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Readings in the International Oil and Gas Agreements: the Governance of Petroleum Resources

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Abstract – This paper explores different understandings of the concepts of rent and economic rent applied to the oil and gas industry in the light of different types of oil and gas contracts. This in turn will be an essential step to understanding how a mineral resources owner behaves, why he behaves in a certain way, and what does he target when charging his tenant for the use of his land and/or sea. In other words, it will help in understanding different forms of mineral resources governance, and hence explain how oil producing countries govern their oil and gas resources by using certain types of oil and gas agreements.

Keywords – Economic rent, governance petroleum resources, oil and gas contracts, proprietorial and non-proprietorial regimes.

1. INTRODUCTION

To start with, the following question can be addressed: why an international oil and gas company should, initially, pay royalties, taxes, or any type of duty, to a host government? This could be for one or more of the following reasons:

- a) For oil and gas companies to have access to a piece of land and/or sea to pursue their activities with the purpose of generating income from expected commercial discoveries, they should bear a cost. These costs are in form of royalties and/or taxes to be paid initially to the landlord, or 'the host government', to obtain the required access to his land or sea.
- b) Oil and gas are, by nature, exhaustible resources. Hence, to extract these resources from a property owned by another party, sell these resources, and make considerable profits, oil and gas companies should have to pay for depleting these non-renewable resources, which are the assets of the landlord.

Profits being generated from the oil and gas resources are, in fact, supernormal, since there is a significant difference between the cost of extracting the oil and the selling price. Of course, oil and gas companies bear high levels of different types of risks during the long process of finding and producing oil and gas, but these supernormal profits should be taxed to secure a share of the value of these natural resources for the state and its citizens. Therefore, for an oil and gas company to work in a host government's land and/or sea, certain duties and taxes are to be paid to the host government, or 'the landlord'. The question which may be asked here is: how does the landlord behave in collecting these duties and taxes from the oil and gas company? The next sections shed lights on different types of oil and gas agreements, the concepts of rent and economic rent and the governance of mineral resources will be discussed with the purpose of

answering the above question.

2. EVOLUTION OF DIFFERENT TYPES OF OIL AND GAS AGREEMENT

In the oil and gas industry, there are two systems for oil and gas agreements. These systems are concessionary and contractual. Concessions are divided into: a) concession systems; and b) concession contracts. Contracts are also divided into two types, namely: (1) production sharing contracts (PSCs); and (2) service contracts. These types do not have a standardized format, in that each of them may contain some characteristics of the others plus its own format. In general, PSC terms and conditions, compared with the terms and conditions of the concession system, are complex. This complexity needs to be considered together with geological dimensions, political risk, distance to supply bases, transportation costs, the history of the country's relations with foreign investors, and other economic factors.

The questions that may be asked here are: what are the main differences between these two systems of agreements, and why may a contractor prefer concessions to contracts? The next section explains in some detail the main differences between them in terms of sovereign rights.

3. SOVEREIGN RIGHTS

The main difference between the two systems, concessions and contracts, arises from different attitudes towards ownership of the mineral resources. Under the concession system the concessionaire is the owner of the minerals, while the state is the owner of these minerals under the contractual system. In this regard, Knowles [1] states:

"The most important thing in the difference between a concession and non-concession is the matter of ownership of the oil. The fundamental principle underlying a concession, and highly favoured by foreign oil companies, is that the government owns oil in its natural geological form, but as soon as man has done something to it, he is the owner of the oil. In other words, oil at the well-head becomes foreign property." (p.75)

Generally, under the concession system the landowner (proprietor) receives his rent for granting a

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lessee a right to his land as royalties in kind, cash or even a percentage-based royalty. The landowner receives his rent, which may or may not take account of issues such as limitations on production volumes, selling prices, and so on. In other words, the tenant, 'the oil and gas company', is the legal owner of the minerals during the concession period, but not of the land or the sea where the minerals lie. Thus, the tenant has the right to operate freely within the concession land, according to terms and conditions of the concession agreement, which governs the relationship between the state and the oil and gas company. At the end of the concession agreement the ownership of the minerals returns to the state, 'the land/sea owner', unless the concessionaire carries on by making a new agreement with the state or by some extension of the concession agreement. However, the case of UK concessions is different. The law grants the concessionaire the right only to obtain the products from the concession area of the UK land or sea and gives him a title to these products only. The right here is similar to the right granted to catch fish. Hence, it gives the concessionaire a title to the production but not to the minerals in situ. Also the Government keeps the right to change any of the concession terms.

In the case of a contractual system the state is the owner of the minerals, and the oil and gas company plays a role as a partner in the operations for a share of the final products. In some cases the oil and gas company, according to the contractual terms, has to pay rent in the form of royalties and/or bonuses to the host government for access to the host government's land and/or sea. However, consideration of the terms of mineral rights, mining rights, and economic rights enables us to understand the difference between concessions and contracts and hence to understand the effect on the economic rent under these two different types of agreements.

Under concession agreements, the concessionaire who pays royalties to the host government owns all mineral rights, mining rights, and economic rights during the concession period. In the UK case, the concessionaire is granted mining rights and economic rights. Under the contractual system mineral rights and mining rights are owned by the host government and the contractor obtains an economic right based on his working interest¹ share of production at the export point when commercial production starts.²

Generally speaking, it can be seen from the above discussion that oil and gas companies prefer to work under concession agreements than contractual agreements. The former grants them more freedom and flexibility of operating conditions, and also grants them a larger share in the outputs and management of resources. The next sections will discuss the empirical content and the conceptualization frameworks of these types of agreement in some detail.

¹ Working interest refers to a contractor's responsibilities and rights in an oil and/or gas project defined in terms and conditions of a PSC.

² Machmud [2] defines mineral rights as: "the rights that deal with the ownership of the minerals in the ground", mining rights as: "the rights to bring the minerals to surface", and economic rights as: "economic rights deal with the ownership of the minerals once they have been mined" (p.37).

4. CONCESSIONS

This section deals mainly with the definition of a concession and the main features of both the old and new concession agreements.

Gao [3] defines a concession as:

"A privilege granted by a government to an individual or group, for developing certain resources or of constructing certain public works." (p.12)

In the oil and gas industry field, [2] defines a concession as:

"A grant by a country to a foreign company to develop its oil reserves on an exclusive basis in a defined area during the duration of the agreement." (p.34)

Based on these definitions, the host country grants the international oil and gas company a right to explore, develop, drill, and produce within the concession area for a defined period of time, and sell the minerals. Royalties, and bonuses in some cases, may be paid to the host government.

According to the old concession concept oil and gas companies had rights to control large areas of land and/or sea to carry out their oil investment operations. Governments of producing countries interfered little in oil and gas activities, and had a fairly small share of the oil and gas outputs. Most of the old concessions, although they varied from one country to another, had the following features:

1. The international oil and gas company was given the right to carry out its explorations and developments in a defined large area (the concession area).
2. The international oil and gas company had to carry out a minimum amount of drilling over a certain period of time.
3. Old concessions defined a period of time, roughly 60 to 75 years, for international oil and gas companies to carry out their exploration and production activities.
4. In some cases, according to the concession terms, the international oil and gas company had to supply the host government with a certain amount of produced oil for local consumption. This oil could be free of charge or at prices below those prevailing in the world market.
5. The international oil company had to pay an annual rent and royalties to the host government.
6. Foreign companies had exclusive rights to all facets of petroleum operations.
7. Foreign companies had property rights in the petroleum resources.
8. The property, or 'the licensed area', was to be transferred to the government upon expiry of the concession.

The next paragraphs shed light on two types of concession, namely, concession systems and concession agreements.

Concession Systems

Under this system the oil and gas company, or 'the contractor', pays all of the costs associated with exploration, development, drilling, and production

activities without any view to recovering these costs if oil and gas are not discovered. However, if commercial reserves are discovered and oil and/or gas produced, then title to the oil or gas resources ('production' in the UK case) will pass to the contractor.³ At this stage the contractor should pay royalties to the host government when production occurs. The government of the host country usually receives revenues of some kind from the contractor in the form of production taxes, petroleum revenue taxes, value added taxes (VAT), and resources rent taxes. In terms of a concession period, because there is no standard format for concessions, duration is extremely long as it could run for about 75 years as in the Middle East and Indonesia. Countries having concession systems are, sometimes, referred to as tax/royalty countries.

Concession Agreements with Government Participation (Joint Ventures)

This section covers the contents of the concession agreements and sheds light on the main difference between the concession systems and concession contracts, or 'joint ventures'.

Joint ventures between international oil and gas companies and host governments began to appear during the late 1950s in the Middle East. At that time the host governments started to adopt policies based on nationalisation of their oil and gas industry and also created national oil and gas companies. These companies had to play pivotal roles in representing their governments while dealing with foreign oil and gas companies and at the same time playing an important role in the national economy. Under this type of agreement the government participated in the operations via a government-owned oil and gas company as a working interest owner. Under these agreements the contractor paid all of the exploration costs, exploratory drilling costs, and any other specified costs in the contract. In the case of finding commercial reserves, the government could share in the operations, and the contractor might be allowed, by agreement, to recover all or a portion of his up-front exploration-related expenditure. There were two methods by which the contractor could recover his costs: 1) by direct payment from the government; or 2) the contractor could keep the government's share of production until recovering the allowed costs. However, under these agreements, the contractor still had to pay royalties, income taxes, and other fiscal obligations required by the law and regulations of the host country. These types of agreement are generally referred to as 'government participation', or 'joint venture arrangements', as in the case of Colombia via the state oil company 'Ecopetrol'.

The main difference between the concession system and concession contracts lies in the type of minerals governance, or in other words, who grants the concession. If the ownership of the minerals, before the discovery stage, is private, then it is a concession system. If the state is the owner of these minerals then we are dealing with

concession contracts. This is because while a government may form a joint venture with an oil contractor, an individual owner usually does not do so. In both cases title to the minerals will pass, at the point of successful discovery, to the concessionaire who will hold this title until the end of the concession period.

Having described the main features of the old concessions, the next section will illustrate how this system was established and the reasons for its demise in favour of the new concessions system.

The Establishment and the Demise of Concessions

Concession agreements were established in the early 20th century, and this system was the fashionable form of petroleum agreement between host governments and international oil and gas companies until the 1950s. In the 1940s concession agreements on their traditional principles started to be less frequently used. In 1943 Venezuela set taxes on the profits of international oil companies in addition to royalties, and in 1948 Venezuelan tax law presented the concept of a 50-50 profit-sharing scheme. This was taken up by Saudi Arabia in 1950, and then most of the concession agreements around the world started to follow suit. So, profit-based taxes became a main financial feature of the new concessions, beside royalties which are not a profit-related duty. Other changes to the traditional concession forms started to appear, such as changes to royalty rates, and the method of paying them. In 1952 Iraq and the Iraq Petroleum Company (IPC) introduced a new agreement based on a 12.5 per cent royalty to be paid in kind or in cash equivalent. Furthermore, the introduction of a different type of bonus payment; the introduction of price controls; and the removal of tax holidays were all new features of the new concessions.

The old concept of these agreements was no longer useful for countries wishing to place more control on their petroleum resources and hence collecting more rent from these resources. In fact, most of the old concession agreements in developing and producing oil and gas countries were established and negotiated while these countries were under the control of developed countries. So, when these developing countries became independent, they started to put extra control on their natural resources with the purpose of gaining extra revenues and developing their own national resources. Government action gradually took two forms:

1. Renegotiation of old concession agreements with international oil and gas companies;
2. Establishment of national oil and gas companies to carry out national petroleum policies and dominate the countries' oil and gas operations.

Companies which still had concessions in developing countries in that period (1970s) lost their power to determine the volume and timing of production. Furthermore, in some cases, owners of old concessions continued to provide host governments with technical services for fees paid by the host government.

A number of factors helped bring about the demise of the old concept of concession agreements and the appearance of the new forms of contract. These factors are delineated below:

³ The ownership of a piece of land that contains minerals could be separated into ownership of the surface and ownership of the minerals. In such a case a piece of land might have two owners: one has the right to the surface and another has the right to the minerals. So, minerals rights refer to the ownership of any minerals beneath the surface [4] p. 8.

1. Oil and gas producing countries wished to control their oil and gas resources by 'hands on' ownership and management of these resources. They were not able to practice this control through the concessions, one example being the Indonesian case.⁴
2. The considerable increase in oil and gas prices on the world oil market in the early 1970s motivated producing countries to bargain for a greater share of the oil and gas resources.
3. Oil and gas producing countries felt that, under the concession system, they were not getting a fair share of their oil and gas resources. This led to the consideration of other types of agreement, which would enable the state to gain a higher share of its resources and more experience in the oil and gas industry.
4. Increasing numbers of oil and gas companies decreased the bargaining power of the older international petroleum companies in competing for sources of crude oil in developing countries.
5. Competition among international oil and gas companies for concessions gave the host governments a good chance to force changes in the terms of the old concession agreements, and to introduce new forms of agreement, such as joint ventures, with the purpose of increasing the host government revenues and having more control over natural resources.
6. The increased role of state-owned oil and gas companies in oil and gas operations decreased the dependence on foreign oil and gas companies. This put host governments in a strong position to negotiate the terms and conditions of petroleum agreements. The traditional role of these national oil companies was as ground rent collectors. Later on when they matured, they became fully producing companies, paying a ground rent and high tax bills in the same way as any foreign tenant. They played an important role by being a tool for any new or potential changes in legislation and taxation. This might be by paying taxes on behalf of the international oil and gas companies, 'the foreigner tenant', or even paying indemnities. However, on the other hand, these national companies might play roles unfavourable to the state. These roles commence when such companies hide some of their profits in the form of different types of reserves or accumulated depreciation, or invest all or part of their international profits outside the state to keep these profits out of the state's control.

Furthermore, in this regard [2] states:

"An equally important issue was the government right to manage and, through managing, to learn and master the complex business of running an international oil and gas business, expertise they had hitherto been denied. The only way to obtain this expertise was by exercising hands-on management—something that could not be achieved under a concession type of arrangement. The production-sharing concept gives the state enterprise the right to manage; the concession does not." (p.22)

Thus, the management issue was a major reason for countries to start thinking about reforming the old concession system into a new format of agreements. These formats would enable them to have more control over their oil and gas resources, or present a new type of agreement providing the required control, and hence grants them more rent of their mineral resources. The alternatives to the concession were production sharing contracts and/or service contracts. Machmud [2] adds:

"If one's aim is to achieve a level of control or involvement in the exploration and production activities greater than that offered by the usual concession agreements, the solution must be sought in a risk-service or production-sharing type of agreement." (p.22)

If production sharing and service contracts are the most suitable alternatives to the concession system, the question arises of why western countries continue to use the concession type of agreement. The reason the western world never adopted the PSC system is that the concession concept fits the western way of doing business as the concession provides governments with a good level of control over their oil and gas industry. Moreover, it ensures a reliable supply of oil and gas, even if private oil and gas companies are running the industry. Western governments are able to control their petroleum industry indirectly, and this can be done through representation or shareholding; taxation is also used as an instrument of collecting rent. For example, the UK found that there was no reason to change its regulatory policies. This is because the Government would need more influence over exploration, development, and production activities. The current UK fiscal policy would enable the Government to have more control and manage its oil and gas resources through the concession system. In this regard, the UK had its own concession model that was, in fact, a modified version of the traditional concession concept. This model has often referred to as 'the North Sea Model'. The North Sea Model allowed private and international oil and gas companies to be granted licenses to participate in exploration, development, and production activities and to be regulated under royalties and special taxation to be paid in addition to ordinary company taxes. In other words it accommodates private interests under public control.

5. CONTRACTUAL SYSTEM

Under this system the government, through a government-owned oil and gas company, plays an active role in development and production activities, while the contractor acts as an operator, carrying out exploration activities at his own risk. If petroleum reserves are found and production occurs, then the contractor is entitled to recover all or a portion of the exploration and development costs, otherwise the contractor will not be able to recover any of the exploration costs. Usually, under the contractual system, a kind of joint management group is made up of representatives from the contractor's side, the government's side, and from the government-owned company. The contractor is normally required to submit an annual work programme, or 'plan', and a budget to the joint management group for review and approval. The joint management group generally makes

⁴ For discussion regarding the Indonesian case, see [1] and [5].

all major decisions regarding the management of the project, including approval of all major expenditure; evaluation of results of exploration; planning and drilling of wells; and determination of the commerciality of drilling results.

Production Sharing Contracts (PSCs)

This section describes the main elements of production sharing contracts. It covers the following main points: definition, bonuses, royalties, cost recovery, and commerciality of discovery.

Indonesia was the pioneer of PSCs, and the Independent Indonesian American Petroleum Company (IIAPC) signed the first Indonesian production sharing contract in 1966 for exploration of 14,000,000 acres offshore of northwest Java. A discovery was made in August 1970, while production started in 1971. The Indonesian PSCs are the standard of comparison for all PSCs.⁵ Machmud [2] defines the production sharing contract as:

“...a contract for cooperation between a National Oil Company (NOC) and a foreign or international oil company for a period of 20-30 years.” (p.37)

This definition refers to the two sides of the oil and gas operations agreement and the period of this agreement, though it does not illustrate the rest of the contract's terms and conditions.

In the case of PSCs, the international oil and gas company bears all the pre-production risks and, when a commercial production from the contract area starts, is entitled to recover its costs plus a share of production, or 'profit oil', according to a predetermined proportion. However, if the contractor cannot find oil and gas in commercial quantities within the contract period then the contract will finish unless an extension is granted. If commercial petroleum is found then the host government owns the resources and the national oil company (NOC) joins the international oil and gas company in carrying out development and production of oil and gas activities. The main feature of the production sharing contracts is that the state owns the resources, while the contractor receives a share of the production for his services.

The contractor may have to pay to the host government, under the PSC and concessionary systems, an up-front bonus for signing the agreements. Such bonuses are referred to as a 'signing' or 'signature bonuses'. These bonuses are significant tools that motivate the minerals' owner to sign a lease with a contractor, and their value depends mainly on the expectation of discovering minerals and on the distribution of knowledge between the two sides of a negotiation. In this regard, Noreng [6] states:

“The more governments understand about the energy market and the operations, motivations and calculations of the energy industry, the greater their chances of imposing their points of view on the companies.” (p.21)

Moreover, the government may receive 'production bonuses' when production reaches an agreed level, and in

some cases may also receive 'exploration bonuses'. These bonuses may not be recovered, for tax purposes, by the international oil and gas company as a part of its operating costs. Under the production sharing contracts system, the contractor still has to pay royalties to the government, which range from zero to 15 per cent or higher. Some PSCs contain a sliding scale for royalties, taxes, and various other items. These provide smaller royalty amounts when production is lower, and increase when production increases. Production levels on sliding scales should be carefully chosen; as if rates are too high then the system does not, effectively, have a flexible sliding scale.

The PSC should specify the cost, which could be recoverable, and the order of recoverability. It should also specify any limits on recoverability,⁶ and whether costs not recovered in one period can be forwarded to subsequent periods. However, there are few exceptions to the standard cost recovery rule. Some contracts do not have a limit on cost recovery (the second generation of the Indonesian PSCs), whereas other PSCs have no cost recovery at all (1971 and 1978 Peruvian model contracts). Furthermore, some PSCs put a ceiling on cost recovery and out of a total agreed percentage of cost recovery the international oil and gas company recovers a specified percentage and the remainder goes to the host government (the Egyptian and the Syrian PSCs).⁷ Oil and/or gas that the international oil and gas company use to recover its costs is referred to as 'cost oil', while the remaining oil after deducting royalties, taxes, and cost recovery is referred to as 'profit oil'. Profit oil is shared between the parties based on the terms and conditions in the contract.

The decision as to commerciality is an important aspect of international exploration. Such a decision means that the contractor will recover all or part of his exploration costs which are of considerable value. On the other hand, the government looks at these costs as a liability. However, in some cases the contractor, according to the fiscal regime terms and conditions, is allowed to decide the commerciality. Then the contractor is required to prove that developing the discovery will generate profits for parties, the government and the contractor.

The initial forms of PSCs tried to prevent problems related to levying taxes by having them paid by the national oil and gas company. It was not necessary for the state-owned oil and gas company to decide the contractor's costs or even output prices. Each party to the agreement had the right to market its own oil and set the price as it pleased. However, in the early 1970s when oil and gas prices increased, oil- and gas-producing governments wanted to increase their revenues, or 'take'. Hence, they required renegotiation of the old PSC terms and set new conditions for new PSCs to enable them to gain a greater share of the net profits.

To sum up, the main elements of a production sharing contract are duration of operations; royalties; cost recovery; taxation; commerciality; and profit oil split. These are among the essential points that should be

⁵ For a sample of Indonesian PSCs, see Appendix in [5] pp. 337-363.

⁶ Cost recovery limit or "cost recovery ceiling" typically ranges from 30 to 60 per cent [7] p. 56.

⁷ If the ceiling is 45 per cent on cost recovery, the company, for example, is entitled to recover 65 per cent out of the 45 per cent, while the 35 per cent goes to the government.

covered when a fiscal regime is negotiated and designed based on PSC. It is still important to say that PSCs allow host governments to place higher claims on the economic rent of oil companies than the concession does.

Service Contracts

Service contracts can be divided into risk service contracts and non-risk service contracts. In a non-risk service contract the international oil and gas company provides the host country with services in the form of exploration, development and production activities. The host government pays a fee for these services to the contractor, and these fees cover all costs. The motivation for oil producing countries to use such contracts is because of the limited technical capacity available to them. They tend to hire the services of international oil and gas companies that have appropriate skills and equipment, e.g., Argentinean and Brazilian service contracts.

Under risk service contracts the international oil and gas company bears all of the costs and risks associated with exploration, development and production activities. In the case of production, the contractor is entitled to recover his costs once the product is sold, and fees are paid by the host government for his services. In other words, the contractor's revenues after taxes are based on a pre-agreed formula for sharing of revenues with the host government, that is, if the operations are successful.

The main differences between PSCs and service contracts lie in the types of contractor revenue. Under service contracts the contractor might receive his take in cash or crude oil, while under PSCs the contractor receives his share only in kind, not in cash. Under the former, if the production stage were reached then the contractor would be entitled to recover all his spent costs.

Based on the above discussion it can be said that different types of oil and gas agreement, and different types of minerals governance, might suit different producing countries. The adoption of any of the agreement types and the forms of minerals governance depend mainly on different issues such as the geological and geographical nature of the country, the level of accumulated experience in the oil and gas industry available to the country, and its government's aims of developing its mineral resources.

In practice, when negotiating terms and conditions of oil and gas agreements, oil and gas companies' objectives are:

1. To maximise wealth, which can happen by finding and producing oil and gas reserves at the lowest possible costs and highest possible profit margin;
2. To create a condition of long-term stability for themselves.

On the other hand, the government's objectives are to maximise rent from its resources, control them, make an increased claim on oil companies' economic rent, and increase its experience in the oil and gas business – all of which provide the country with the ability to participate in the oil and gas operations. For a government to achieve its objectives there should be a combination of fiscal arrangements. For example, royalty payments guarantee early revenues for the host government whereas resource rent taxes can play a role in maximising the overall state

take. At the same time, such taxes do not play a negative role in attracting oil and gas companies to explore and develop new fields. In other words, governments can achieve their objectives by adopting a proprietorial type of minerals' governance.

At this point, it can be stated that the different types of oil and gas agreements used by host governments represents only different tools for collecting rent. But the more important tool in maximising this rent is the type of mineral resources governance that a government may adopt and use. The next sections will shed lights on the concept of rent and on the governance of mineral resources.

6. ECONOMIC RENT

Economic rent is defined as “the income received by the owner of a factor of production over and above the amount required to induce that owner to offer the factor for use”, [8] p.402. However, there are a variety of definitions for economic rent, and most of them show an inconsistent understanding of the concept. This section outlines a number of views on the concepts of rent and economic rent, and how they apply to the oil and gas industry in general. It starts by outlining the Ricardian rent theory.

Ricardo [9] stated:

“Rent is that portion of the produce of the earth which is paid to the landlord for the use of the original and indestructible powers of the soil. It is often, however, confounded with the interest and profit of capital, and, in popular language, the term is applied to whatever is annually paid by a farmer to his landlord.” (p.33)

He added,

“In the future pages of this work, then whenever I speak of the rent of land, I wish to be understood as speaking of that compensation which is paid to the owner of land for the use of its original and indestructible powers.” (p.33)

Thus, according to Ricardo's definition, rent is what a landlord receives for the use of his land by another party. It would be a portion of the produce of the land. This becomes clearer as Ricardo [9] makes a link between the produce of land and profit from capital. If the investor cannot make profit out of capital, then he would not pay any share or dividends to his trade partners or shareholders. Therefore, the tenant would not be willing to pay rent to his landlord unless the land produced. Furthermore, the Ricardian rent theory is based on the idea of the existence of land of differential richness and capacity for production. For an investor, or 'farmer', to gain access to a land he should expect to pay a high rent for the best land and less for the poorer land. The difference in rent between the average quality land and the richer land is the Ricardian rent, or 'economic rent'. From this presentation the difference between rent and economic rent can be illustrated. Rent is the payment required to keep a factor in its current use, whilst any payment of excess of that needed to keep a particular factor in its current use, whether that factor be land, labour or capital, is referred to as economic rent.

The Ricardian theory can be applied to oil and gas resources. Oil in ground differs from one reserve to another in terms of quantities, qualities, and extraction costs. Different qualities of oil have different prices, and in general the larger an oil reserve is, the lower the unit cost and the greater the profit. This means that oil reserves of the best quality, with lower costs, and producing larger quantities are expected to yield higher rent in terms of royalties, bonuses, and allow for claims on oil companies' economic rent in the form of other taxes. In this regard, governments try to impose new taxes or increase rates of existing taxes when oil prices increase and these rates stay high for a long time so as to capture more economic rent from their oil resources. However, in the case of oil and gas industry, production is not a necessary condition for collecting rent since this can be collected before production starts. Signature and exploration bonuses are good examples.

Johnston [7] defines economic rent as:

"The difference between the value of production and the costs to extract it. These costs consist of normal exploration, development, and operating costs as well as an appropriate share of profit for the petroleum industry. Rent is the surplus. Economic rent is synonymous with excess profits. Governments attempt to capture as much economic rent as possible through various levies, taxes, royalties, and bonuses." (p.6)

This definition illustrates the technique of calculating rent from the oil and gas industry point of view. Moreover, according to Johnston's definition, and from the oil industry point of view, rent is the share of oil that is considered as 'profit oil'. On the government's side, rent is what is annually extracted from the oil industry for using its land or sea, or 'government take'. The government might receive the rent in different forms of taxes and bonuses, beside its share of the oil. Johnston's definition does not set production as a necessary condition for paying rent as it could be paid even in case of nil production. Up-front bonuses, clearly, represent this case.

The above definition considers the accounting profit of oil companies as economic rent: "The difference between the value of production and the costs to extract it". From the government side, it makes no difference between collecting rent and making claim against the economic rent "Governments attempt to capture as much economic rent as possible through various levies, taxes, royalties, and bonuses". The definition treats every element of a government's take as being part of that government's economic rent. This, in fact, is inaccurate claim because while bonuses and royalties are the necessary payments for granting access to a land or sea and represent the government rent, taxes and in particular special petroleum taxes, like Petroleum Revenue Tax in the UK, represent a government claim on economic rent occurs to the oil industry in the form of excess profit. When oil and gas companies make excess profit, because of an increase in oil prices and/or a decrease in operating costs, a host government tries to make claims on this excess profit, or 'economic rent', via different special taxes.

Rowland and Hann [10] maintain that economic rent which occurs to oil and gas company is the net present value of its investments. In this context, Rowland and Hann [10] state:

"The economic worth of a licence to produce oil from a tract of the UKCS sea bed may be measured by the present value of the flow of future revenues from that tract's production less the present value of the flow of associated future costs, where the costs include monetary items such as equipment as well as non-monetary items such as exposure to risks. The difference between these two amounts, the net present value (NPV), is the economic rent of that tract." (p.4)

This opinion is not very accurate and does not make difference between normal rent and economic rent since the net present value of a project represents the financial reward for undertaking a project. This reward may be in the sort of normal profit, in this case it represents the rent occurs from such a project. It may also contain excess profit, compared with similar project, which represent economic rent in such case.

Kemp and Stephens [11] see that economic rent arises after an oil and gas company recovers its costs of production, development and finding. In other words, oil companies collect economic rents exactly after the break-even point.⁸ This is not very accurate, since after an oil company recovers its costs, it starts to collect rent in the form of normal profit, but if investment and market conditions allow this company to make excess profit then it can be said that this company collects economic rent which a host government may make claim on via different special taxes.

Consistent with Kemp and Stephens [11] the Governments target this economic rent by levying different taxes, like Petroleum Revenue Tax (PRT) in the UK, while other duties are not levied on this economic rent, like royalties and Supplementary Petroleum Duty (SPD) in the UK.

This concept of economic rent represents the oil industry's view because it makes recovering exploration, development and production costs a necessary condition to collect economic rent. Kemp and Stephen [11] add that economic rent at development stage can be measured by the net present value (NPV) at the investor's discount rate. However, governments might start collecting rent even before production starts. This could be affected by imposing signature and/or exploration bonuses on oil companies.

Mommer [13] distinguishes between two types of rent, namely, customary ground rent, and differential or Ricardian rent. The next sections illustrate the meaning of these two concepts in some detail.

Customary Ground Rent

This type of rent represents the necessary payments to the landlord for using his land. The landlord could collect this kind of rent at two stages. The first represents the minimum that the landlord would accept for the use of his

⁸ Break-even point represents the level of sale at which profit is zero. In other words, where total sales revenues equals total expenses or at the point where total contribution margin equals total fixed expenses [12] p. 272.

land and could be in the form of signature bonuses⁹ and surface rental. The second is collected when production starts, and it could be a portion of production or a fixed amount to be paid over regular periods of time, or 'royalties'.

Differential or Ricardian Rents

Mommer [13] considers that the extra payments to the landlord for using his property represent this type of rent:

"There are always some parcels of land becoming available that may command higher ground rents or profits than usual. These excess rents are generally called economic rents... more specifically, when these economic rents result from the exceptional richness and fertility of nature, they are called differential, or Ricardian, rents." (p.13)

From the above, it can be seen that Mommer's concept of customary ground rent match the meaning of rent, whilst the concept of differential rent match the meaning of economic rent.

7. DEVELOPMENTAL CONCEPTUALISATION

Based on the above, it can be seen that the concept of rent is, to some extent, confusing and not easily recognized or understood, especially when looking at the meanings of the concept from different schools of thought. The Ricardian concept, historically, is the first, and might be considered as a raw material for the later meanings and understandings of the economic rent concept. This raw material has been developed and shaped over time to fit different aspects of economic life. The concept was originally applied to agriculture, particularly in growing corn in the UK, and it was then applied to other economic activities in different industries such as oil and gas. Different schools of thought add more meanings and difficulties in developing the concept.

Matching the concept of economic rent to the oil and gas industry is a useful process, because it shows and classifies the targets of a host party (state or private) in regard to the tenant's outputs. This is because the host government or the private minerals' owner may target the tenant's gross revenues and/or the net profits via different types of oil and gas agreements, or different taxes and levies. This is based on the type of governance of mineral resources first and second on the understanding and adoption of a particular meaning of the concept of economic rent by the host party. In this regard, there are different views about the classification of the form of the host party's revenues, or 'take', throughout the life of an oil and gas project.

Oil companies' rent is represented in the net profit after deducting all types of expenses and paying for government's duties and taxes, in other words it is the 'profit oil'. Oil companies may collect economic rent when investment conditions help so, for example when oil prices substantially increase and/or operating costs decrease. These conditions help oil companies to enjoy

excess profit. Also when a government relax its petroleum fiscal regime severely oil companies enjoy super profit by saving on tax payments. Host government's rent from its petroleum resources is represented by the total extractions from oil companies. These extractions may start at the point of signing an oil and gas agreement with an oil company, and continue over the different stages of oil investment and production in the form of different duties, levies and taxes. The government rent in this meaning can be classified in two types. The first represents the necessary payments for granting access to an oil and gas contractor, or 'customary ground rent', and production is not a condition for collecting this type of rent. The second is based on the contractors' profit, and production is a necessary condition for collecting this type of rent since no profit can be generated without petroleum production. When oil companies collect economic rent benefiting from exceptional conditions, host governments make claim on this economic rent in form of different special petroleum taxes, for example the PRT in the UK. These special taxes try to capture, via their high rates, as much as possible of the economic rent occurs to oil companies.

The question that could arise here is: how will the landlord behave in charging the tenant for access to his land? In order to answer this question and according to Mommer [13], it is worth recognizing two possible types of governance of mineral resources, namely proprietorial and non-proprietorial. This distribution will be the focus of the next section.

Proprietorial vs. Non-Proprietorial Conceptualisation

i. Proprietorial

Under this type of governance access to a lands/sea is only granted if expected profits and fiscal revenues are considered satisfactory by both investors and mineral resources owners. The main concern of the proprietorial regime is not to allow a free access to his lands/sea. This is to prevent a unit of production being lifted without paying ground rent. Different devices for collecting ground rent may be used to secure higher take at different levels of the investment process. Those could be higher royalty rates, higher income taxes, and maybe excess-profit taxes.

Production sharing contracts (PSC) allow the mineral owner to capture higher rent, in accordance with the proprietorial regime, than the concession does. If the minerals owner wants to capture more of the profit of an oil company the option is to change the landlord-tenant relationship by using service contracts rather than PSC. In short, the proprietorial regime focuses on maximising ground rent by collecting both customary ground rent and Ricardian rent.

The proprietor could be one of two entities: (a) an individual landlord, or 'private owner'. A good example of this case is the United States of America where individuals can possess oil and gas reserves; and (b) the state, or 'public owner', as in the case of other producing oil and gas countries.¹⁰ The individual proprietor grants

⁹ These are sums of money paid by the contractor to the host government upon signing a PSC and known as 'signing' or 'signature' bonuses [4] p. 587.

¹⁰ Public ownership of mineral resources is very common. Mining in general, and deeper mining in particular, requires a significant amount of capital and technical knowledge. Public mineral ownership offers greater possibility and flexibility in dealing with the tenant company than private

his tenant access to his land or sea for a customary ground rent, which will be in form of royalties and, sometimes, up-front bonuses. In this case, the proprietor would not care about his tenant's profits or, in fact, whether his tenant makes profits from his activities or not. The key issue for the proprietor is to secure the customary ground rent for access to his land. In some cases the ground rent could be a fixed sum or set at an increase percentage of the production and, again, for the proprietor it does not matter whether the tenant generates profit or not, as long as he obtains his share of the tenant's production. Moreover, the proprietor might ask for production bonuses. In the case where the proprietor is the government, or 'the state', here the tenant would expect to pay his landlord the rent in forms of customary ground rent i.e., royalties and bonuses, and income taxes. In the case where the proprietor is an individual, a group or a company, the tenant might still have to pay profit taxes to the state, but not to his landlord, in addition to the customary ground rent. Based on the above, the proprietor focuses on receiving the customary ground rent and goes further to target the tenant's production and profits, Mommer [13]. In this regard and in reviewing Mommer's book, Professor Wälde [14] from Dundee University states:

"A Proprietary model where the regime (consisting of mineral title rules, licensing rules and commercial practices to get access to mineral resources) focuses on the right of the owners of the resources to dispose of the resources as they see fit and allows them to extract maximum payment for access." (p.2)

The proprietary type of minerals' governance grants the landlord a bigger share of the mineral resources than the non-proprietary. Theoretically, a proprietary regime does not necessarily or automatically result in higher share – it is simply that, in its pure form, whilst the landlord does not agree to vary his take according to the tenant's economic performance under a proprietary regime, he actually does under a non-proprietary regime.

ii. Non-Proprietary

The central criterion here is the profitability of investment, since this fiscal regime is based on excess profit taxation. In this type of governance, there is no place for a customary ground rent. But it is not unreasonable to expect high excess profit tax rates to suffer the same fate as high income tax rates and to settle, in the long run, at relatively modest effective levels. Non-proprietary regimes are found in countries using concession type of agreement. Overall, non-proprietary fiscal regimes are not very efficient at collecting rent, this follows that bonuses are rarely used in this regime.

According to this type of governance, the landlord, or 'the state', will grant his tenant, or 'the oil and gas company', access to his land and/or sea for free (or free in practice) and his target will be the tenant's economic rent. Of course, access is granted through a 'licensing agency', which regulates the process of granting licences to the

tenants according to certain conditions set by the agency itself. The landlord's aim of allowing free access to his land might be to attract tenants to invest, to benefit the private investor and the consumer of the natural resources as being a free gift of nature and at the same time develop marginal resources that could exist in this land or sea.

To sum up, in the case of a proprietary regime, the proprietor first of all targets the pre production stage. His income, or 'rent', at this stage could be in the form of ground rent and up-front bonuses. Then if the area promises big exploration and production, he will claim more rent in the form of exploration bonuses. When production starts, he will receive his share in the form of royalties, production bonuses and taxes to be paid to the government if the proprietor is a private owner. In the case that the tenant would generate differential profits or economic rent, the proprietor will target this economic rent and make claims against it, via high royalties or special taxes collected on a sliding scale, in order to capture extra rent.

In the case of a non-proprietary regime, the focus of the minerals' owner will be on the excess profit; also he will target the normal profits. The attitude of the non-proprietary regime is that natural resources are a free gift of nature. In reality the landlord might choose the non-proprietary type of mineral governance to serve other purposes. These purposes could be social aims, or the state might intend, by adopting this type of minerals governance, to develop marginal resources.

Developing marginal resources that do not even promise profits to the tenant and consequently to the state or resources which may provide very small profits seems to be worthless. The state may still want these resources to be developed and extracted. The government aims from developing such resources could be to secure a greater supply of natural resources for domestic consumption, and/or to decrease unemployment. Therefore, the government may reduce the tax rates on production from these areas, adopting a non-proprietary type of governance, to create incentives for oil companies to extract these marginal resources. In this case, oil and gas companies may benefit from developing and extracting such resources and recover some of their spent costs.

8. CONCLUSION

Based on the above discussion of the behaviour of proprietary and non-proprietary, and the description of different types of oil and gas agreement, it can be argued that the non-proprietary form of minerals' governance suits governments which do not have enough experience in the field of oil and gas industry and aim, besides developing probable and possible existing reserves, to develop different aspects of the country's economic life. Generally speaking, this form of mineral resources' governance suits countries that use the old concession concept of agreements. However, when countries gain more experience, financial ability and self-confidence in developing their mineral resources by themselves, they change their form of control to proprietary which focuses on granting the mineral's owner more shares of the minerals e.g., the Indonesian case. The proprietary form of governance exists in governments and individuals using

ownership does. Furthermore, public mineral ownership does not face the problem of fragmentation, which is major problem for private land, or 'minerals', ownership [13], p.95.

a new form of the concession concept or a contractual system.

		OWNERSHIP			
		PRIVATE		STATE	
G O V E R N A N C E	PROPRIETORIAL	ROYALTY EXPLORATION & PRODUCTION BONUSES		ROYALTY EXPLORATION & PRODUCTION BONUSES + TAXES	
	NON-PROPRIETORIAL				TARGETS PROFITS OR CASH FLOW

Fig. 1. The ownership and governance of the natural resources (Author's Own).

Note: the figure shows that a non-proproprietary regime does not exist under private ownership because the private owner would not allow free access to his territories, and focuses only on maximizing rent. This is because usually individuals possess smaller pieces of land compared with governments and do not focus on social aims like governments, for example increasing domestic supply. Under the state's ownership, both proprietary and non-proproprietary regimes do exist because governments may have both commercial and social aims of developing their mineral resources.

A government may adopt a proprietary type of mineral governance while using either a concession or a contractual system, and the same can be said about adopting a non-proproprietary regime. Production sharing contracts (PSC) allow the minerals owner to capture higher rent, in accordance with the proprietary regime, than the concession does. If the minerals owner wants to capture more of the profit of an oil company the option is to change the landlord-tenant relationship by using service contracts rather than PSC. In short, the proprietary regime focuses on maximising ground rent by collecting both customary ground rent and Ricardian rent.

Oil and gas producing parties, states or private, as owners of mineral resources, 'proprietary and/or non-proproprietary', have the right to set out terms and conditions for access to their resources, and negotiation is the best method to resolve conflicts over sovereign rights. The type of ownership (government or private) of natural resources has never been important in setting out such terms and conditions, while the type of governance of these resources plays an important role in developing such terms and conditions. This is because the type of minerals' governance shapes these terms, which might be very strict under the proprietary regime and less strict under the non-proproprietary regime. This is because the proprietary regime focuses on capturing higher rent from the contractor than the non-proproprietary does. Also because while under a non-proproprietary regime the contractor may obtain free access to a host government's land and/or sea, access to proprietary land and/or sea is not free. Based on this, in the case of state ownership of mineral resources, the terms of an oil and gas contract would be strict or very strict under the proprietary type of governance, whilst they would be less strict under the non-proproprietary type of control.

Last, but not least, the non-proproprietary type of minerals' governance is not the perfect choice for governments because they would not gain all possible advantages of their mineral resources under this type of governance. In this regard Mommer [13] states:

"A few years will probably be enough to show the heavy losses in fiscal revenues that non-proproprietary governance will entail for exporting countries. Lessons may be learned in the future, but at what price?" (p.35)

However, the above discussion cannot be generalised on every case, and Mommer's statement might not be true in all circumstances. A country might, by adopting the non-proproprietary type of governance, achieve a number of economic goals. For example, a government may use such a type of minerals' governance with the purpose of developing marginal resources. In this case the government might possibly sacrifice financial revenues from these marginal resources. At the same time it might succeed in solving social problems such as unemployment, and also perhaps in increasing supply of mineral resources for local consumption.

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