (oil) in pre-agreed proportions.
4. State participation in the capital of oil industry companies – the state can own shares in oil industry companies and receive part of the profits in the form of dividends.

Experience of distributing natural rent between the state and oil industry companies in different countries:

1. Norway:

– The state oil company Statoil is

[1] https://orcid.org/0000-0002-3715-3524
[2] https://orcid.org/0000-0003-3438-1457
[3] https://orcid.org/0000-0002-9970-6737

controlled by the state and distributes significant dividends to the state budget;

– high taxes and royalties, which provide the state with more than 90% of its income from the oil industry;

– creation of a sovereign oil fund to invest future oil revenues.

2. Saudi Arabia:

– The wholly state-owned oil company Saudi Aramco , which generates huge revenues for the government;

– little use of taxes or royalties because the government owns the entire industry;

– using oil revenues to finance social programs and development.

3. USA. A flexible tax policy is implemented with respect to the raw materials industries. The withdrawal of the main part of natural rent and its use is carried out not at the federal level, but at the state level.

4. Egypt: There are production sharing agreements between the state oil company and foreign oil contractors .

5. Indonesia: The state-owned oil and gas company cooperates with foreign companies under production sharing agreements.

6. Nigeria. Subsoil use relations are based on various forms of interaction.

The distribution of natural rent between the state and oil companies in foreign countries is also subject to change depending on political, economic and market conditions. In recent years, there has been a tendency for the state's share of income from the oil and gas industry to increase. This is due to the desire of governments to increase budget revenues and ensure a more equitable distribution of natural resources.

The tax systems for enterprises in the oil-producing industry in the Russian Federation and the Republic of Uzbekistan have a number of similarities and differences. “The Russian tax model does not imply differentiation of profit tax rates” (Orlova, Adigamova, Nasyrov,a 2019), as does the tax model of the Republic of Uzbekistan. Both systems are designed to generate revenue from the extraction of natural resources and stimulate activity in the industry. Table 1 presents a comparative analysis of the tax system of the Russian Federation and the Republic of Uzbekistan.

Table 1: Comparative analysis of the tax system of the Russian Federation and the Republic of Uzbekistan.

| Taxes | Russian Federation | Republic of Uzbekistan |
|---|---|---|
| Structure of the tax system | Main taxes: VAT, corporate income tax, personal income tax (PIT), excise taxes, customs duties. | Main taxes: VAT, profit tax, personal income tax, property tax, turnover tax (for small businesses). |
| Tax rates | VAT: 20%<br>Corporate income tax: 20% (increases to 25% from 2025)<br>Personal Income Tax: progressive scale from 2025 from 13% to 22% | VAT: 15%<br>Income tax: 15%<br>Personal income tax: 12%<br>Turnover tax: up to 5% |
| Mining taxes | Mineral extraction tax (MET) is levied on the cost of extracted oil and gas. Tax rates depend on the type of resource and the region of extraction.<br>An export duty is levied on the export of oil and gas. Duty rates are adjusted depending on world oil and gas prices. | Royalty is levied on the volume of oil and gas produced. Royalty rates vary depending on the field and type of hydrocarbon.<br>Profit tax is levied on income from oil and gas production. The tax rate is 20%. |
| Taxes on production and export | Value Added Tax (VAT) is levied on the production and sale of oil and gas products. The VAT rate is 20%.<br>Excise tax is levied on the production and import of petroleum products such as gasoline and diesel fuel. Excise tax rates are set annually. | VAT is levied on the production and turnover of oil and gas products. The VAT rate is 15%.<br>Customs duties are levied on the import and export of oil and gas. Duty rates are set by the Ministry of Finance of Uzbekistan. |

*The source* was compiled by the authors based on Tax Code of the Russian Federation. Part 2.

As can be seen from the data in Table 1, tax rates in the Republic of Uzbekistan are lower than in the Russian Federation. One of the most common

opinions about the negative factors affecting investment activity is the level of tax burden. It is generally accepted that the higher the level of tax burden, the lower the level of investment activity (Nasyrova, Khafizova, Orlova, 2018).

One of the most common opinions about negative factors affecting investment activity is the level of tax burden. It is generally accepted that the higher the level of tax burden, the lower the level of investment activity.

In their study, the team of authors noted that "there is no unified approach to determining the royalty rate on the Russian market. To calculate it, valuation methods are used and industry rates are taken into account. Standard rates are not established by law. They are contained in statistical reference books and are determined by industry based on expert opinion, taking into account established practice (Bykov, Kazakova, Alaberdin, 2023).

The Methodological Recommendations for Valuing Intellectual Property Rights state that “since royalty rates are not regulated by law and are not easy to find in the public domain, experts may turn to foreign sources of information and paid databases when carrying out valuation activities”. According to the data of the annual report of Rospatent for 2022, “in the context of foreign policy changes, Rospatent is working to create methodological recommendations and a domestic database of average industry royalty rates when determining the amount of license payments”.

In project management, the main focus is on defining and evaluating financial parameters, and tax rates have a significant impact on the performance indicators of an investment project.

# 2 METHODOLOGY METHODOLOGY

We will conduct a comparative assessment of the effectiveness of investment projects for geological exploration work (GEW) in the context of taxation in the Republic of Uzbekistan and the Russian Federation.

The calculation period is divided into steps – segments within which the data used to assess financial indicators are calculated. The calculation steps are determined by their numbers (1, 2, 3…. n). Time in the calculation period is measured in years. In drilling and geological exploration, the calculation period covers 20 years – this is the average duration during which a well operates “normally”. The well is put into operation during the first step. “ The efficiency assessment is calculated based on the definition of cash flows from operating and investment activities. The line “inflows from operating activities” is equal to revenue, the line “outflows from operating activities” include production costs, property tax and income tax. The outflow from investment activities includes well construction costs (drilling costs, development)” (Gatina, 2008).

The discount rate is 10% – it is the main economic standard used in assessing the efficiency of the investment project of exploration. Calculations of the economic efficiency of investment projects are carried out in accordance with the methodology and are reduced to finding four indicators: net present value; index of profitability of discounted costs; internal rate of return and payback period.

In the oil and gas industry of the Republic of Uzbekistan, there is a tax on the use of subsoil and a rent tax, which can be set as the volume of extracted minerals or the cost of extracted products to the interest rate. In addition, there are other taxes that are levied on oil and gas companies in Uzbekistan, such as profit tax, property tax, etc. (table 2).

Table 2: Initial data for assessing the effectiveness of investment projects of exploration and development in the context of taxation in the Republic of Uzbekistan.

| Initial data | Unit of measurement | Values |
|---|---|---|
| Discount rate | % | 10 |
| Rent tax | | 25 |
| Subsoil use tax | | 10 |
| Variable costs | $ per ton | 4, 7 |
| Price of 1 ton of oil | | 438 |
| Property tax | % | 1.50% |
| Income tax | | 12% |
| Capital investments | | |
| Wells | t/$ | 2068 |
| Equipment | | 2238 |
| Oil production decline coefficient | fractions of units | 0.99 |
| Average daily flow rate of wells | t/ day . | 20 |

*Source* compiled by the authors

To begin with, the volume of additional oil expected to be extracted from the implementation of investment projects for exploration was calculated by year. The volume of oil extracted over 20 years is 132927.9 thousand tons. Based on this, the average annual volume of oil production was determined; this indicator shows the average volume of oil extracted per year: 132927.9/20 = 6646.4 thousand tons.

Figure 1 shows the dynamics of oil production. It is clear that in the first year the volume of oil production was 7300 thousand tons, and in the last year – 6031 thousand tons. This indicator decreased by 1269 thousand tons compared to the first year.

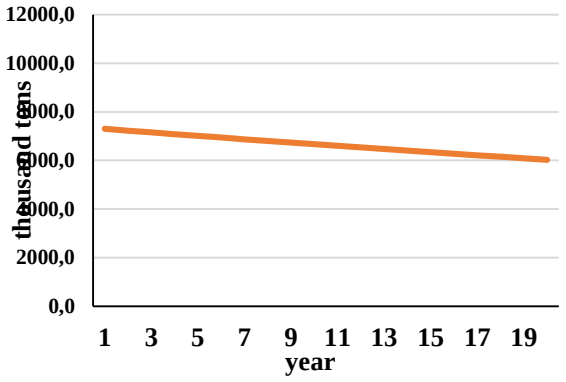


Figure 1: Dynamics of oil production under the investment project of exploration work implemented in the Republic of Uzbekistan over 20 years, thousand tons. *Source* compiled by the authors.

From Figure 1, it can be seen that oil production is decreasing every year, which is due to the depletion of the field, since the fields have limited reserves and as oil is produced, the reserves decrease.

The annual decline in oil production has an impact on revenue (Figure 2). Revenue is declining in parallel with oil production. This indicator has decreased by $555 million.

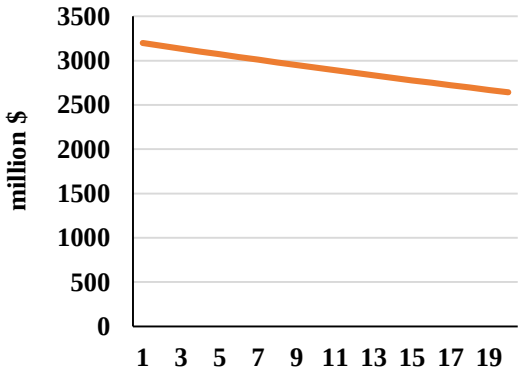


Figure 2: Dynamics of revenue for the investment project of exploration, implemented in the Republic of Uzbekistan over 20 years, million $. Source compiled by the authors.

Net Present Value (NPV) shows the net profit that can be expected from the project after deducting all costs. This indicator (Figure 3) is positive after 1 year, which means that the project will pay off quickly and shows a positive trend for the inverter. The results of the calculations showed that the payback period of the project will be 3.4 years.

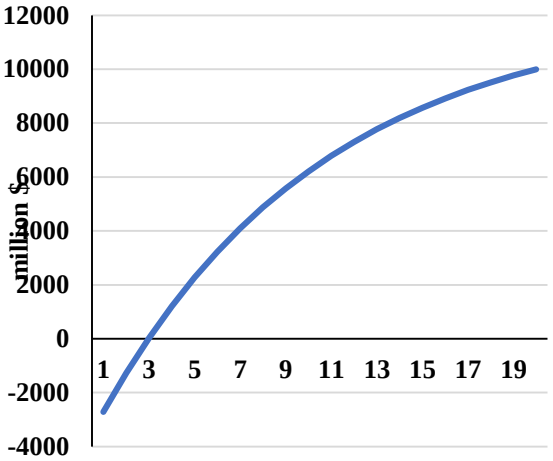


Figure 3: Dynamics of net income for the investment project of exploration and development implemented in the Republic of Uzbekistan over 20 years, million $. Source compiled by the authors.

The value of the discounted cost profitability index (DCPI) of the estimated exploration project was 3.19 units , i.e. for each unit invested, 3.19 units of income will be received in the future. Such a high figure indicates that the project has a high potential for profit and can be considered as promising for investment. Thus, it can be concluded that, in general, despite the fact that oil production volumes are declining, and with it revenue, NPV gives a positive effect, which shows a quick income generation. This means that under the taxation conditions of the Republic of Uzbekistan, the project is effective.

Next, let's consider how taxation in the Russian Federation will affect the investment project of exploration. Under the taxation conditions of the Russian Federation, tax payments are added to the main indicators, which can significantly affect the financial results of the project (profit tax, mineral extraction tax, etc.). All calculations are carried out similarly. Unlike the Republic of Uzbekistan, in Russia the main tax in the oil and gas industry is the mineral extraction tax, this tax depends on many factors, such as the current price of oil, the level of production, coefficients associated with the characteristics of the field. For this project, the mineral extraction tax is $ 337 per ton, in addition, the profit tax is also calculated - the tax rate is 20%, the property tax is 2.2% (table 3).

Table 3: Initial data for assessing the effectiveness of investment projects of exploration and production under taxation conditions in the Russian Federation. Source compiled by the authors.

| Indicators | Unit of measurement | Values |
|---|---|---|
| Discount rate | % | 10 |
| Variable costs | $ per ton | 4.7 |
| Mineral extraction tax | | 337 |
| Price of 1 ton of oil | | 438 |
| Property tax | % | 2.20% |
| Income tax | | 20% |
| Capital investment | | |
| Wells | t/ $ | 6856 |
| Equipment | | 4531 |
| Oil production decline coefficient | fractions of units | 0.969 |
| Average daily flow rate of wells | t / day . | 7.3 |

Let us consider how these taxes affected the performance indicators of the exploration project. It should be noted that such indicators as oil production and revenue remain unchanged, since they depend on the same factors and changes in tax rates do not affect their value.

Tax rates for income tax and property tax in the Republic of Uzbekistan are lower than in the Russian Federation (Table 4).

Table 4: Tax rates in Russia (RF) and the Republic of Uzbekistan (RU). Source compiled by the authors

| Type of tax | Tax rate in the Russian Federation | Tax rate in RU |
|---|---|---|
| Income tax | 20.0% | 12.0% |
| Property tax | 2.2% | 1.5% |

Table 5 shows the tax rates used in taxation of oil production: in the Russian Federation – mineral extraction tax, in the Republic of Uzbekistan – subsoil use tax, rent tax.

Table 5: Comparison of tax rates for mineral extraction tax, subsoil use tax and rent tax. Source compiled by the authors.

| Type of tax | Unit of measurement | Tax rate |
|---|---|---|
| Mineral extraction tax (RF) | $ per ton | 337 |
| Subsoil use tax ( RUzb .) | % | 10 |
| Rent tax (RT) | % | 25 |

The mineral extraction tax is levied as a percentage of the total value of the extracted product and depends on the level of profitability of the project.

The tax base for the subsoil use tax is the cost of the volume of extracted (mined) mineral resource.

The taxable object of the rent tax is the rent income received from the sale of extracted oil. The rent income is considered to be the difference between the profit from the sale of the extracted raw materials and the costs of their extraction.

Next, we will compare the amounts of income tax on the investment project of exploration and production, in the case of implementation in the Russian Federation and in the Republic of Uzbekistan (Figure 4).

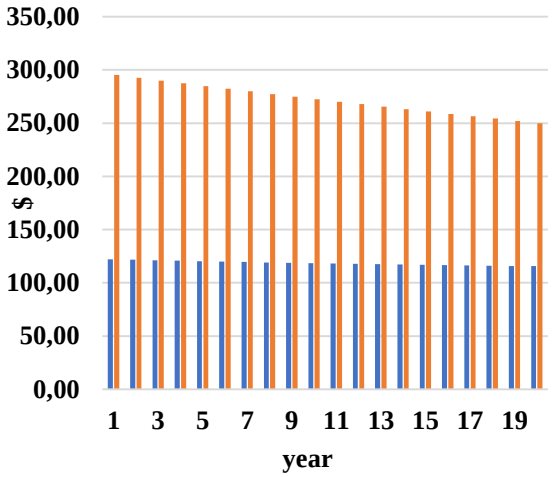


**Figure 4**: Analysis of the dynamics of the amount of income tax on the investment project of exploration in the case of implementation in the Russian Federation and in the Republic of Uzbekistan, $. *Source* compiled by the authors.

The figure shows that the enterprise pays less income tax at a higher rate, which can have a positive effect. When using a low rate, there is a significant saving of funds. The change in cost price for the 1st year of project implementation in the Russian Federation is $2,494 million , and in the Republic of Uzbekistan - $674 million. It can be concluded that a more attractive rate for the enterprise will be 12%.

Let's also consider the property tax, its rate in the project with Uzbekistan is 1.5%, and in the project in the Russian Federation - 2.2%. The dynamics are shown in Figure 5.

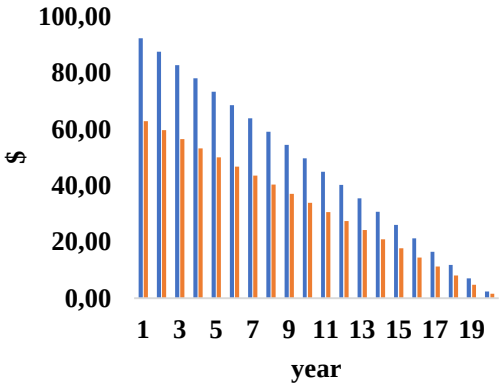


Figure 5: Analysis of the dynamics of the amount of property tax for the investment project of exploration and production in the case of implementation in the Russian Federation and in the Republic of Uzbekistan, $. *Source* compiled by the authors.

Figure 6 shows the formation of tax amounts during the implementation of an investment project for exploration and development.

Net profit for 20 years in the implementation of the exploration project in Russia is $9482.8 million, which is $17076 million less than in the Uzbekistan project (table 6). The company's profit depends on the price of oil, oil production volumes, operating costs, and tax rates. It can be assumed that the reduced tax rates in the Republic of Uzbekistan have a positive effect on the value of net profit.

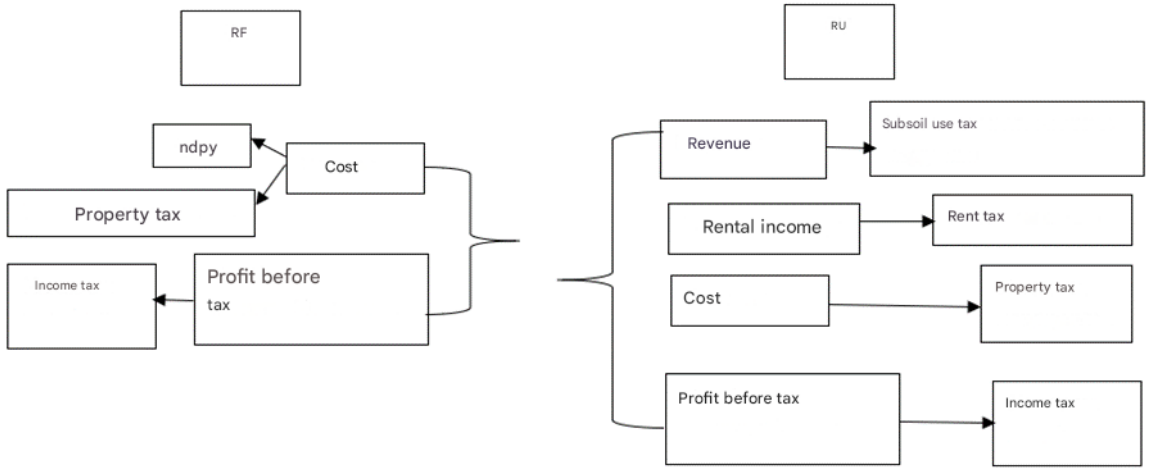


Figure 6: Formation of tax amounts during the implementation of an investment project of exploration and production in the case of implementation in the Russian Federation and in the Republic of Uzbekistan. Source compiled by the authors.

Table 6: Impact of taxes on the value of net profit of the investment project of exploration and production. Source compiled by the authors.

| Russian Federation | | | | Republic of Uzbekistan | | | |
|---|---|---|---|---|---|---|---|
| Indicator | Type of tax | Bid | ∑, million $ | Indicator | Type of tax | Bid | ∑ , million $ |
| Cost | Mineral extraction tax | $ 337 | 44797 | Revenue | Subsoil use tax | 10% | 13293 |
| | Property tax | 2,2 % | 947 | Cost | Property tax | 1.5% | 645 |
| | | | | Rental income | Rent tax | 25% | 13479 |
| Profit before tax | Income tax | 20% | 2370 | Profit before tax | Income tax | 12% | 3621 |
| Net profit | | | 9482.8 | Net profit | | | 26558 |

The NPV indicator increases every year (Figure 7), which indicates that the project generates positive net profit after taking into account all expenses and discounting future cash flows. Therefore, the exploration project is profitable for the company. However, the project will start generating income only after 8 years.

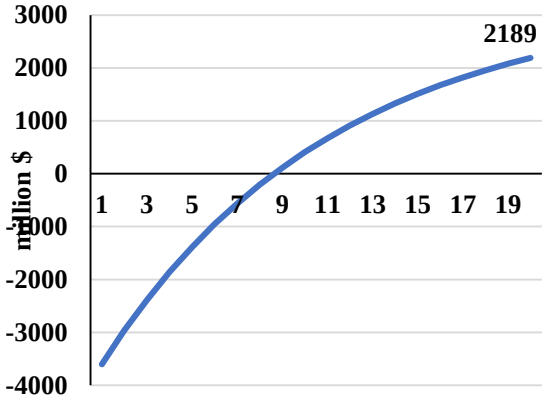


Figure 7: Dynamics of net profit during the implementation of an investment project for exploration in the Russian Federation over 20 years, million $. *Source* compiled by the authors.

Internal rate of return (IRR) allows to evaluate the efficiency of investments and determine whether the project will be profitable at a given level of profitability. In general, the internal rate of return is a positive number Ev such that at the discount rate E=Ev the net discount income of the project becomes 0, at all large values of E it is negative, and at all smaller values of E it is positive.

In this project, the IRR was 7% with a discount rate of 10%, which means that the project's net discount income will be negative for a long time.

In the case of the project implementation with Uzbekistan, the indicators show more positive dynamics than in the Russian Federation (Table 7)

Table 7: Comparative analysis of the main indicators of the investment project in the Russian Federation and the Republic of Uzbekistan. *Source* compiled by the authors.

| Indicator | Unit of measurement | Meaning | |
|---|---|---|---|
| | | RF | RU |
| NPV | million $ | 2189 | 10941 |
| IDDZ | d. unit | 1.18 | 3.15 |
| VND | % | 7.8 | 42 |
| Payback period | years | 9 | 3.2 |

In Figure 8, it can be seen that the NPV in the Republic of Uzbekistan works much more efficiently than in the Russian Federation. Based on this, it can be concluded that the exploration project in Uzbekistan is attractive to investors and assumes high profitability in the future.

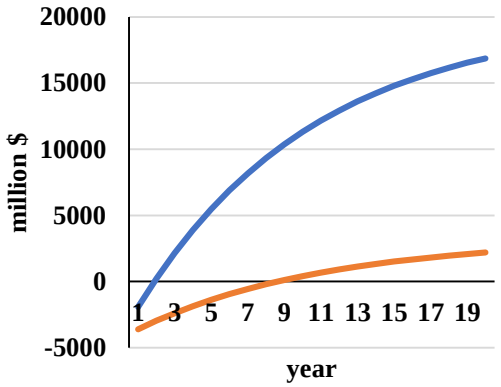


Figure 8: Comparative dynamics of net present value in two projects – in the Russian Federation and the Republic of Uzbekistan, $ million. Source compiled by the authors.

Comparing two projects with different tax systems, we can conclude that the project in Uzbekistan will be more attractive to the investor. Lower tax rates lead to higher net profit.

## 3 RESULTS RESULTS

"When assessing the effectiveness of investment projects, situations are considered when all possible consequences of any risky decision are known, or they can be foreseen and, as a result, the possible result from any change in the situation can be calculated" (Baitarakova, 2016). When assessing the effectiveness of investment projects of the exploration and development work, it is important to take into account the uncertainty factor, which is caused by the incompleteness and inaccuracy of information. The presence of risk indicates the possibility of changing the performance indicators of the investment project. For participants in an investment project, it is primarily important to identify and reduce the possibility of negative deviations in its performance indicators, i.e. as a possibility of deterioration of the project economic indicators.

The sustainability of a project is understood as its effectiveness under certain changes in the conditions of implementation, i.e. under the implementation of alternative scenarios. A project is considered absolutely sustainable if it is effective under all implementation scenarios, and possible adverse consequences are eliminated by measures provided

for by the organizational and economic mechanisms of the project.

The sustainability of the project in relation to possible changes in the conditions of implementation can be assessed both at individual steps of the calculation period and as a whole for the period of its implementation. For these purposes, the boundaries of breakeven and efficiency are determined for the most important parameters of the project and the external environment (volume of production, prices of manufactured products, etc.).

A project is considered sustainable if, in calculations for the project as a whole, the break-even level does not exceed 0.7-0.8 after the development of the design capacity.

The calculation results showed that with an average annual production of 6646.40 thousand tons, the break-even level will average 0.4 monetary units (Table 8). The average break-even level for the period means that even with a decrease in production volume (all other things being equal) to the level determined as the product of the average production volume for the period and the break-even level coefficient, the enterprise will ensure zero profit. The stability margin for production volume is: 1 – 0.4 = 0.6 = 60.0%. Calculations for the investment project for exploration in the Republic of Uzbekistan showed that with an average annual production of 6646.4 thousand tons, the projects will ensure zero profit. The average break-even level will be 0.10 monetary units , the stability margin for production volume is: 1 – 0.10= 0.9 = 90%.

Table 8: Break-even levels for investment projects of exploration and production during implementation in the Russian Federation and the Republic of Uzbekistan. Source compiled by the authors.

| Step number | Annual production under exploration projects, t | Russian Federation | | Republic of Uzbekistan | |
|---|---|---|---|---|---|
| | | break-even level | break-even production volume, t | break-even level | break-even production volume, t |
| 1 | 7300,00 | 0.44 | 3195,16 | 0.11 | 805.04 |
| 2 | 7227,00 | 0.44 | 3145.96 | 0.11 | 795.70 |
| 3 | 7154,73 | 0.43 | 3096,77 | 0.11 | 786.35 |
| 4 | 7083.18 | 0.43 | 3047,58 | 0.11 | 777,01 |
| 5 | 7012.35 | 0.43 | 2998,39 | 0.11 | 767.67 |
| 6 | 6942.23 | 0.42 | 2949,20 | 0.11 | 758.33 |
| 7 | 6872,81 | 0.42 | 2900,01 | 0.11 | 748.98 |
| 8 | 6804,08 | 0.42 | 2850,82 | 0.11 | 739.64 |
| 9 | 6736,04 | 0.42 | 2801,63 | 0.11 | 730.30 |
| 10 | 6668,68 | 0.41 | 2752,44 | 0.11 | 720.95 |
| 11 | 6601,99 | 0.41 | 2703.25 | 0.11 | 711,61 |
| 12 | 6535,97 | 0.41 | 2654.06 | 0.11 | 702.27 |
| 13 | 6470,61 | 0.40 | 2604.87 | 0.11 | 692.93 |
| 14 | 6405,90 | 0.40 | 2555,68 | 0.11 | 683.58 |
| 15 | 6341.84 | 0.40 | 2506.49 | 0.11 | 674.24 |
| 16 | 6278,43 | 0.39 | 2457.30 | 0.11 | 664.90 |
| 17 | 6215,64 | 0.39 | 2408.11 | 0.11 | 655.55 |
| 18 | 6153.49 | 0.38 | 2358.91 | 0.11 | 646.21 |
| 19 | 6091,95 | 0.38 | 2309,72 | 0.10 | 636.87 |
| 20 | 6031,03 | 0.37 | 2260,53 | 0.10 | 627.53 |
| Average value | 6646,40 | 0.41 | 2727,84 | 0.10 | 716.28 |

In general, it can be concluded that the sustainability of the projects under consideration is beyond doubt (the breakeven level is much less than 0.7). Based on the calculations performed, it can be concluded that investment projects in the Republic of Uzbekistan have a breakeven level and a maximum price level higher than investment projects in the Russian Federation, which is explained by the better economic indicators of the investment project when implemented in the Republic of Uzbekistan.

# 4 DISCUSSION OF RESULTS

We will conduct an assessment of the economic efficiency of the implementation of an investment project for exploration of an oil and gas company of the Russian Federation jointly with an oil and gas company of the Republic of Uzbekistan.

One form of financing capital-intensive oil and gas field development is a production sharing agreement (PSA), which is a special type of agreement for the organization of a joint venture. "A production sharing agreement is typically a contract concluded between a foreign mining company (the contractor) and a state-owned enterprise (the state party), authorizing the contractor to conduct exploration and exploitation work within a certain area (the contract territory) in accordance with the terms of the agreement " (Shaikhutdinova, Khvorova, 2014). Implementing an investment project of exploration jointly with another country has many advantages. It can lead to a reduction in risks, a joint project distributes risks between the partners. It can provide access to new territories or geological basins previously inaccessible to individual countries , and also expands exploration capabilities and increases the likelihood of discovering new resources.

To implement the investment project of exploration of PJSC Tatneft with the Republic of Uzbekistan, three scenarios were calculated: P90, P50, P10.

Calculations for the first scenario P90 - this scenario means that with a probability of 90% it will be possible to confirm oil reserves, in the second scenario P50 - with a probability of 50%, in the third scenario P10 - 10%. The initial data for calculating the scenarios are presented in Table 9.

Table 9: Initial data for calculating scenarios for the implementation of investment projects of exploration and development. *Source* compiled by the authors.

| Indicators | Meaning |
|---|---|
| Exchange rate 1 US$, RUB. | 62.85 |
| Oil price on the external market, $/ bbl . | 60 |
| Oil price on the external market, $/t | 438,0 |
| Oil price for economic assessment, $/t | 438,0 |
| Cost-stop , % | 75 |
| Share of PJSC Tatneft in profitable production, % | 75 |
| Royalty for options P90 and P50, % | 0 |
| Royalty for P10 options, % | 10 |
| Signing and production start bonuses, $ thousand | 0 |
| Uplift , % | 8 |
| Preparatory R&D, thousand $ | 151 |
| Legal and consulting services, thousand $ | 80 |
| Reprocessing seismic profiles of previous years, thousand $ | 48 |
| MOGT 2D, thousand $ | 3182 |
| Processing and interpretation of 2D CMP, thousand $ | 124 |
| Conducting GGHM, thousand $ | 188 |
| Project for drilling an exploratory well , thousand $ | 32 |
| Cost of exploration well, thousand $ | 4788 |
| Cost of production well, thousand $ | 2068 |
| Development of an exploratory well, thousand $ | 2238 |
| Development of a production well, thousand $ | 2270 |
| Equipment for a production well, thousand $ | 24 |
| Fixed costs, thousand $/DFS | 5.6 |
| Payroll Fund, thousand $/year | 412 |
| Administrative and general business, thousand $/year | 398 |
| Conditionally variable costs for lifting, $/t of liquid | 0.8 |
| Conditionally variable costs for preparation, $/t of oil | 3.9 |
| Conditionally variable costs for transportation by rail tankers, $/t of oil | 16.3 |
| Variable costs of transportation by road, $/t of oil | 10.7 |
| Training costs, thousand $/year | 25 |
| Liquidation fund, % of capital investment | 10 |
| Income tax, % | 12 |
| Other taxes (land and water), $/ bbl . | 0,1 |
| Payroll tax, % | 12 |
| ESP, % | 12 |
| Discount rate, % | 10 |

At the early stages, it is considered appropriate to use the " cost-stop " mechanism in the PSA. This mechanism helps limit the level of compensation for the investor's costs, and also guarantees a certain level of profitable oil production already at the early stages of the implementation of the investment project of exploration. In this project, the cost-stop is 75%, the share of profitable production of PJSC Tatneft is 75%.

To increase the investment attractiveness of PSA projects, proposals have been made to establish zero royalty rates in the agreements. Therefore, 0% was considered in scenarios P90 and P50, and 10% in P10.

The minimum exploration program included expenses for wages, administrative and business activities (ABA), and research and development (R&D). The exploration program for two years is estimated at $8.6 million, taking into account other

expenses ($1.78 million) and R&D costs ($0.47 million), the total amount was $10.83 million.

Subsequently, a decision was made to reduce the costs of geological exploration to $10.1 million. The costs of research and development (by $0.3 million), drilling an exploratory well (by $0.3 million), and other expenses (by $0.16 million) were reduced.

The Uzbek side adjusted the costs of transporting oil by road to the railway station ($10.7/t – decreased by $0.6/t due to the depreciation of the Uzbek sum ) and by rail ($16.3/t – increased by $5/t due to the adjustment of the distance of oil delivery to the refinery).

Table 10 shows the main technical and economic indicators.

Table 10: Main technical and economic indicators of the exploration project. *Source* compiled by the authors.

| Indicators | P90 | R50 | P10 |
|---|---|---|---|
| Development period, years | 20 | 15 | 14 |
| Profitable period, years | - | 10 | 13 |
| Entering exploratory wells, wells . | 1 | 1 | 1 |
| Commissioning of production wells . | 0 | 1 | 2 |
| Oil production, thousand tons | 25.0 | 96.1 | 191,0 |
| Sales revenue, $ million | 10.9 | 42.1 | 83.6 |
| Capital investments, million $ | 10.9 | 15.2 | 19.6 |
| Operating costs, million $ | 20.3 | 17.5 | 19.3 |
| NPV, $m | -14.5 | 0.8 | 17.5 |
| NPV for the profitable period, $ million | - | 1.4 | 17.5 |
| IRR for the profitable period, % | - | 13.6 | 42.7 |
| Payback period, years | does not pay off. | 7.0 | 4.9 |

From the obtained results of calculating the efficiency of the investment project of exploration, it can be concluded that the scenario P90 is not efficient compared to P50 and P10, since oil production is 71.1 and 166 thousand tons less, respectively, than in P50 and P10. This is due to the introduction of exploratory and production wells in P90, only 1 exploratory well was introduced, no production wells were introduced, and in P50 and P10 - 2 and 3 wells.

In addition, capital investments are lower by 4.3 and 8.7 million $. These include: exploration, well drilling, well arrangement and well equipment. They also depend on the number of wells commissioned.

Net present value characterizes the efficiency of investments in an investment project and shows the amount of cash flows over the life of the project. In other words, NPV is the sum of discounted values of receipts and outflows for a specific project. Let's consider the dynamics of NPV for three scenarios in Figure 9. It is clear that compared to P90, in P10 NPV is 20% higher. It follows that in P10 inflows exceed outflows of the project, which shows positive dynamics.

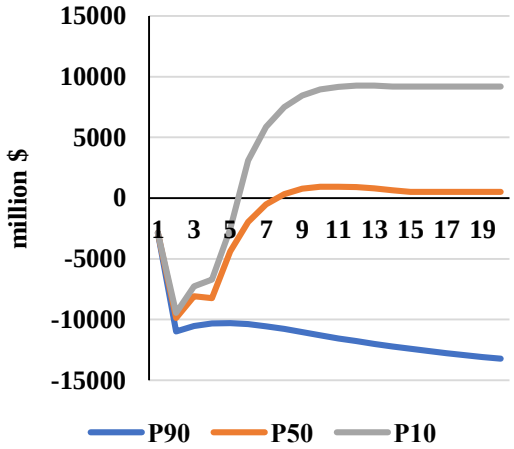


Figure 9: Dynamics of NPV for three scenarios P90, P50, P10, $ million. *Source* compiled by the authors.

IRR – is an indicator that helps to evaluate the profitability of investments or a project. It shows at what rate the investor will return his investment – will break even taking into account the time value of money, if he invests in the project. The dynamics of IRR is shown in Figure 10.

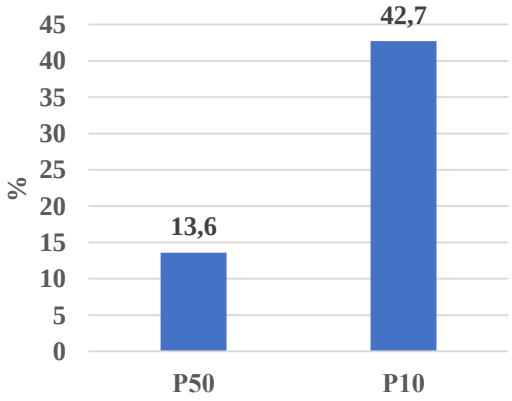


Figure 10: IRR dynamics for two scenarios P50, P10, %. Source compiled by the authors.

Table 10 shows that scenario P90 is not profitable due to the absence of IRR. However, Figure 10 shows the dynamics of IRR for P50 and P10, from which we can conclude that the investment project in these scenarios shows a high rate of profit growth. This indicates high profitability and prospects of the project.

According to the data in Table 10, it can be concluded that the P90 scenario does not pay off, with the P50 scenario the payback period is 7 years, and with P10 - 4.9 years. The shorter payback period in P10 indicates that this scenario is more profitable and preferable in terms of return on investment.

The discounted cost profitability index (DCPI) increases from 0.6 CU in the first scenario to 1.01 CU in the second scenario and 1.24 CU in the third scenario (Figure 11). This indicates that the second and third scenarios have a higher profitability compared to the first scenario.

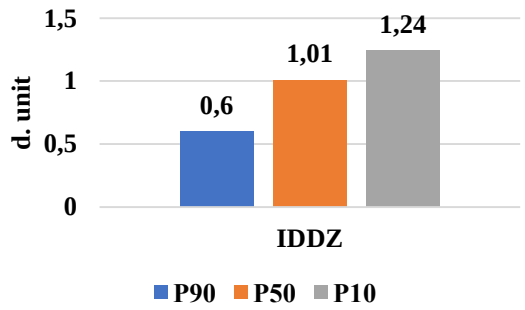


Figure 11: IDDZ of the investment project of exploration work for three scenarios, d. units. *Source* compiled by the authors.

Thus, we can conclude that the P90 scenario shows negative dynamics in all key indicators.

## 5 CONCLUSION

The tax systems for oil producing enterprises in the Russian Federation and the Republic of Uzbekistan have a number of similarities and differences. However, both systems are designed to generate revenue from the extraction of natural resources and stimulate activity in the industry.

The distribution of natural rent between the state and oil companies in foreign countries is also subject to change depending on political, economic and market conditions. In recent years, there has been a tendency for the state's share of income from the oil and gas industry to increase. This is due to the desire of governments to increase budget revenues and ensure a more equitable distribution of natural resources.

Foreign projects of PJSC Tatneft represent a significant contribution to the development of the oil and gas industry of the Russian Federation and the creation of new opportunities for the company in the global market.

In Uzbekistan, royalties are paid in the oil and gas industry. Royalties can be set as a percentage of revenue or profit from production activities, or as a fixed amount for a certain period.

Unlike the Republic of Uzbekistan, in the Russian Federation the main tax in the oil and gas industry is the mineral extraction tax, this tax depends on many factors, such as the current price of oil, the level of production, and coefficients associated with the characteristics of the field.

Having compared two projects with different tax systems, it can be concluded that the project in Uzbekistan will be more attractive for the investor. Reduced tax rates lead to high net profit. The authors came to this conclusion based on the analysis of the main indicators of the investment project efficiency assessment: the NPV for implementation in the Republic of Uzbekistan is $14,683 million more than in the Russian Federation, the DV for the project implementation in the Republic of Uzbekistan will be 3.14 monetary units , and for implementation in the Russian Federation – 1.18 monetary units .

## REFERENCES


Orlova, M.E., Adigamova, F.F., Nasyrov,a V.I., 2019.Tax regulation of the Russian economy real sector crediting. *International Journal on Emerging Technologies.* Vol.10, Is.2. - P.34-37.

Tax Code of the Russian Federation. Part 2. URL : https :// www . consultant ru / document / cons _ doc _ LAW _ 28165/ (date accessed: 20.10.2024).

Tax Code of the Republic of Uzbekistan (approved by the Law of the Republic of Uzbekistan dated December 25, 2007 No. ZRU-136) (with amendments and additions as of October 18, 2024) URL : https :// online . zakon . kz / Document /? doc _ id = 30421027 (date accessed: 28.10.2024).

Nasyrova, V.I., Khafizova, A.R., Orlova, M.E., 2018. THE TAX FACTORS ASESSMENT OF INVESTMENT ACTIVITY OF THE RUSSIAN FEDERATION REGIONS. *AD ALTA-JOURNAL OF INTERDISCIPLINARY RESEARCH.* Vol.8, Is.1. P.236-239.

Bykov, D.A., Kazakova, A.S., Alaberdin, R.R., 2023. Methodological approach to substantiating the royalty rate in oil and gas company projects. *Research. Russian Project Management Journal.* No. 3. P. 23-32.

Methodological recommendations for assessing the value of intellectual property rights. Association "SROO "Expert Council". - M., 2022. - 41 p.

Annual report of Rospatent for 2022. Annual official publication of the Federal Service for Intellectual Property (Rospatent). Moscow : 2023. - 320 p . URL: https://rospatent.gov.ru/content/uploadfiles/otchet-2022-ru.pdf . (date of access: 20.10.2024).

Gatina, L.N., 2008. Improving the management of investment projects at industrial enterprises. *Social and economic phenomena and processes.* No. 4 (012). P. 24-26.

Baitarakova, B.D., 2016. Accounting for inflation in the preparation of investment projects. *Questions of Economics and Management.* No. 5 (7). P. 142-144.

Shaikhutdinova, F.N., Khvorova, E.V., 2014. Prospects for the implementation of production sharing agreements in the Russian petrochemical complex in the context of the World Trade Organization. *Bulletin of the Kazan Technological University*. P.376-380.