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Improving Relations between a State and a Business Enterprise in the Context of Counteracting Adverse Effects of the Resource Curse

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Abstract: Natural resources play a significant role in the development of the global economy. This refers, in particular, to strategic fuel and mineral resources. Due to the limited supply of natural resources and the lack of substitutes for most of the key resources in the world, the competition for the access to strategic resources is a feature of the global economy. It would seem that the countries which are rich in resources, because of this huge demand, enjoy spectacular economic prosperity. However, the results of empirical studies have demonstrated what is known as the 'resource curse'. This article concentrates on the characteristics of the paradox of plenty, and in particular on the possibilities of preventing this phenomenon. The aim of this article is to identify the measures of economic policy with which to counteract the resource curse, based on the relationship between the state and the extraction business. Upon the critical analysis of the relevant literature, we concluded that the state's economic policy, implemented in cooperation with the extraction business, is increasingly important for the prevention of the resource curse. In the context of the resource curse, the optimal and most consensual instrument, in comparison with other resource sharing agreements, is a production sharing agreement (PSA), which should also be adjusted to the current local economic conditions in a given country.

Keywords: fuel and mineral resources; resource curse; social and economic development; natural-resource rich countries; resource contract; business relations; economic policy

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1. Introduction

Ever since studies were taken up on the resource curse, scientific attention has focused on the possibility of counteracting it. During the forty years since the phenomenon was recognized, there have been many suggestions and solutions with regard to economic policy, aiming at the prevention of the resource curse. Some of them, for better or worse, have been implemented in the countries that are rich in natural deposits. The research results indicate that some natural-resource–rich countries escape from the curse, which substantiates the claim that there are instruments within social and economic policy which can be employed to address the problem and, in some cases, to use the abundance of natural resources to accelerate economic development.

Among the suggested state policy instruments to counteract the resource curse, there are some radical ones, like the abandonment of extraction in the poorest countries, as proposed by Oxfam [1]. Some scientists (e.g., [2–4]) emphasize the importance of resource-rich developing countries implementing a sensible macroeconomic policy; in particular, they recommend the limitation of domestic and foreign debt, the accumulation of the

budget surplus, the control of inflation, and the maintenance of a competitive rate of foreign exchange. Others stress the role of economic diversification in the countries which specialize in the export of resources, in order to decrease their dependence on the extraction industry [5]. Still others recommend active and rational investment policies [4]. Following the example of Norway, some scientists recommend the introduction of stabilization funds which would alleviate the adverse effects of resource booms [6,7]. Recent publications also stress the importance of the process of drawing and implementing agreements with the companies performing extraction in the country [8]. There are also new ideas, like transferring the revenue from the extraction to society, along with proactive taxation policies [9]. What are the possible methods of improving the relationship between the mining company and the state in the context of the resource curse? This article aims to identify the economic policy measures which prevent the resource curse with respect to the development of relations between a state and a mining company.

2. Review of Literature

The notion of the resource curse, as mentioned above in this paper, was first formally used by Richard Auty [10] in his 1993 work 'Sustaining Development in Mineral Economies: The Resource Curse Thesis'. The author understood the curse as the poorer performance of developing countries that are rich in natural resources in areas such as economic development and the reduction of poverty, in comparison to the countries where natural resources are scarce. In the literature that followed Auty's dissertation, the term was defined similarly by most scientists, with some less significant modifications (among others [3,11–15]). Sachs and Warner [12,16] and Gylfason [14] included the time dimension in their definition of the curse, arguing that it is a long-term phenomenon. Karl [13] called the phenomenon the paradox of plenty, asserting that it concerns the developing countries which specialize in the export of oil.

After the oil crisis in the Netherlands and Great Britain in the 1970s, it was assumed that the curse may also affect developed countries. More recently, the possibility of the curse was investigated in Canada [17] and Norway [18–20]. Upon deeper analysis, however, it was argued that the paradox of plenty in the more economically advanced countries—more often referred to as the 'Dutch Disease'—is a temporary shortcoming, which is necessary to adjust the economy to new conditions [19]. In order to explain why most developed countries (like the United States, Canada, Australia, Great Britain, the Netherlands, and Norway) managed to avoid the resource curse, researchers pointed to the maturity of these societies and the state authorities at the onset of the first symptoms of the Dutch Disease, and the implementation of conscious and effective strategies within their economic policy. In most research on the resource curse, the authors emphasize that it usually concerns developing and frontier countries (among others [1,12–16,21,22]).

The relevant literature contains many classifications of the causes of the paradox of plenty. Auty [23] distinguishes external and internal causes. The former include structural policy, the Dutch Disease, and theories of export dependency. The latter comprise a failure of the state economic policy, the introduction of ineffective investments, and the growing rent-seeking effect. Stevens [24] does not distinguish between these groups, but enumerates the following causes of the resource curse: the long-term deterioration of the commercial exchange; the instability of the prices of natural resources, which leads to fluctuations in the state's income; the Dutch Disease; the crowding-out effect; an increase in the role of the state, including inadequate decisions in economic policy; the character of the investment and industrial policy; an increase of corruption and rent seeking; and the impact of social, cultural and political factors.

The main macroeconomic cause of the resource curse, with reference to internal conditions, is the occurrence of the Dutch Disease. The term 'the Dutch Disease' was first used in the November 1977 issue of The Economist [25] in order to explain the economic changes which took place in the Netherlands in the 1960s, after the discovery of large deposits of natural gas in the North Sea. The expectations were that the initiation of the extraction and

export of these deposits would have a positive impact on the economic development of the country. However, 10 years after the discovery of the gas, the Dutch economy turned out to be slowing down and in the state of quasi-recession. A similar situation was noticed in Great Britain, upon the discovery and extraction of oil and gas deposits in the 1970s, also in the North Sea. The general assumption behind the negative impact of the 'disease' is the declining competitiveness in the industries which are not related to the dynamically growing extraction sector in the country, as the country's currency appreciates rapidly, domestic spending increases, inflation rises, and production means are transferred to the extraction sector, with all these developments being propelled by the increase in revenues from the export of resources. The decrease in the production or bankruptcies of enterprises from outside the extraction sector happens due to their deteriorating competitiveness in the domestic and international market, and leads to the destabilization of the economy and the dependency of the economic growth on the extraction industry, which—in the long term, and along with the high instability of the prices of its resources—causes the slowdown of economic growth. In 1970–1980, many researchers—e.g., Blainey [26], McKinnon [27], Gregory [28], Snape [29], Forsyth and Kay [30,31], Enders and Herberg [32], Doran [33], Maddock and McLean [34], and Iacono [35]—focused on the risk of the Dutch Disease in Kuwait, the Netherlands, Norway, Great Britain, Canada, Mexico and Australia.

The first stage of research on the possibility of a negative impact of natural resources on the long-term economic development of the countries specializing in their export was initiated in the 1950s by Prebisch [36], Singer [37], and Bhagwati [38]. Although the results of the analyses performed concerned generally-understood basic products, including natural resources, they heralded a potentially-negative impact of natural resources on the long-term economic situation of the exporting countries [39].

The next stage of the research began in the 1970s, with the advent of the energy and resource crisis. Worrying trends in the development of Latin America's economies gave rise to numerous research works (including empirical ones), the authors of which strove to confirm and explain, through macroeconomic analysis, the negative impact of natural resources on the economic development of their exporters. In the 1980s, after the paradoxical economic changes in Great Britain and the Netherlands issuing from the discovery and extraction of gas and oil, more research papers analyzed the resource curse as a consequence of the Dutch Disease. Most of the research elaborated in this second stage focused on the empirical confirmation of the existence of the paradox of plenty and the macroeconomic causes of this phenomenon.

In the 1990s, a new direction appeared in the analyses of the economic development of the natural-resource–exporting countries. There was a shift in perspective on the possible causes of the curse. The new wave of research concentrated on the analysis of the negative impact of the revenue generated from the export of natural resources on the behavior and the quality of the authorities of the states that were rich in these resources. Detailed investigations were made into the quality and rationality of the decisions made by such states concerning the distribution of the substantial revenue from resource sales. With the help of empirical research, attempts were made to justify the negative relationship between the abundance of resources and the growth in authoritarianism, the retreat of democracy, and the increase in corruption and rent seeking. In this period, the main cause of the resource curse was identified as the inadequate economic and social policy of the exporter states [40].

Along with the growing interest in the paradox of plenty among non-government organizations, at the beginning of this century, a new stage of research was initiated in order to deal with the problems of the development of resource-rich countries. The relationships between the large revenue from resource sales and the rising conflicts within the countries were investigated; in some countries, these conflicts turned into civil wars. It was also emphasized that it was the poor developing countries that suffered the most from the negative impact of the resource curse [41].

The latest phase of the research on the resource curse stems from the growing interest in these issues among international organizations and corporations, and, on the other hand, from the entry of new states into the global market of resources. There are, however, new aims with which the researchers analyze the situation; it has been noticed that, in some exporter states, both in developing and developed economies, the potential brought about by the large revenue from resource sales is actually achieved successfully. Over the last decade, the most important question posed by the researchers studying developing countries rich in natural resources has been: what should be done to change the negative impact of the large revenue from resource sales on the long-term economic development of such countries. The solutions presented in this article are oriented in that direction, and include the development of the relations between a state and an extraction business enterprise.

3. Methodology

This article is theoretical in character. In order to pursue the aim, which was the identification of instruments of economic policy to counteract the resource curse based on the relationship between the state and the extraction business, we performed a critical analysis of the existing body of research. As part of the literature review, we selected the concept and the causes of the resource curse phenomenon, as well as the directions of the research. On this basis, we identified the research area which had been overlooked, which concerns the development of the relationship between a state and a mining company.

4. Development of the State-Business Relation

The first challenge facing the authorities of a country in which large deposits of natural resources are discovered is to enable their effective extraction and profitable sale. One of the most basic causes of the resource curse is the shortage of adequate instruments of economic policy in the first phases of the extraction and export of the resources. Most developing countries at the time of the discovery do not possess substantial reserves of financial capital or experience in extraction; hence, the authorities first seek an investor who will perform an extraction project.

One of the strategies enabling the effective management of the production of newly-discovered resources is slowing down the extraction process; another entails the expansion of the resource sector. Rapid economic growth following from the all-too-quick development of the extraction sector and the export of resources results in a resource boom in the economy, which initiates the symptoms of the Dutch Disease and the resource curse [42]. In the case of countries which have only just begun the extraction business, there is a noticeable relationship: the slower the development of the extraction sector, the better the opportunity for the whole economy, society, and various economic, social, and political institutions of the state to adapt to the increasing sales revenue from the natural resources. This is because it is easier to manage revenue that increases gradually rather than exponentially. The impact of the resource movement effect, the spending effect, and the pass-through effect is then alleviated. Moreover, the gradual development of the resource industry provides an opportunity for the growth of the service sector which caters for the extraction business. If the growth of the extraction industry is too rapid, most of the services are purchased abroad [43].

One of the measures enabling the strategy of slowing down the extraction business is a specifically-drafted contract between the state authorities and the enterprise responsible for the extraction. In practice, many and various types of contracts have been signed, creating various patterns of money transfer between the state and the investor. Therefore, although the extraction industry may still grow rapidly, and the money transfer is controlled through an agreement signed by both the state and the investor. For instance, in the case of an extraction project that has been planned for several years, with an expected peak in revenue from export sales during its execution, the contract may provide for some of the profit to be transferred to the state before the initiation and after the completion of the project. Another solution could be the participation of a third party, e.g., an international bank.

The basic purpose of every business enterprise is to maximize profit and minimize cost, which an extraction company can realize by transferring as little profit to the state as is possible. This, of course, leads to a conflict of interest between the state and the extraction business. It is a key issue for the state to elaborate a strategy with which to hire mining companies, the aims of which are radically different from those of the state authorities, in such a way as to maximize the profit generated on the sale of resources and minimize the risk of the resource curse.

In practice, a few contract templates concerning the distribution of profit from resource extraction have come to be widely used. The following should be noted here:

- concession and license agreements;
- production sharing agreements (PSA) or production sharing contracts (PSC);
- service agreements;
- joint venture (JV);
- others, such as buy-back contracts.

The types of contracts enumerated here may substantially differ in terms of specific provisions, but they usually refer to decisions made in three basic areas. These are the distribution of profit, cost, and risk between the state and the extraction enterprise.

Concession and license agreements have significantly evolved since they were first introduced as unilateral contracts at the beginning of the 20th century, at the time of colonialism, when many resource-rich countries were directly dependent politically and economically on more advanced countries.

Contemporary concession and license agreements are much more specific, and a lot more favorable to the resource-rich countries than they used to be in colonial times. First of all, the agreements clearly stipulate the area for which the concession is valid and the period for which it is binding. The usual exploration time is set for 3 to 5 years, and the production time is set for 15 to 20 years. Additionally, the concession may be cancelled in the circumstances provided for in the agreement. The investor is also obliged to submit a detailed exploration and investment plan in the resource-rich country. The process of the license sale is often organized via international public tenders (known as auctions or license rounds), which enable the country to access the most attractive investment offers [44]. An alternative procedure applied in some countries is an open application system, in which enterprises directly apply for concessions for the exploration of new deposits in areas that are not covered by their concessions. If commercially-viable deposits are indeed discovered in these areas, a concession for exploration automatically turns into a concession for extraction [45].

Moreover, contemporary license agreements usually provide for better financial conditions for the country granting the extraction licenses. While, in colonial times, a country could only expect a fixed price per unit of the resource, and very modest financial compensations, nowadays such agreements offer a dynamic price that is dependent on the quantity of the extracted and exported resource, based on its market price, and they also take into account the income tax rate, various benefits, the annual rent paid for the area covered by the license, and other financial conditions [44].

The use of concessions and license agreements is widespread. However, as these types of agreements are associated with the days of colonialism, many developing countries are inclined to opt for other forms of agreements. The number of countries which employ concessions and license agreements has decreased over the past decade. This type of a mining agreement is still used, for example, in Norway, Venezuela, and the Russian Federation (Table 1).

The concept of a production sharing agreement (PSA) or a production sharing contract (PSC) has been well known and popular for a long time now. For instance, US farmers have been familiar with this type of a contract for decades. In the mining industry, the idea of PSAs was first introduced in Venezuela in the mid-1960s. A contemporary form of a PSA was first signed in Indonesia in 1966 [46]. Initially, transnational resource extraction companies discarded the new concept of an agreement. With time, the use of PSAs

has gained popularity worldwide. This type of agreement is now applied in Indonesia, Venezuela, Azerbaijan, Russia, Turkmenistan, the United Arab Emirates, and Angola [47,48] (Table 1).

Table 1. Mining agreements used by crude-oil–exporting countries.

	Concessions and License Agreements	Production Sharing Agreement (PSA)	Joint Venture	Service Agreements	Others
North America			Canada		
Central and South America	Venezuela			Venezuela	
Europe	Norway				
Eurasia	Russia	Russia, Azerbaijan	Kazakhstan	Kazakhstan	
Middle East		United Arab Emirates, Qatar, Iraq	Saudi Arabia	Dubai	Iran (buy-back), Kuwait
Africa		Nigeria, Angola, Algeria	Nigeria, Angola, Algeria		

Source: developed by the authors, based on U.S. Energy Information Administration data.

The principal difference between concession and license agreements versus a PSA is the form of ownership of the extracted minerals and mining facilities. With the former type of agreement, the owner of the excavated resources is the company executing the mining project. In PSAs, the owner of both the mined natural resources and the entire excavating facility (including the buildings, machines and installations) is the state. However, the state authorities issue a permit to the investor to manage the mining venture. In fact, the investor acquires the right to access a given source of raw materials.

Under a PSA, the total costs and risk involved in the exploration work are typically on the side of the mining company. Should they fail to find any resources, the investor is not entitled to any compensation. In some cases, a fee is required prior to signing an agreement. The costs and the risk connected with the development of a mining project are also borne by the investor.

In return for the costs incurred and the risk taken, the company acquires the right to a share in the production of a given resource. In its basic form, a PSA contract comprises four major provisions. The extraction company pays an operating fee to the state, depending on the gross production volume. After deducting the fee, the company is eligible to take possession of a share of produced raw material, as specified previously (e.g., 40%), in return for the production costs incurred. The remaining part of the extracted natural resource is then divided between the state and the company according to the algorithm that was agreed upon (e.g., 65% for the state and 35% for the company). The project contractor is also obliged to pay a tax on the profit earned from the production [49].

With time, PSA contracts have evolved considerably. Nowadays, there are many diverse forms of production sharing agreements; for example, there is the Peruvian type of PSC, in which a foreign company has shares in the gross production of a given resource; the Indonesian PSC type, where shares are determined according to the profits from the mined resources; and many others [46]. The variety of PSA contracts used in practice is unsurprising. They are drawn during intensive negotiations in which different market conditions are taken into consideration.

Another type of an agreement used by states rich in natural resources is a joint venture (JV) contract. The signing of a JV contract with an investor presumes close cooperation between the state's authorities (a state company) and an extraction enterprise in order to carry out a mining project in the territory of the state. JV agreements are complicated, and need to be preceded by detailed and lengthy rounds of negotiations until all of the questions are resolved, and specifically settled, between the two parties. This particularly

applies to the type called 'JV 50/50', in which the powers of the state and the investor under this agreement are equal. Signing a JV contract enables a state to take advantage of the expertise, knowledge and technology owned by the investor. It also allows the parties to divide the responsibilities for the performance of the project and for the risk involved between the state and the mining company [44]. Among the countries where JV agreements are used, Kazakhstan, Saudi Arabia, Nigeria and Canada are worth mentioning (Table 1).

Yet another type of extraction contract employed by countries with rich deposits of natural resources is a risk service agreement, also known as a service contract. The underlying principle of this agreement can be characterized as follows: a contractor to a mining project earns a fee for performing a service, which is to mine resources. The owner and manager of the project is the state. Thus, a mining company is usually responsible for the delivery of the machines, equipment and installations needed to start and develop the extraction of a resource. As compensation for the invested capital, the investor is reimbursed for the costs from the profits earned by selling the mined resources, to which an additional fee is granted. This fee is often taxed. Service contracts, in most cases, resemble PSAs. An important difference between these two types of agreements is the kind of specific rights that a mining company has. In a PSA, the investor has a right to a share in the production or in the profits earned from selling the production of a given resource. In service contracts, a natural resource extraction business receives the payment for the service performed, according to the terms of contract [46]. Service provision contracts are used, for example, in Venezuela, Kazakhstan, and in the United Arab Emirates (Table 1).

Other, less popular international mining agreements include buy-back contracts, which are used, for instance, in Iran and Kuwait. These are agreements in which an extraction enterprise provides complete funding for the launching of a mining activity. In order to compensate the costs this incurs, in the consecutive stage of the project, the investor earns a fee calculated on the basis of a share in the production of a given raw resource. Once the contract terminates, the company cedes its operations to a state extraction company [50].

The mining agreements described above may differ considerably in their composite sections, both between their types and within the same kind of contracts. The main differences between the types of contracts for the excavation of natural resources are presented in Table 2.

Each of these types of agreement has certain advantages and disadvantages. License agreements are much less complicated for implementation and execution than the other types of mining agreements, especially when a license is sold by international competitive bidding. Moreover, less expert assistance is needed to sign a license agreement than is required to enter joint venture, production share or service agreement contracts. The basic financial terms and other regulations are determined by the state. When purchasing a license, a company that has won the bid is also obliged to pay a fee (to buy the license) regardless of the outcome of a given extraction venture. The entire financial risk involved in the pursuit of this extraction venture, including the costs of the search for resources, lies on the side of the mining company. A considerable drawback of concessions and license agreements is the low level of control and limited scope of decision-making by the state during the execution of a mining enterprise.

The introduction of PSAs was of considerable importance for the development of resource-rich countries, especially developing ones. Because of the form of propriety specified in a PSA, such agreements were politically acceptable in many developing countries, as they allowed official state control over the execution of a mining venture. Another advantage of PSAs to be gained by a resource-rich country is the fact that both the costs and risk connected with the search and extraction of resources are borne by a mining company. Thus, the state holds a stake in all of the potential profits from extracting a given resource, but is not burdened with the significant costs incurred by the implementation of said investment project [42].

The PSA-type contracts also demonstrate several disadvantages. First and foremost, these are complicated agreements which require much expert assistance while negotiating

the terms of the agreement. Hiring experts might be difficult for poor developing countries. A similar drawback can be identified in the case of joint venture contracts. The complicated nature of an agreement requires a significant commitment from both parties. It is also difficult to specify clearly how the power, control and decision-making will be divided during the performance of a venture under a JV contract, which is an obstacle to the effective attainment of the venture's goals.

Table 2. Comparison of extraction agreements.

	Concessions and License Agreements	**Joint Venture**	**Production Sharing Agreement (PSA)**	**Risk Service Agreements**
Owner of the extraction facility	company	depends on the contract provisions	state	state
Government intervention	yes, but not substantial	yes	yes, substantial	yes, quite large
Degree of control by government	usually low	moderate	high	high
Degree of control by company	high	moderate	moderate or low	low
Contracting method	competitive bidding/open application system	bilateral negotiations	bilateral negotiations	bilateral negotiations/competitive bidding
Risk sharing	all risk on the side of the company	risk shared between the state and company	risk mostly on the side of the company	all risk on the side of the state
Fees (paid by a company) on signing the contract	yes	no	in some cases	no
Role of expert assistance in the process of negotiations	small	very big	very big	moderate

Source: developed by the authors.

Risk service agreements are a relatively-new type of contract for the extraction of resources. These agreements endow the state with the greatest measure of control. By hiring a specialist company to carry out a mining enterprise, the state gains experience and an opportunity to take advantage of the technological achievements of a company that enters a risk service agreement. Meanwhile, the state bears the entire financial and operational risk associated with the execution of a mining project, and the full responsibility for the outcomes of this investment.

A considerable limitation to all of these types of agreements is the lack of accurate and reliable knowledge about the abundance of the natural resources in a given country, which happens particularly frequently in developing countries. Consequently, the preparation of an offer to an investor becomes an arduous process. The inability to identify the costs and estimate the potential profits connected with the planned venture entails a significantly higher risk for an extraction firm. Therefore, tenders submitted to a competitive tender bidding call are overly cautious or else unappealing to a resource-rich country. The state authorities are at risk of incurring alternative costs when powerful and technologically-advanced extraction companies are uninterested in their call for bids.

More and more attention has been drawn to the role of cooperation between the state and the company extracting a natural resource. The research in this scope deals with the assessment of a chosen type of agreement in terms of its effectiveness in the implementation of a mining enterprise in the context of a possible emergence of the resource curse. Interesting analyses have been performed regarding the influence of a selected method for contracting a company (international competitive bidding IBC,

bilateral negotiations, an open application system) on the outcome of the extraction project in question. Other analyses concern the role of the way in which the negotiations leading to the signing of an agreement are conducted. However, the conditions underlying the cooperation between a state and an investor for the purpose of performing a mining project in the light of the resource curse threat is a new and relatively unexplored research issue. No detailed comparative studies have been carried out so far to analyze the cost-effectiveness of particular types of agreement for a country that is rich in natural resources. Thorough research on this issue can play a significant role with respect to the possible counteraction of the resource curse. Hence, it should be recommended to continue further investigations in this research area.

Entering an extraction contract entails a risk to be borne by both an extraction enterprise and the state. Depending on the provisions of the agreement—such as the amount of an operating fee, regulations concerning the distribution of profits, income tax rate, other taxes, and tax exemptions, etc.—the risk is divided between both of the parties to the agreement [51]. Due to the high number of clauses in an agreement, these can be very complicated documents. All of the terms must be considered in detail, and should take into consideration the developments in international commodities markets, the condition of the local economy, the prospects for the future demand, the volume of production, and the market prices of the resources. Furthermore, an agreement must be constructed so as to provide for the possibility of earning the maximum incomes in the early phases of the mining, during the implementation of the project, and after its termination. It is therefore essential to exercise extreme caution when using any of the aforementioned types of agreements. Such agreements are a reflection of the market conditions which were prevalent when a given type of contract was first implemented.

5. Discussion

The issues raised in this article have only scantly been researched thus far. Nevertheless, some significant conclusions can be drawn concerning the collaboration between states and extraction companies in the context of the possible emergence of the resource curse.

First of all, while not all agreements for the extraction of natural resources have been carefully examined in empirical studies, it seems that the type of agreement that is most likely to be associated with the resource curse is a PSA contract. When such an agreement is signed, some of the responsibility for relieving 'the raw resource boom' is shifted from the state authorities to the project's implementing company. When the operating conditions are properly formulated, a given type of agreement can act as an instrument to stabilize the revenues earned by the state from selling the natural resources. A PSA contract also enables the sharing of the costs and risk between the state and the investor, while the state plays an active role in the operations conducted by the mining industry, and remains the owner of all of the extracted natural resources. Considering the general terms of a PSA contract, they seem to strike a balance between the other extreme forms of agreements.

Another issue, emphasized in some papers [52], which appears to play an important part in the process of counteracting the resource curse is the progressive character of some types of mining agreements. It is essential that, while negotiating the terms of a contract, both parties take into consideration possible future changes in the commodities market, mainly changes in the prices of raw materials. Hence, it is recommended that an agreement should be progressive in character. The cited author also determines the degree of the progressiveness of particular fees, which can be included in an agreement (Table 3).

In the past, when agreements were signed with mining companies in resource-rich countries, the possibility of the impact of a price change on the state's revenues was not taken into account. Most agreements signed in the 1980s and 1990s, especially for the extraction of crude oil and natural gas, were therefore not reflected in the revenues earned by a state. The implementation of PSAs allowed the inclusion of the impact of any change in production levels on the state's income. However, few agreements were constructed in such a way as to ensure that a state would gain profit from the increasing prices of

the commodities. The simplest way to achieve the progressive character of an agreement is to include a state's share in the profits that a mining company earns as a result of an increase in the price of the extracted resource. Such an option is offered by an extraction agreement that includes fees calculated on the basis of the R factor or the ROR (rate of return) factor. Both fees are a type of tax. In the former case, the tax rate is calculated according to the R factor, which is the ratio of the total revenues of a company which carries out an extraction venture to the total inputs allocated to the production. In the latter case, the fee is computed on the basis of the ROR factor, which is a profitability ratio applied to measure the efficiency of the operations carried out by a given mining company, and is calculated as a ratio of the total earnings from the extraction of a resource to the invested capital. The principal guideline is as follows: the higher the R or ROR factor (exceeding a certain threshold agreed on in the contract), the higher the tax paid by the extraction firm to the state. When the prices of natural resources are highly volatile, it is recommended to carry out detailed analyses of the state's potential revenues in different scenarios of prices in the commodity market while negotiating an agreement. It is equally important to account for possible developments, such as changing levels of production and costs.

Table 3. Characteristics of the fees payable to the state by an extraction company.

Type of Fees		Character
Fees (including the fee collected on signing an agreement)		regressive
Operational fee		regressive
Taxes		neutral
State's shares in production		neutral
State's shares in profits from production	Fee calculated on the basis of the R factor	progressive
	Fee calculated on the basis of the ROR factor	

Source: developed by the authors.

Because of the highly complex nature of mining agreements, the chances for securing the most beneficial terms of contracts are better in countries which can hire professional negotiators with extensive professional experience in the commodities sector. Unfortunately, many developing countries are unable to do so due to financial constraints. Humphreys, Sachs and Stiglitz [52], in their recommendations for international organizations such as the World Bank and the International Monetary Fund, advice that an international database of highly qualified negotiators specializing in the negotiation of mining contracts be built. It is also recommended to establish a fund for the remuneration of advisors, which would be created from contributions paid by resource-rich countries which take advantage of the assistance of the negotiators, once these states have earned the first revenues from the sale of natural resources.

Another noteworthy fact is that many countries which specialize in the export of commodities have already entered into natural resource extraction agreements. When this is the case, and the terms of these contracts seem to be unfavorable to a state as an owner of natural resources, it is recommended to renegotiate the agreement with the company engaged in the implementation of a given extraction project. [53].

Within the problem area of the conditions underlying the cooperation between a state and a mining company in the context of the counteraction of the resource curse, it is also important to discuss the issue of the selection of the form of ownership of a company executing a mining project. When they are investing in the development of the commodities sector, the state authorities can choose one of the three forms of ownership of an extraction enterprise: a state company (e.g., Saudi Arabia, Venezuela, Mexico, Oman and Iran), a private company (e.g., the United States of America, the United Kingdom of Great Britain and Northern Ireland, Canada, Russian Federation), or a company with mixed ownership (e.g., Indonesia, Nigeria, Azerbaijan, Kazakhstan) [44,54].

With respect to the form of ownership of a company executing an extraction venture, some researchers claim that the privatization of the natural resources sector is more beneficial [55]. Weinthal and Jones Luong [56], having completed a comparative analysis of the economic and social situation in Russia and in Kazakhstan, concluded that—in resource-rich developing countries—it would be advisable to delegate the extraction of natural resources to national private companies, which facilitates the attainment of better results in terms of development and the efficiency of the tax system than would be the case in a situation in which the resources branch is managed by a state or sold to foreign investors. The conclusion was based on a case study of Russia and Kazakhstan, in which the extraction sector had been sold to domestic companies and foreign companies respectively. While, in Russia, mining companies have contributed to the improvement of the tax system, which is increasingly profitable, the tax structure in Kazakhstan is more and more unstable, and its development is dependent on foreign investors. The quoted authors attribute these results to the fact that the developmental opportunities of domestic companies are directly connected with the socioeconomic conditions in a given country. The state's and the companies' interests are time-convergent, which stimulates the drive to achieve a compromise and encourages companies to participate in the pursuit of the state's interests.

Stiglitz [57] expressed a different opinion. This researcher maintained that the complete privatization of the right to extract and sell natural resources, especially to foreign companies, is not the most optimal solution in the light of the threat of the resource curse in resource-rich countries. Stiglitz points out that if the public administration in a state works efficiently, and if the process of extracting natural resources is not complicated, the key role in the management of the resources should be played by the state through the creation of a state extraction firm for this purpose.

However, it is not always possible to appoint a state or a domestic private company to perform a mining project. Regarding the poorest countries, due to the shortage of experience in both running mining operations and in business, in addition to an unstable and somewhat backward system of public administration, entering into an agreement with a foreign investor may be the only viable option. In this case, the process of signing an agreement for the extraction of natural resources with a foreign company gains much importance. However, Stiglitz [57] highlights that decisions made by the state in such circumstances should be extremely cautious. The author mentions that it might be better to leave the resources intact rather than to sell them inappropriately.

Government participation in projects can occur in different forms and at different stages. This solution is often motivated by political considerations, e.g., to increase the state's control of the natural resources. However, this may result in a conflict of interest, as the state has two roles: as an entrepreneur (shareholder) and as a regulator. From an investors' perspective, it is disadvantageous that the participation of a state often occurs only at the stage of production, and the financial contribution of the state is paid with profits. On the other hand, it reduces the risk to which the investor is exposed [58,59].

The potential for state benefits depends on how efficient and well-organized the institutions are, including the tax system and, more broadly, the public finance system. In a contract system, the essence of which is the PSA, the state receives income in the form of fees and royalties, and also has a direct share of the profit, which—on the part of the investor—may also be taxed [60].

The fiscal importance of resource exploitation is increasing, and taxation is evolving. The taxation of resource extraction is due to political and social reasons. Resources belong to society, so it is mainly society, not mining companies that should benefit from their exploitation. With regard to non-renewable resources, it is also important to leave some (or substitutes, e.g., alternative energy sources) to future generations [61].

The exploitation of resources has a number of consequences for local communities: both positive (new jobs, increased incomes of municipalities) and negative (environmental

degradation, destruction of local roads, decrease in property value). The range of benefits does not have to coincide geographically with the range of costs incurred.

The shape of the state's relationship with mining companies should not be based so much on the state's participation in the additional income from mining. The system for the use of these revenues in the context of development to eliminate the threat of a resource curse is also a challenge. This, in turn, depends on the quality of the institutions, the wisdom of the political class, and knowledge of the resource curse. In discussions on this subject, greater openness is also needed with regard to potential threats, in order to deal with them. The curse of natural resources may mean not realizing the full potential of benefits, so as to avoid an economic crisis.

6. Conclusions

Recapitulating the above considerations, it is possible to put forth several conclusions regarding the cooperation between a state and a company executing a natural resource extraction project, in the context of the prevention of the resource curse:

- An adequately-constructed mining agreement can play the role of a measure stabilizing the revenues earned by the state from specializing in the export of raw materials.
- In view of the possible emergence of the resource curse, production sharing agreements, adjusted to the country's current economic situation, seem to be a compromise tool and an optimal solution in comparison with the other types of contracts concerning natural resources.
- It is essential that an agreement should be progressive in nature, as this allows for the inclusion of possible changes in the commodities market in the future.
- When entering a mining agreement, it is also important to be able to use the assistance of professional negotiators with extensive experience in the raw materials sector.
- If an agreement has already been signed but it is unfavorable for a state, it is crucial to renegotiate it with the company performing a given extraction project. Another significant step when drawing a contract for the extraction of natural resources is to include a clause providing for the possible renegotiation of the terms of a given contract.
- The subject literature is not consistent in its recommendations pertaining to the optimal form of ownership of an extraction enterprise. Most authors recommend that the management over a mining venture should remain in the hands of domestic companies. However, not all countries can follow this advice.

The state should play an active role in the development of the mining industry by creating a state-owned mining company. In the case of developing countries, creating a state-owned company may be difficult due to a lack of experience in both mining and business activities. In this case, it is necessary to involve a foreign company in the mining process. However, it is important to sign an agreement with a mining company that guarantees the state control over the development and income of the raw materials industry.

Experiences in other countries have shown that additional revenues from the exploitation of natural resources can contribute to the long-term adverse economic phenomenon known as the 'resource curse'. The key question seems to be what the additional funds will be spent on. From this point of view, the quality of public institutions and the maturity of the political elite are of great importance. The perspective of future state revenues may lead to the abandonment or slowing down of the necessary fiscal and structural reforms.

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