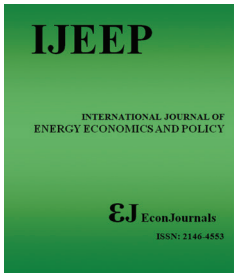

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Ways to Improve the Mineral Replacement Tax System: Taking the Experience of Commonwealth of Independent States Countries

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ABSTRACT

This article is a critical analysis of mining taxation in Commonwealth of Independent States. The paper outlines recommendations for improving the tax legislation so that the mineral replacement tax would be calculated in an easy and transparent way for any kind of solid mineral raw material. The first recommendation is to change the tax calculation methodology, tax rates, then –to introduce various benefits (in case of low profitability, in cases depending on the mining conditions, etc.). As a result, this can contribute to the reduction of tax burden, imposed on low-profit mining enterprises, while on the other hand – to increase the tax revenues under favorable market conditions.

Keywords: Taxation, Severance Tax, Super Profit, Rental Payment, License Trade, Auction-based System, Energy Economics
JEL Classifications: H21, N50, P18

1. INTRODUCTION

Each country has a certain amount of natural resources. Authorized government bodies are interested in making sure that natural resources are used evenly and systematically, preventing the complete depletion of subsoil assets. Taxation is levering the use of natural resources with a purpose of environmental protection.

Over the last century, the use rate of mineral resources has increased exponentially - from 4% to 6% annually (Kowal, 2015; Henckens et al., 2016). Despite the fact that depletion is not a problem when it comes to the most of mineral resources, some mineral resources are being extracted at the level that can spark a problem in the future. Thus, the question arises how to reduce the current level of extraction in order to preserve minerals for future generations. Henckens et al. (2016) state that an international agreement on the sustainable use of geologically scarce mineral resources is required. The agreement should be based on two main principles established by the existing international environmental agreements: (1) The principle of intergenerational equity and (2) the principle of natural resources conservation. In addition, compulsory reduction of mineral extraction should affect the sovereign rights of countries to use their own resources. Therefore, any international agreement must establish measures for ensuring an adequate compensation to countries for the loss of income.

Investments in the extractive industry development are important for its effective progress on this path (Akhmadeev et al., 2016) Geological surveys are often cost demanding, while the project profitability is governed by the fiscal policy. Foreign investments in mining usually tend to increase if the mining taxation mode is simple, stable, predictable, transparent, fair, efficient and competitive (Saidu, 2007; Ghebrihiwet, 2018). The total of taxes imposed on the mining companies, including royalty taxes and tax benefits (for example, tax holidays), is a factor into decisions about whether to launch the survey and design new projects or not. At other factors being equal, companies prefer to invest in low-taxed projects (Otto et al., 2006b).

Besides, mining companies that are making decisions about where to invest are geared to countries with a stable fiscal mode. This requirement is probably the most important for companies because

of the long lifespan of most mining projects. Investors in the mining industry are looking for predictable fiscal modes, since transparent and clear tax rules allow companies to determine their tax liabilities.

Different types and levels of taxes imposed on the mining companies are also bounded with the rates of return and, thus, affect the investment behavior (Saidu, 2007). Royalty taxes based on production units can spark economic failure no matter what the profit margin of the company is. This will lead to the extraction of lower grade ore and will shorten the depletion period of some pits. Such a regressive tax tool can contribute to inefficient use of resources and to the early pit closure. These consequences will negatively affect the investment climate. Corporate income taxes and earnings are tools that are more effective, as they are associated with mining risks, in particular - with huge world price swings and with difficulties in forecasting every geological, technical, financial and political factor that affects the depletion period of pits (Mitchell, 2009; Kesler and Simon, 2015). Finally, federal systems often allow collecting taxes and royalties at several levels of power. This can lead to complex fiscal modes, when several levels of power compete for their share of revenue. This can result in surplus costs for potential investors.

Li and Simbachawenea (2018) and Wang et al. (2012) are devoted to the multinational company (MNC), its role and the effect it has within the global mining industry. The authors analyze the investment environment of China's mining industry in order to allocate and attract the MNCs to invest in their country, thereby protect and boost the mining industry development. Current level of the value added tax in China is high, and the tax system lacks a subsidy and reimbursement policy.

Some authors (Western Australian Department of Treasury and Finance, 2010; Alexeev and Chernyavskiy, 2014; Paredes and Rivera, 2017) focus on researching the share of revenues from the natural resources extraction in the government tax revenues. Li and Simbachawenea (2018) analyze the impact of mineral tax revenue on the economic growth (gross domestic product [GDP]) in Tanzania. The results show that general taxes and royalties paid by big Tanzanian mining companies do not make a significant contribution to the GDP growth. The average total revenue from taxes is 0.45% of the average national GDP, recorded in between 1996 and 2016. The Article suggests improving and strengthening the severance tax system by undertaking reforms concerning the existing structure of resources taxation and by building a well-designed model of resources taxation that will underpin the economic rent.

In the commonwealth of independent states (CIS) countries, current severance tax system is characterized by a significant rate of severance tax and significant budget revenues from mining taxation, as well as by the significance of the taxable item. In general, items of severance tax legalized in the CIS countries, including Russia, are similar to one another. However, there are significant differences in the tax mechanism that are of scientific and practical interest, thus they require additional research. Severance taxes, like all other kinds of taxes, are compulsory pre-determined statutory contributions to the budget in the amounts determined by law. In fact, it is an extraction of a resource rent.

In economic terms, tax on the subsoil use is a rental payment, since the tax money is exempt from the income earned from the use of mineral resources. However, tax legislation of the Russian Federation does not specify a clear fiscal mechanism for this tax exemption.

In many countries (the USA, Canada, Norway, Venezuela), rental payments ground the internal revenue. England, for example, claims about 95% of super profit gained through oil production, while the Arab countries and Norway - up to 90% (Mitchell, 2009; Daniel et al., 2010; Navajas and Powell, 2017).

A new system of severance tax payments was introduced in Russia in 2001. However, there are still significant shortcomings in the Russian legislation that are associated with the methods of tax base formation. Namely, tax base formed for the vast majority of enterprises producing solid minerals is an estimated value of extracted raw materials - ore removal costs (Li and Simbachawenea, 2018). Such an approach does not allow taking into account the movement of market prices of raw materials in Russia and abroad, and has a negative impact on the budget revenue from taxation.

In this regard, methods of resource rent extraction that are used in the CIS countries are of particular interest, since these countries switched from a Soviet system of taxation to an original one in tune with the Russian Federation. We should note that despite a insignificant difference between methods applied to form a tax base for calculating the severance tax in other CIS countries, Russian approach to its calculation is not put to application.

This article illuminates the specific features of current methods applied for natural rent extraction in the main resource-producing CIS countries.

2. METHODS

The existing types of global severance taxes were analyzed in order to identify the routes for improving the system of mineral replacement taxation.

Special severance taxes usually have the following forms:

- Specific royalties, when the tax base is represented by a physical unit (volume or weight);
- Ad valorem tax based on the product value;
- Profit tax associated with progressive taxation of profit gained by the mining enterprises;
- Excises and bonuses as payments for gaining and realizing the right to use natural resources;
- Fees for using the deposit (rent), individually established when issuing a license;
- Hybrid systems that combine a profit or a rent system with an ad valorem system;
- Other methods, when different tax bases are used, including the fragmentation of production.

Research objective is to go for a critical analysis in order to find the most profitable taxation system that would allow attracting

investors (including the MNC) to the mining industry and keeping the subsoil asset from being hollowed-out.

3. RESULTS

Table 1 summarizes data on the rate of subsoil use taxes and charges that go into the budgets of the main resource-producing CIS countries. It is obvious that in Russia, this value is much higher, as the production volumes and the variety of minerals are several times higher than in other CIS countries.

If the extracted mineral raw materials cannot be sold as a commodity product without being processed first, the tax base should be represented by the total value of the first saleable products (without VAT) made of extracted raw materials and sold in the tax period (pellets, concentrates, metals, chemical compounds, etc.).

At calculating the severance tax, the formed tax base should be adjusted by the coefficient characterizing the share of the price component of extracted minerals in the value of the first saleable products when:

$$Kpm=Cm/Ccp \quad (1)$$

Where:
Kpm - Share of the price component of extracted raw materials in the total value of saleable products made of it and sold in the tax period;
Cm - Costs of extracting minerals for producing saleable products;
Ccp - Total costs of producing saleable products that were sold in the tax period.

Hence, severance tax base will be calculated by the formula:

$$MT=C*Kpm \quad (2)$$

Where:
MT - Tax base for the severance tax calculation;
C - Total value (price) of first saleable products sold in the tax period, without VAT and other tax payments made in the reporting period.

We believe that this approach is fairer, since it creates relatively equal conditions for all the subsoil users regardless of the type of extracted raw materials, as each user has to share the same portion of output (Ai-bin et al., 2009). Differences in extraction conditions (method of extraction, deposit depth, field specifications, infrastructure features, etc.) can be taken into account by introducing the adjustment coefficients to the tax rate that are based on extraction profitability. For example, enterprises with a profit margin of up to 3% should be exempt from severance taxes; if the profit margin is of 3-15%, then the adjustment coefficient may be 1; and if the profit margin is above 15%, this coefficient can vary from 1 to 2 or up.

Table 1: The share of subsoil use taxes and charges in the government tax revenue of some CIS countries (in %)

Country	2014	2015	2016	Absolute variation, pp	
Russia	36.1	38.3	39.8	2.2	1.5
Ukraine	6.8	9.7	8.7	2.9	−1
Republic of Kazakhstan	4	4.7	5	0.7	0.3
Republic of belarus	1.8	2.3	3.6	0.5	1.3

Source: Originally drawn up with regard to information available from the official websites of the Federal Tax Service, the Ministry of Finance of the Republic of Belarus, the Ministry of Finance of Ukraine, the National Budget Network of Kazakhstan.
CIS: Commonwealth of independent states

In Belarus, natural resources extraction is taxed at rates set for each type of mineral resource in Belarusian rubles per one extracted unit (m^3, ton, etc.). There can also be interest rates set for some types of raw materials that rise in parallel with the sales volume. These rates are subject to recurrent revision sparked by the national inflation rate. By the government's decision, certain preferential rates can be set for certain types of mineral resources with regard to their purpose (Square, 2016; The Tax Code of the Republic of Kazakhstan, 2017).

According to the tax code of Ukraine, there is a rent of mineral deposits charged when mining operations are performed. The taxable item, in this case, is the amount of resources (saleable output) extracted for the tax period, while the tax base is the value of these resources, calculated for each type of resources independently with regard to the warehouse delivery costs. The value of saleable output is calculated by the highest variable - by the actual sell price or by the estimated cost. In the first case, the unit value of extracted product is calculated by the value of rent payer's profit from its sale.

As in the case of ore, the actual sell price for the tax period is defined as the average value of one ton of saleable output. Price calculations were made with regard to prices published in the world commercial information overview for the current period. The latter were converted in UAH at the rate of the National Bank of Ukraine under the general delivery specifications. This operation was performed according to the methodology approved by the Cabinet of Ministers of Ukraine.

The amount of income earned for the tax period from selling certain type of saleable products was decreased by the amount of taxpayer's expenses on delivering the products to the end consumer in the amounts established under the contract terms of delivery.

The unit value of each type of saleable output is calculated as the revenue-to-sales ratio.

The value of gold and uranium, extracted from the primary deposits, is calculated with regard to the sell price (without VAT) for the tax period decreased by the amount of taxpayer's expenses on refining and delivery to the consumer. The value of one extracted unit is calculated with regard to the content proportion (in physical terms) of chemically pure metal in the unit.

Rent rates for certain types of raw materials vary from 1% to 8%. In some cases, decreasing coefficient may be applied when calculating the ratio of tax payments to the tax rate. In particular,

decreasing coefficient will be 0.25 for underground iron ore extracted from a deep (over 300 m) deposit with an iron content of <35%. In those cases when the deposit was explored at the expense of the taxpayer, a decreasing coefficient will be 0.7 (The Tax Code of Ukraine, 2017).

In Kazakhstan, the system of tax imposition on the use of subsurface resources has a more complex mechanism. Thus, tax legislation provides for the following types of tax payments: Mining tax, super profits tax, special payments including commercial and subscription bonuses, compensation payments, a rental tax on exports (for gas condensate, crude oil and coal), royalties and the share of the Republic of Kazakhstan established under the field development contract. Taxation, hence, is based on two main models. According to the first one, all types of taxes and other obligatory payments established by the tax code shall be paid. The second model provides for paying (transferring) the share of the Republic under the sharing agreement, as well as for paying all types of taxes and other obligatory payments established by the code.

The commercial discovery bonus is paid by subsoil users in the event of fulfilling mining/E and P contracts, as well as for each commercial discovery of minerals on the contract territory, even if they are discovered during the additional exploration.

Subscription bonus is a one-time fixed payment for the acquisition of a right to use the subsurface resources of the contract territory, and for the expanding the contract territory under the procedure outlined in in the RK legislation.

Compensation payment is a fixed payment aimed at compensating for the total government expenses on the geological survey of the contract territory and on the exploration carried out before signing a contract.

Severance tax is calculated under the RK tax code. At the same time, there are paragraphs establishing rules of severance tax imposition for common mineral resources and for other mineral raw materials.

In cases outside common mineral resources, severance tax unit is the volume of mineral reserves repaid for the tax period without the standard losses.

The tax base for calculating the severance tax is the value of taxable volume of mineral reserves (as raw materials) repaid for the tax period. Such a value is calculated on a monthly basis with regard to the tax period average exchange prices for minerals. This figure is an arithmetic mean value of daily average quoted prices and the market exchange rate for Tenge to foreign currency for the relevant tax period. At this point, the Government refers to the price quotations of the London metal exchange published in metal bulletin and metal-pages.

In the cases of common mineral resources, severance tax unit is the physical volume of resources extracted for the tax period, while the tax base is their value calculated with regard to the weighted average sell price. In this case, one takes into account the actual sell prices of each lot.

Severance tax rates for processed coal and mineral raw materials are set under the Tax Code in the range from 0.25% to 18.5% (The Tax Code of Turkmenistan, 2017). All types of minerals extracted from the non-commercial reserves are taxed at zero rate. Rates for rare and rare earth metals (beryllium, lithium, tantalum, strontium, neodymium, samarium, promethium, europium, etc.) are set by the Government of the Republic of Kazakhstan.

The royalty rates are set individually for each contractant based on the economic indicators of a field development project for all types of minerals, except for the common ones. Besides, super profits taxes are imposed at the rate of 0–60% on all but certain types of subsoil users.

We believe that such a taxation system is the strongest, the most logical and effective of all outlined above.

In Azerbaijan, mineral extraction is taxed on trade under the tax code of 2000. The trade tax here is based on the value of products calculated by wholesale prices, established by the government. Tax rates vary from 0.5% to 3% by certain types of solid minerals (The Tax Code of the Republic of Belarus, 2017).

In Turkmenistan, tax is imposed for the subsoil use. The tax base here is the profit gained for the tax period by the subsoil user. Tax rates are graded depending on the profit margin: Upwards of 0% at the profit margin lower than 15% and up to 50% with at the profit margin higher than 25%. The profit margin is calculated as the sales-to-cost ratio.

Turkmen tax legislation establishes that in case of using minerals for own consumption, the tax base is formed with regard to prices established for the ordinary paid sales. If they are no such prices established, then the tax base is formed with regard to the real market prices for similar goods.

In Uzbekistan, the system of tax imposition on the use of subsurface resources is somewhat similar to the Kazakh one. The following taxes and special payments are in vigor for subsoil users: Subsoil use tax, subscription bonus and commercial discovery bonus, as well as super profits tax. Taxpayers here are subsoil users, who extract valuable underground resources and who remove valuable elements from raw materials and (or) from man-made mineral formations, as well as those who refine minerals to remove valuable elements.

The taxable item here is the volume of extracted output, while the tax base is its value calculated by the average sell price for the reference period, established for item by dividing the sales volume quotas in monetary terms (without VAT and excise tax) by the sales volume quotas in physical terms. If the extracted output is not soled, the tax base is based on the extraction costs for the reference period. The annually revised list of all taxable raw materials and tax rates for each thereof is established by a decree of the president of the republic of Uzbekistan (The Tax Code of the Republic of Uzbekistan, 2017).

The super profits tax is paid for the extraction of certain minerals (valuable elements) and for the manufacture of certain types of mineral products (cathode copper, natural gas, polyethylene pellets, etc.), except for the manufacture operations carried put under the production sharing agreements. The taxable item here is the super profit (revenue part) - the difference between the net revenue from sales and the statutory estimated price. The tax base for calculating this tax is the net super-profit - the difference between the total super profits and the amount of taxes and other obligatory payments imputed to the net revenue.

The tax rate on super-profit is 50%. The remaining part of the super-profit is credited to a special investment account and can be used only after consultation with the Ministry of Economy and the Ministry of Finance of the Republic of Uzbekistan to finance investment projects approved by them, as well as for modernization and technical re-equipment.

Aside from the subsoil use tax and super profits tax, subsoil users are obliged to pay subscription and commercial discovery bonuses.

Subscription bonus is a fixed one-time payment for the subsoil user's right to search and explore for mineral resources. It is paid to the budget at the date no later than 30 days after the license is granted. The minimum bonus rate is set as a multiple of the minimum salary (from 100 to 10.000 units) with regard to the type of mineral resource.

A commercial discovery bonus is a payment for discovering a new mineral deposit. The taxable item here is the volume of extracted mineral resources that was approved by the competent government body. The tax base is the value of a possible extracted volume, calculated:

- for subsoil users included on the State Register of Business Entities Occupying Dominant Positions in Commodity Markets - by a declared price approved for this type of mineral resource;
- for other subsoil users - by a price established in the foreign exchange market; if the price is not established in the world market - by a price established annually by the competent government body.

The rate of commercial discovery bonus is 0.1% of the tax base. The Ministry of Finance of the Republic of Uzbekistan may create installments on a commercial discovery bonus for up to 3 years if the amount of commercial discovery bonus exceeds the annual amount of tax on the subsoil use.

4. DISCUSSION

In foreign countries, the system of mining enterprise taxation usually implies various benefits that improve the investment attractiveness of mineral extraction. Tax benefits as a type of incentives are the most important government instrument of influence on the entire economy, its sectors, production and specific business entities (Kowal, 2015).

Such benefits include the abolishment of import duties on mining equipment; various methods of accelerated depreciation; the reduction of export duties on mineral resources; various tax deductions; compensation for environmental costs; obligation to pay royalties only when the super profit bar is reached (when exceeding the standard profit margin); exemption from the revenue royalties; profit tax reduction for finalizing the deposits (allowance for the deposit depletion), etc.

The leading methods of differentiating the royalty rates and tax base that are popular in foreign countries for tax imposition on the extraction of solid mineral resources do not take into account the difference in the extraction conditions between deposits. Rates are differentiated by types and volumes of extracted raw materials. At the same time, hydrocarbon extraction is often taxed at rated differentiated by extraction conditions. Foreign countries lack such differentiation when it comes to solid mineral resources because of the great diversity of extraction parameters and the complexity of their systematization. Secondly, there are a small number of mining enterprises located in areas with similar geographic and mining-geological specifications. In this regard, any additional criteria for differentiation by geological, natural and technical factors is not necessary. However, Russian environment is known for a wide variety of mineral resources, natural and climatic conditions, for a large number of mining enterprises, etc. Thus, differentiated approach to tax imposition on solid mineral extraction is essential, most significantly due to the depletion of old reserves and due to a need in accelerating the development of new fields in the Far East, Siberia and the Far North.

Each country has an individual combination of tax payments. Table 2 presents the severance taxes imposed in some countries. Aside from the resource tax payments, there are also the profit tax and the value added tax imposed.

In countries such as Germany and France, there are imposed the severance tax, tax on mineral resources and a profit tax. In the US, for example, the following taxes are imposed in the mining industry - the tax on extracted product, income tax and property (mining enterprise) tax [28]. Royalty is one of the most common payments in the mining industry. Royalties are levied regardless of the company's profits. The size of royalty is between 12.5 and 20% of the value of extracted output.

5. CONCLUSIONS

The analysis of tax systems of different countries revealed that tax instruments that ensure resource rent formation and extraction in the CIS are most often based on the value and volumes of mineral resources extracted and sold in the tax period. In addition, tax rates are differentiated by the types of raw materials; they are set and repeatedly adjusted by government agencies.

The value of extracted raw materials is most often calculated with regard to the monthly average exchange prices, established for certain types of mineral raw materials in the London Metal Exchange market or in the domestic markets of the CIS countries. This allows making a tax bite fairer than in Russia with regard to the movement of world prices for raw materials.

Table 2: Taxes on natural resources in some countries

Tax type	French republic	Federal republic of Germany	USA	Kingdom of norway	Latvia	Ukraine	Republic of Belarus	Republic of Kazakhstan	Republic of Azerbaijan	Turkmenistan	Republic of Uzbekistan
Severance tax	-	-	-	-	+	-	+	+	-	-	-
Tax on extraction operations	+	-	-	-	-	-	-	-	+	-	-
Tax on mineral resources	+	-	-	-	-	-	-	-	-	-	-
Rent for subsoil use	-	-	+	-	-	-	-	-	-	+	+
Royalty	-	-	+	-	-	-		+	-	-	-
Tax on ore field	-	+	-	-	-	-	-	-	-	-	-
Mining tax	-	+	-	-	-	-	-	-	-	-	-
Rent for using subsoil for hydrocarbon production	-	+	-	-	-	-	-	-	-	-	-
Property tax (mining enterprises assessed at market value)	-	-	+	-	-	-	-	-	-	-	-
Tax on extracted product	-	-	+	-	-	+	-	-	-	-	-
Income tax	-	-	+	-	-	-	-	-	-	-	-
Auction licensing	-	-	-	+	-	-	-	-	-	-	-
Geological survey charge	-	-	-	-	-	+	-	+	-	-	-
Charges for special use of natural resources	-	-	-	-	-	+	-	-	-	-	-
Super profits tax	-	-	-	-	-	-	+	+	-	-	+

Originally drawn up. Sources: (The Tax Code of the Republic of Belarus, 2017; The Tax Code of the Republic of Kazakhstan, 2017; The Tax Code of Turkmenistan, 2017; The Tax Code of the Republic of Uzbekistan, 2017; The Tax Code of Ukraine, 2017)

The specific type of rental payment is the one-time fixed payment by subsoil users for the right to carry out the extraction operations, as well as the payment aimed at recovering government expenses on deposit exploration. A special type of resource rent extraction is the tax on super profits earned by mining enterprises at high extraction profitability level.

A wide range of benefits has been established so far for subsoil users, who extract underground resources at low profit margin due to a low content of valuable elements in ores and due to reserves depletion.

Based on the research results, we suggest leaving behind the current system of severance tax base formation for the solid mineral resources would be a reasonable choice to make. As in many foreign countries, the tax base in this case should be the commodity value of mineral resources sold in the tax period. Tax rates on extracted raw materials should not exceed 2–4% and be equal for all types of raw materials. This practice becomes more popular abroad.

Thus, there is a chance to stimulate, to a certain extent, the low-profit production by charging higher taxes from enterprises that have favorable conditions for extracting and selling products. The Government should establish the standard adjustment coefficients and revise them as and when the economic situation in the country and the world change.

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