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A COMPARATIVE ANALYSIS OF OIL PRODUCTION SECTORS IN SAUDI ARABIA AND THE UNITED ARAB EMIRATES

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Abstract

This article applies a comparative approach to the oil sector governance in two petroleum-rich countries in the Middle East: Saudi Arabia and the United Arab Emirates (UAE). More explicitly, it examines the factors which best explain variation in the strategies they have been pursuing in the upstream sector since the establishment of their national oil companies (NOCs). By drawing on the expropriation/ privatization literature in the field of Energy Studies, this paper proposes a theoretical framework to analyze the logics behind different forms of exploration and production strategies in the petroleum sector. Theoretically, this research aims at advancing an analytical toolkit to better address and understand the actual determinants of the decision-making process in the upstream. Empirically, the model is tested on the divergent cases of Saudi Arabia and the UAE, and a number of lessons are drawn. Ultimately, this paper should raise awareness among scholars and policy-makers alike about the little knowledge we have on the domestic mechanisms driving the upstream strategies in oil producer states.

"The area we have been considering [the Middle East] will be the most important oil producing region in the world within the next score of years. The center of gravity of world oil production is shifting from the Gulf-Caribbean area to the Middle East – to the Persian Gulf area, and is likely to shift until it is firmly established in that area". Everette Lee DeGolyer (1944)[1]

I. All the Way Down Into the Upstream…

DeGolyer's prophecy was correct. Almost 60% of the world's proven oil reserves are currently located in the Middle East (BP 2009, 6). The oil industry has undergone major changes in the last 150 years culminating with the emergence of a "new energy paradigm" (Helm 2005, 2007) in the early 2000s. Increasing global energy demand and shrinking oil production from OECD basins have inevitably led to rising oil prices and greater import dependency on the Middle East resources. The center of gravity of world oil production has moved to the Middle East. The prominence of the region in the global energy system is by now indisputable.[2]

The strategies applied by the Middle East oil producer countries in the petroleum sector and in particular, the upstream, have by no means been homogenous across the region – in fact, quite the contrary. The upstream activities, also known as exploration and production (E & P) [3], represent the decisive stage within the petroleum value chain as they determine both pricing and volume of the crude oil available on the market in the short to long term. The petroleum oilfields are evaluated and developed, and if reserves are proven commercial, crude oil starts being produced. The value chain[4] starts with the identification of suitable areas to conduct exploration for oil. After initial exploration upstream sector is of primary importance to the oil producer states as it supplies them with high leverage over global oil markets[5] and will build the research focus of this work.

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[1] Quoted in Yergin 1992, 393.
About DeGolyer, Daniel Yergin wrote: "No man more singularly embodied the American oil industry and its far-flung development in the first half of the twentieth century than DeGolyer. Geologist – the most eminent of his day – entrepreneur, innovator, scholar, he had touched almost every aspect of significance in the industry." (Yergin 1992, 392)

[2] Among the countries with the largest proven oil reserves worldwide, Saudi Arabia ranks top with 21% of the world's oil reserves, Iran has 10.9%, Kuwait 8.1%, and the United Arab Emirates 7.8% (BP 2009, 6f.).

[3] The description of the petroleum value chain is based on conventional oil, which constitutes the focus of this research work. Oil upstream services can include a number of auxiliary activities in the E&P process such as seismic surveys, well drilling, equipment supply, or engineering projects. Alternative sources such as oil sands or shale oil require different extraction processes and thus, a different upstream sector configuration.

[4] The value chain analysis, as discussed by Porter (1985), addresses the sequence of consecutive activities which are required to bring a product or service from conception and procurement, through the different phases of production and distribution, to the final customer (Porter 1985, 46 ff.).

[5] By comparison, the *midstream* sector implies storing and transporting commodities. Infrastructure such as transport (pipelines, access to roads, rails and ports etc.) and storage are critical at various stages in the value chain, including the links between production and processing facilities, and also between processing and final customers. In turn, the

Control structures over the oil upstream sector, or in other words, E & P strategies in the petroleum industry include decisions over exploration of potential oilfields, development of new oilfields, crude oil production volumes, and oil revenue shares. Since data on the former two elements is not accessible at this point, within the scope of this paper, upstream control is confined to production volumes and profit shares with reference to the regulatory frames. More explicitly, upstream control accounts for the operating contribution in terms of oil production volume (% of total production per country) by ownership type, which – depending on the type of legal structure in place[6] – can be taken as a proxy for the percentage of profit shares between host governments and foreign companies. This will arguably provide a graspable and at the same time, reliable image of the different E & P strategies pursued by some of the Middle East oil producer countries throughout time.

In Iran and Kuwait, over the last ten years the upstream oil has been completely under state control. The operators in the Iranian upstream sector are the National Iranian Oil Company (NIOC) and several international oil companies (IOCs) such as Shell, Total, JJI S&N etc. Noteworthy, IOCs work exclusively under 'buy-back contracts'[7] or 'risk service contracts'[8], which decline any control over production quotas, costs, pricing, let alone profit sharing. In short, the Iranian state retains 100% control over the upstream (EIA 2010a, 3f.). Similarly, Kuwait via its executive arm, the national oil company (NOC) called Kuwaiti Petroleum Company (KPC) with two subsidiaries, Kuwait Oil Company (KOC) and Kuwait Gulf Oil Company (KGOC), controls 100% of the upstream while foreign companies like BP, Chevron, Total, ExxonMobil, Shell etc. are allowed to enter only into 'operating contracts'[9] (EIA 2010b, 2ff.). By comparison, Saudi Arabia's E & P activities are overwhelmingly controlled by the state (98%) through the NOC, Saudi Aramco, whereas Chevron is granted upstream control only over Saudi-Kuwaiti Neutral

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downstream stands for oil refining and processing, which are required to turn the extracted hydrocarbons into usable products such as gasoline, diesel, jet fuel, heating oil, asphalt, lubricants, synthetic rubber, plastics, fertilizers etc. The downstream sector includes oil refineries, petrochemical plants, petroleum products distributors and retail outlets, and is also referred to as the refining and marketing (R&M) stage in the oil supply chain. (Petroleum Services Association of Canada 2010, http://www.psac.ca/industry-info/101-what-is-the-upstream-oil-a-gas-industry, status: 13.10.2010)

[6] More explicitly, in the presence of *production-sharing agreements*/ *contract*s (not though, in the presence of *buy-back contracts*, *risk service contracts* or *operating contracts*), percentage of oil production can be considered a proxy for percentage of profit shares. Please see definitions of these legal structures below.

[7] A *buy-back contract* means that contractors – in this case, IOCs – fund all investments; however, they do not have any ownership or control rights and are compensated by the national oil company (NOC) at a fixed rate of return (usually around 15-18%). The NOC bears all the risk of low prices and contractors must transfer operation of the field to the NOC at the end of contract. (Bressand 2010, 155)

[8] A *risk service contract*, also known as an *operating contract*, is a contract under which the resource owner – in this case, the oil producer state – pays a service enterprise for specific services (outsourcing). Bressand (2010, 130) points out that initially such contracts were mainly used to support work-over of existing producing fields. Yet with the rise of resource nationalism and national legal frameworks which interdicted foreign control in the upstream, the scope of this contract has been adapted to cover the entire range of exploration, production, and development activities. See more on this in Nolan (2010, 14).

[9] Please see footnote 8 above.

Zone. Several IOCs in Saudi Arabia have been operating under 'risk service contracts', yet Chevron has been working under a 'production-sharing agreement'[10] (EIA 2009a, 2-5).

In the United Arab Emirates (UAE), the situation looks quite different. Engaging both NOCs and IOCs, the upstream in the UAE[11] is handled on a 'production-sharing basis' between the state-owned company, the Abu Dhabi National Oil Company (ADNOC), and several key major foreign investors, namely BP, Petrofac, ExxonMobil, Total, Occidental, JODCO, Shell (EIA 2009b, 1ff.). ADNOC, operating 17 subsidiaries in the oil production sector, holds a majority share (60%) in the upstream consortia while the IOCs take up the rest of 40%. Similarly, in Qatar, the eleventh largest oil producer in OPEC, the upstream is controlled under a 'production-sharing agreement' between the NOC (65%) called Qatar Petroleum (QP), and IOCs (35%), i.e. Total, Mitsui, Mobil etc. (EIA 2009c, 2f.) As for Oman, in the framework of a 'production-sharing agreement', IOCs actually control a slightly larger share of the upstream sector than the government with the state retaining just 40% of the upstream control (EIA 2009d, 2f.).

While Iran, Kuwait, and (more or less) Saudi Arabia have a fully state-controlled upstream sector, the UAE, Qatar and Oman allow foreign investors to both control oil production and share profit with the host government (operating via its NOC on the ground). To put it differently, the former have been pursuing a closed or quite closed (e.g. Saudi Arabia) E & P strategy whereas the latter have embarked on a comparatively more liberalized one. Clearly, none of these Middle East oil producer states has opened up the upstream sector completely. However, there is strong variation among them with regards to the strategy pursued in the upstream.[12]

From an *economic* point of view, energy sector liberalization would be the rational response to the challenges of the 21st century in oil producer countries. While the state has been loosening its grip on almost every sector of world economic activity, this seems not to be the case in the hydrocarbons

[10] A *production-sharing contract* or *agreement* (PSC/ PSA) allocates revenue first to cost recovery, also called cost oil, for the contractor – the IOC in this case – and only the remainder to profit, which is shared between the contractor and the government. From the government's standpoint, one of the issues with this type of legal structure is that the timing of government receipts must wait until cost recovery is completed, which can be politically unacceptable. (Bressand 2010, 140)

[11] The focus in this PhD proposal will lie on Abu Dhabi as this is the industrial center and by far the richest in proven oil reserves among the seven emirates (BP 2009, 6f.).

[12] The situation presented here is representative of the past ten years. Based on data from IHS Global Insight and the U.S. Energy Information Agency (EIA), neither the regulatory framework nor the actual E & P strategies have changed significantly in these countries since the beginning of 2000s. Based on EIA data, there are only minor variations in the percentages of oil production by NOCs vs. IOCs.

sector. State-owned oil companies retain firm control over the vast majority of world's petroleum reserves. It has been shown that privatization in the energy sector offers greater long-term prospects for economic growth (Henisz and Zelner 2001, Henisz et al. 2005) whereas state control is more likely to generate corruption and financial mismanagement (Ross 1999, Wantchekon 1999, Wolf 2008, 2009). Yet from a *political* point of view, it is also rational for state leaders in authoritarian regimes to retain state control over the energy production sector as this provides them with easier access to revenues and enhances their ability to stay in power. This way they have the means to meet the interests of their supporters and, at the same time, placate or overpower their opponents (Guriev et al. 2009, Jones Luong and Weinthal 2001, 2006, 2010). Common wisdom holds that public ownership is grounded in the political motives of petroleum states (rather than inherent market failures or financial losses) as state leaders perceive value in the direct control of resource development via a state enterprise (Nolan and Thurber 2010, Wolf 2009).

Given this tension between economic and political rationality and the different decisions made by oil producer countries in their E & P activities, the research question underlying this paper is:

- Why have oil producer countries in the Middle East pursued different strategies in their upstream sector?

This research will embark on an in-depth analysis of two country cases in the Middle East – namely Saudi Arabia and the United Arab Emirates, while focusing on the period since the creation of their NOCs.

Despite its relevance to the global energy security agenda, this question has not been satisfactorily addressed so far. The existing literature looking into the drivers of E & P strategies is clearly underdeveloped. Scholarly efforts have been scant as energy-related topics have generally appealed to the policymaking world rather than the academia. The few existing ownership studies on petroleum industry have analyzed the effects of state versus private ownership in terms of output efficiency and profitability without investigating the motives for one type of ownership and/ or control to the detriment of other/s. (Adolphson et al. 1991, Eller et al. 2007, Victor 2007, Wolf 2008, 2009). On these premises, this paper takes one step back and seeks to identify the factors which explain the openness/ closeness of the Middle East oil producer countries towards foreign participation in the upstream while bearing in

mind the legal structures made available by host governments and thereby, their willingness to share control over crude oil production and profit[13].

The structure of this paper looks as follows: in the *second* section, the existing literature will be reviewed while pointing out potential explanations of E & P strategies. On this basis, a theoretical model will be proposed in the *third* section to explain the variation in upstream strategies in the Middle East region. The *fourth* section lays out the methodology and embarks on a comparative case study analysis of the E & P strategies in Saudi Arabia versus the UAE since the establishment of their NOCs. *Finally*, the conclusions advance the research agenda with new research avenues.

II. Literature Review

The existing literature does not offer a clear set of explanations to the variation in E & P strategies pursued by petroleum-rich countries – more specifically, why some of them are more open while others more (or even totally) closed towards foreign control in the upstream sector. Little research has been done on the topic. Political Science literature on energy-related topics is generally scarce. The field of Energy Studies is dominated by students of other disciplines who have a store of technical knowledge, by economists who have developed a series of instruments and measures, and by practitioners widely engaged in the sector.

Political Science studies that manage to single out determinants of E & P strategies or more broadly, of energy development strategies, stem primarily from the privatization/ expropriation literature. In the following, this set of studies on the energy sector will be critically discussed. Given their shortcomings, it will turn apparent that developing the Political Science approach to the field of Energy Studies is imperative as soon as one abandons the simplistic view in which energy development strategies are exclusively determined by material and technological factors. As a matter of fact, the greatest part of

[13] The empirical puzzle is framed from the standpoint of oil producer states because it is host countries that set up the legal framework in which foreign companies are allowed to operate. The assumption is that there is wide interest and increased competition among foreign companies to access the resources from the Middle East states once the regulatory framework permits foreign control in the upstream.

scholars coming from different disciplines agree in emphasizing how energy development strategies[14] result from the interaction of material and technological considerations with political institutional ones (Boscheck 2007, Clark 1990, Kohl 1982, Lindberg 1977, Lucas 1985, Nolan and Thurber 2010, Prontera 2009). Consequently, an interdisciplinary approach, which factors political considerations into the wider materially-determined context, is not just in order but rather essential in order to capture and explain the variation in E & P strategies.

As a whole, the privatization/ expropriation scholarship is enormous, yet there is limited research specifically on the energy industry (Warshaw 2010, 3; Wolf 2009, 2643). Besides being scarce, the existing scholarship has focused on the impact of ownership effects on production output (i.e. performance and efficiency measures, see Wolf 2008, 4) while leaving the triggering factors of different ownership structures insufficiently addressed.

It is a fact that the primary goal of state leaders is to retain power. In the special case of resource-rich countries, scholars have concurred that the best means to attain this objective is through 'sovereignty maximization' (Guriev et al. 2009, Jones Luong and Weinthal 2001, 2006, 2010, Ross 1999, Wantchekon 1999, Warshaw 2010 etc.). This means that "state leaders in energy-rich states will choose development strategies that enable them to achieve a maximum level of sovereignty over their natural resources without thus threatening their continued rule"; in brief, "all prefer more rather than less sovereignty, which translates into more control over their natural resources" (Jones Luong and Weinthal 2001, 373f.).

There are a number of subordinate reasons underpinning the 'sovereignty maximization' argument. Drawing on Warshaw's (2010, 5f.) comprehensive schematization of such motives, these are primarily fourfold. First, state leaders can expect to derive considerable benefits from expropriating IOCs' assets and setting up a NOC given that the ability to control management decisions at the NOC offers them greater autonomy to pursue favored political goals, such as channeling investment into preferential projects (Guriev et al. 2009, Kobrin 1985, Li 2005, Peltzman 1989). Second, state ownership and control give state leaders and their governments the ability to regulate the oil sector more strictly, gain information on the real costs of oil operations, and avoid principal-agent problems (Rees 1985, Stiglitz

[14] 'Energy development strategies' is an 'umbrella term', also incl. E & P strategies in the petroleum industry.

1987). Third, an oil production sector operated through a NOC enables governments to create employment opportunities for political elites and to develop local commercial and technical capabilities, forward and backward linkages into other sectors of the economy, income redistribution through subsidized prices, and provision of social services to the population (Horn 1995, McPherson 2003, Stevens 2003). Finally, a nationalized and consequently, state-dominated oil production sector can boost up national pride, an argument which leads back to the Resource Nationalism thesis (Bremmer and Johnston 2009, Stevens 2008a, Woodhouse 2006).

While complete state ownership and control over the upstream sector represents the most preferred strategy pursued by state leaders in petroleum-rich countries (Jones Luong and Weinthal 2001, 373; Jones Luong and Weinthal 2006, 256; Nolan and Thurber 2010, 4, 8; Warshaw 2010, 5f.), the empirical reality shows that state leaders cannot always follow it. As discussed, from an economically rational standpoint, oil producer countries would be better off in the long run with a liberalized energy sector. In this sense, the existing empirical literature has shown that private oil companies have significantly outperformed state-owned oil companies (Al-Obaidan and Scully 1991, Eller et al. 2007). Victor (2007) finds that private oil companies are nearly one third better at converting reserves into output, and are likely to generate considerably more revenue per unit of output. Wolf (2009, 2650) also points out that NOCs and, in particular, OPEC NOCs are found to produce a much lower annual percentage of their upstream reserves than the private sector. In contrast to other scholars, he argues that this might be caused by a more conservative depletion policy (deliberate or not), a systematic overestimation of reserves or by a combination of the two, and not necessarily by lower efficiency at state-controlled firms. Nevertheless, he concludes that ownership effects clearly exist in the oil and gas industry and "a political preference for State Oil usually comes at an economic cost" (Wolf 2009, 2651).

Conceptually, ownership structure in the context of mineral wealth is best grasped by Jones Luong and Weinthal (2010, 11) as "a set of relations among multiple claimants to the proceeds (or rents) derived from the exploitation of the natural resource". Ownership needs to be distinguished from control over natural resources. That is, while the state holds the majority of shares – at times, even all of them – in the petroleum sector and thus owns the right to develop the majority or all petroleum deposits ('ownership rights'), private investors can be allowed to participate through contracts that give them major managerial and operational control ('control rights') (Jones Luong and Weinthal 2010, 7).While state ownership has been inevitable in most resource-endowed countries over the course of the 20th

century, it has been accompanied by different degrees of state control (ibid., 7 ff.). This basically shows that the most preferred E & P strategy by oil producer countries, i.e. state-owned and state-controlled upstream sector, cannot be and is not always pursued. There must be a number of factors at play which impinge on the state's decision to retain control over the crude oil exploration and production sector.[15]

II.1. Petroleum Risk and State Capacity

Two of the most powerful constraints affecting a state's decision over control structures in the upstream are the risks associated with the creation of petroleum resources in the sense of both identification and development of petroleum deposits (so-called 'petroleum risk'), and the capacity of the state to take these risks (Nolan and Thurber 2010, 4). While the former stands for the level of technical risks and difficulty involved in the exploration and production of crude oil, the latter accounts for the state's financial and technological capabilities to face these risks (Nolan 2010, 3).

In this line of thought, Ross points out that the oil production volume needs to be seen as "a function of two underlying factors: a country's geological endowment which determines the quantity and quality of petroleum that is available; and the investments made in extracting it, which determine how much will be discovered, and commercially exploited, at any given time" (Ross 2009, 4). The level of petroleum risk or synonymously, the 'easiness' of oil (i.e. technological requirements to explore and extract crude oil) is central to a number of studies looking into the drivers of energy development strategies across oil producer countries (e.g. Kobrin 1985, Nolan 2010, Stevens 2008b, 2008c) and is largely assessed in relation to the technological know-how of the country in question or in turn, its economic capacity to acquire it (Bressand 2010, Jones Luong and Weinthal 2001, 2006, 2010, Nolan 2010).

In a rather technical article, Nolan (2010) and then, in a revised version, Nolan and Thurber (2010) discuss different levels of petroleum risk depending on the degree of uncertainty and the amount of

[15] To be emphasized, this paper only analyzes control rights as this is where the variation is large. After removing the concessions through massive nationalizations in the 1970s, most oil producer states in the Middle East have retained ownership of oil resources (state ownership rights). Foreign companies are granted rights in the upstream, midstream or downstream sector of the oil industry to different degrees. For a detailed history of the petroleum industry, please refer to Parra 2004 or Yergin 1992.

capital investment pertaining to upstream operations at different stages throughout the E & P process. More specifically, 'frontier' operations, meaning both 'new province exploration and development'[16] and 'tertiary recovery'[17], have high levels of petroleum risk. The former element represents potential, yet undiscovered petroleum deposits which are still to be explored and proven commercial. The latter element stands for the aging oilfields which call for large reinvestment projects for their redevelopment. The intermediary phase between 'new province exploration and development' and 'tertiary phase' is known as the 'secondary recovery'. The petroleum risks associated with this stage are comparatively low because oilfields have been already developed, resources have been proven, and knowledge has been gained during the previous stages. All this set of factors reduces the level of uncertainty and technical challenges. In a nutshell, if the industry operates at the 'frontier' – that is, either in the initial stage of 'new province exploration and field development', or in the 'tertiary recovery' phase – the challenges and also the requirements are high. By comparison, if the industry is in the 'secondary recovery' stage of proven/ mature oil fields, the level of petroleum risk is low and thus, the requirements are rather low.[18]

The (petroleum) risks – (state) capabilities model can only partly account for the variation in E & P strategies. According to Nolan's (2010) study, the privatization of the oil production sector in the UK in the early 1980s has cut off a clear rift between the Norwegian vs. British oil production strategies which cannot be fully grasped by the risks vs. capabilities explanation; "for that, other factors internal to Britain's politics during those years must be explored" (Nolan 2010, 21). In the same vein, Nolan and Thurber discovered that petroleum risk (operationalized as 'frontier' exploration and 'water depth') is "not the only factor that influences government decisions on hydrocarbon licensing" (2010, 28). In their regression analysis, they also include the price of oil for the previous five years, for which they could not demonstrate a conclusive effect on states' decision-making in the upstream. Given the low explanatory power of the model, they point out that "there are likely to be a whole host of other idiosyncratic drivers

[16] In case of 'new province exploration and development', petroleum risks are high because the uncertainty related to oil discovery is very high. At this point, capital investments are rather modest. However, once oil is struck and a petroleum field is discovered, evaluation and development follow, which are characterized by high petroleum risk again – this time, due to the demands for large capital investment in the initial field development. Additionally, the development of the initial fields in a new province is replete with technical uncertainties which will determine the final volume of oil which can be extracted. (Nolan 2010, 5ff.)

[17] 'Tertiary recovery' implies significant capital investments due to complex exploration technologies required for extracting the remaining oil. In contrast to 'secondary recovery', this stage, similarly to the other 'frontier' activities, will bring about much more uncertain outcomes. (Nolan 2010, 5ff.)

[18] This categorization is related to the availability of petroleum reserves and the difficulty of exploration, development and extraction depending on the life cycle of the oilfields within the country, at an aggregate level. Undoubtedly, there might be a number of more complex technical assessments of the geological conditions in the oil upstream sector, but they are beyond the scope of this paper.

of state choices, including the characteristics of different political systems" (Nolan and Thurber 2010, 38).

II.2. Political Constraints

Irrespective of labelling (i.e. 'political checks and balances', 'veto players and political preferences', 'political institutions'), political constraints and thereby, political institutions are considered to have a strong impact on the strategies adopted in the energy sector (Bueno de Mesquita and Smith 2009, Guriev et al. 2009, Henisz et al. 2005, Jones Luong and Weinthal 2001, 2006, Li 2005, Warshaw 2010).

Studying the initial formation of energy development strategies in petroleum-rich Soviet successor countries (i.e. Turkmenistan, Uzbekistan, Azerbaijan, Russia and Kazakhstan), Jones Luong and Weinthal (2001, 2010) found out that state leaders chose strategies in such a way that they provided them with sufficient resources on the one hand, to sustain the cleavage structure that offered their main base of support and on the other hand, to placate or overpower rival cleavages that posed a challenge to their rule. They argue that the interaction between two key variables – the availability of alternative revenue sources, which can be seen as a proxy for state capacity in economic terms, and the level of distributional conflict or synonymously, political contestation[19] – is a reliable predictor of the decisions made by those states to develop their vast oil and/ or gas reserves once they either discovered them or received authority over them (Jones Luong and Weinthal 2001, 394; 2010, 301). The level of political contestation over the allocation of political power and dispensation of economic patronage determines the amount of resources that current leaders need in order to keep their hold on power. The more intense the challenge to preserving the existing system (that is, the higher the level of political contestation), the more resources the state leaders' need to retain power (Jones Luong and Weinthal 2006, 256 ff.; 2010, 303).

[19] This is measured by investigating whether "(a) there exists a cleavage structure that could work as a viable alternative to the current basis for dispensing patronage, (b) political parties and/ or social movements based on such an alternative cleavage have emerged and gained popular support, and (c) these parties and movements have in fact made demands for greater resources." (Jones Luong and Weinthal 2001, 374)

Consequently, "one cannot understand this variation [in ownership and control structures] without taking domestic politics seriously. The conventional wisdom that emphasizes the role of international factors has led us to dismiss the ability of state leaders to make conscious decisions, and thereby, to overlook the effect of *domestic* political and economic constraints on their decision-making calculus." (Jones Luong and Weinthal 2010, 300)

Warshaw's (2010) research on the political economy of expropriation and privatization in the oil sector also confirms that state leaders respond rationally to their domestic political constraints. More explicitly, the amount of checks and balances that restrain opportunistic state leaders is an important determinant of whether states decide to nationalize their oil industries (Warshaw 2010, 15 ff.). Drawing on a sample of 49 major oil producer countries from 1965 to 2006, the scholar finds that countries with weaker checks and balances are far more likely to expropriate their oil sector than countries with strong checks and balances because nationalizations and thus, state-owned and state-controlled structures tend to favour narrower particularistic interests (Warshaw 2010, 9ff.)[20]. In fact, proponents of the resource curse thesis as well as its critics concur with regard to the twofold institutions which mineral-rich countries are crucially and typically short of: (1) Those that hamper the ruling elite and/ or chief executive's exclusive reliance on the mineral sector and wasteful spending behaviour; and (2) those that give the government leeway to sound investment projects and economically sustainable plans (Jones Luong and Weinthal 2010, 3). Additionally, Tsebelis' (1995, 2002) argument poses that all things being equal, in case of more veto points with divergent preferences, it is less likely for states to adopt policies expropriating private oil companies and to develop state ownership and state-dominated upstream structures. This is in line with the findings by both Henisz et al. (2005) and Li (2005).

It should be clear at this point that while the impact of geology, geography, and international price movements can hardly be ignored, the institutional framework may actually matter more. In other words, domestic institutions and domestic politics in these oil producer countries need to be taken more seriously.

[20] Warshaw (2010) uses the concepts of nationalization and expropriation synonymously.

II.3. Alternative Explanations: Historical Legacy and International Influences

Two other potential determinants have also been outlined in the existing literature. These are historical legacies and international influences. Although they are not necessarily related to each other, they are discussed together as alternative explanations of energy development strategies, yet with low explanatory power for the specific case of the upstream sector and, thus, E & P strategies.

In a work addressing the robustness of authoritarianism in the Middle East, Bellin (2004) points out that despite nearly two decades of experimentation with structural adjustment programmes, the public sector continues to account for a major share of employment and GDP generation in most countries. The more problematic aspect about the Middle East is that "this legacy of statist ideologies and rent-fuelled opportunities undermines the capacity to build autonomous, countervailing power to the state" (Bellin 2004, 139).

This idea of historical legacy was reiterated and reinforced by several scholars (Ahrend and Tompson 2006, Marcel 2006, Schlumberger 2000, 2004, Stevens 2008b, 2008c). In a comprehensive global quantitative analysis on determinants of ownership structures in petroleum-rich countries between 1952 and 2006, Jones Luong and Weinthal include path dependency as one of the explanatory variables, operationalized as a country's previous ownership structure (i.e. policy inertia) and its colonial history (i.e. whether or not the country in question is a former colony). This is to account for the idea that policies and institutions are, in general, reluctant to change (Jones Luong and Weinthal 2010, 315). They find a strong effect of previous ownership structure – not of colonial past, though – on the present forms of ownership and control in mineral-rich countries. However, the analysis concludes that path dependency alone is not a sufficient explanation for the variation in ownership structure as documented across time and space (ibid., 319).

In turn, others refute the argument that historical legacy can explain why states have decided to keep strong control over their upstream whereas others have chosen to work with IOCs on the ground (Henisz et al. 2005, Li 2005, Nolan 2010). While historical legacy shapes political institutions and might account for the maintenance of state ownership over oil reserves as inertia-driven or resource nationalist behavior following the era of nationalizations in the 1970s, it is likely to only marginally (if at all) explain variation in E & P patterns within the upstream sector.

Regarding international influences on the energy sector, these can be threefold: first, worldwide diffusion of neoliberal, market-oriented reform through normative emulation or policy imitation among countries competing for foreign capital (Guler et al. 2002, Henisz et al. 2005, Kobrin 1985, Polillo and Guillen 2005); second, global pressures for policy convergence by international or multilateral organizations (Brune et al. 2003, Frank et al. 2000, Kaufmann et al. 2007, Polak 1997); and third, trade vs. security considerations which can be equated in the case of Middle East petroleum-rich countries with the 'oil vs. security' paradigm (Gause 1997, 1999, Hinnebush and van Ehteshami 2002, Sadowski 1992). In reference to the first form of international influences, Schlumberger (2000, 2004, 2006, 2008) emphasizes that the form of capitalism ("patrimonial capitalism") emerging in the Middle East is different from the neoliberal model of OECD countries. The mechanisms of market-oriented reform adoption through policy diffusion or global pressures by multilateral organizations such as IMF or World Bank do not hold in the Arab world and if they might play a role whatsoever, they are more likely to influence the mid- and downstream sectors within the oil supply chain. Regarding the second element, Jones Luong and Weinthal's (2010) quantitative analysis shows that the effect of international policy convergence is statistically significant, yet of a very low magnitude. To control this effect, a dummy variable is aimed at capturing the adoption of an initial development strategy before or after the foundation of OPEC in 1960. This serves as a proxy for the argument that OPEC encouraged developing countries to nationalize their oil resources and also buoyed up the power of oil-exporting countries to the detriment of foreign oil companies (Jones Luong and Weinthal 2010, 314). In turn, a regional demonstration effect as in policy convergence engendered by regional organizations or more generally, regional belonging (such as MENA or Latin America) does not seem to exist (ibid., 314, 318). Finally, the trade vs. security paradigm has low explanatory power as to the variation in upstream control structures; at most, they can allegedly influence crude oil production rates, discretionary oil pricing, adjusted oil export schemes, or new trade terms and partners (Moon 1983, 1985, Whan Park and Don Ward 1979), but less so exploration and production patterns via state vs. private actors.

All in all, international influences allegedly play little to no role in triggering different E & P strategies. Scholars have found little to no actual grounding for this type of determinants which conventional wisdom might have held for impending.

In conclusion to this literature review, the existent studies on the energy sector are not just scarce but both fragmented and indistinct. On the one hand, they are fragmented because scholars have focused

on individual explanatory factors and thus remained inconsiderate of the broader picture. In Warshaw's words, it is surprising that "no extant study has analysed state decisions to nationalize and privatize their petroleum industries using a unified framework" (Warshaw 2010, 3) especially since the petroleum industry not only dominates the economy of many developing countries, but its structure may actually have consequences for democratization, economic development and the world economy at large. On the other hand, this scholarship is indistinct because it seeks to apply a common set of determinants to all energy development strategies, without delineating between the upstream sector, and the mid- and downstream sectors, which are of comparatively lower strategic relevance to the oil producer states. Clearly, Political Science has not grappled enough with energy issues, let alone E & P strategies. In the absence of a theoretical framework which can explain why some oil producer countries have been more open to give in upstream control to foreign companies by comparison with others, this paper will seek to advance one and test its validity on a comparative cross-case study.

III. A Theoretical Framework Explaining Oil Exploration and Production Strategies

Drawing on the reviewed studies, this chapter seeks to advance a comprehensive explanatory framework for the variation in oil exploration and production strategies or synonymously, upstream control structures. This theoretical model will rely on two main assumptions.

- *First*, it will be assumed that state leaders are primarily concerned with their political survival.[21]

- *Second*, it will be assumed that state leaders are sovereignty maximizers in the sense that they prefer more rather than less state control in the upstream sector.[22]

These two assumptions have been already introduced (Bueno de Mesquita and Smith 2009, Jones Luong and Weinthal 2010, Warshaw 2010) and in this framework they are meant to broadly inform the

[21] Bueno de Mesquita and Smith 2009, Guriev et al. 2009, Jones Luong and Weinthal 2001, 2006, 2010, Warshaw 2010 etc.
[22] Guriev et al. 2009, Jones Luong and Weinthal 2001, 2006, 2010, Ross 1999, Wantchekon 1999, Warshaw 2010 etc.

decision-making rationale. As the order of the assumptions suggests, sovereignty comes second to political survival. State leaders are ready to sacrifice sovereignty[23] to strengthen their grip on power – that is, "when they face a trade-off between maximizing sovereignty and consolidating their power, they will opt for the latter" (Jones Luong and Weinthal 2010, 302).

The dependent variable is rather clear by now: 'oil exploration and production strategies' or in other words, control structures in the oil upstream sector. This stands for the operating contribution in terms of oil production volume (% of total production per country) by ownership type, which depending on the licensing regime is reflective of the percentage of profit shares collected by the host government vs. private companies. Please refer to Annex 1.

This paper portends that geology and geography only create the setting. In other words, geological conditions and the technological capacity of the oil producer state – i.e. the technological capacity of the state-owned enterprise – represent "antecedent conditions", phenomena "whose presence activate the action of a causal law or hypothesis. Without them causation operates more weakly (…) or not at all" (van Evera 1997, 10).

In this theoretical framework, 'geological conditions' and 'NOC capabilities' capture the background information underpinning the decision-making process about the oil exploration and production activities. Geological conditions account not just for the availability of oil reserves (that is, volume of proven oil reserves given the depletion rates), but also for the difficulty involved in the E & P activities within the country in question. More importantly, these geological conditions have to be assessed in relation to the technological capabilities of the NOC to meet them.

The core explanatory variable and the main focus of this theoretical framework is 'domestic institutional inconsistency'. Noteworthy, in oil-rich countries petroleum resources are ideally administered by three government bodies (plus a number of foreign oil companies): a government ministry to help set policy, an NOC in charge of executive and commercial operations, and a regulatory body to control the enforcement of adopted policies and provide technical expertise. The Norwegian model works according

[23] Cf. Jones Luong and Weinthal 2010, 301, sovereignty means "independent decision-making authority".

to this "separation of functions approach" (separation between policy, regulatory and executive government agencies) and is considered "the 'best practice' of all sorts" (Thurber et al. 2010, 4ff.). This explanatory variable is meant to capture the degree of incongruence between the formally assigned function of the institution and its actual responsibilities in practice. For this, all the relevant institutions in the petroleum industry and more importantly, the oil upstream sector have to be mapped out and their level of functional consistency will be assessed. The mix of interests professed by the state (as in government bodies) must be weighed against the largely economic interests of commercial organizations (as in oil companies). A political agenda imposed by state leaders on the petroleum sector is likely to lead to institutional misdemeanour, overlaps and blurs the functional responsibilities pertaining to the relevant institutions charged with managing the industry, and more generally, an overall opaque decision-making process. In turn, a transparent organizational structure of the petroleum industry with well-defined functions for each of the institutional stakeholders is likely to create a stable and smoothly functioning environment – mature enough to take in foreign oil companies in the upstream.

- *H1: If the geological conditions in the oil producer country are met by the NOC capabilities: the higher the level of domestic institutional inconsistency, the higher the state control over the upstream sector.*

In turn,

- *H2: If the geological requirements are high and thus, more difficult to be met by the NOC: the lower the level of domestic institutional inconsistency, the higher the foreign control in the upstream sector.*

One control variable to be considered in this explanatory frame is 'oil price movements', which can be seen as a proxy for international market conditions. The oil price level is widely set by the supply and demand dynamics and can also be influenced by the OPEC cartel behavior. High oil prices are likely to increase the oil producer state's likelihood to take over the upstream control even though the effect is known to be only marginal.

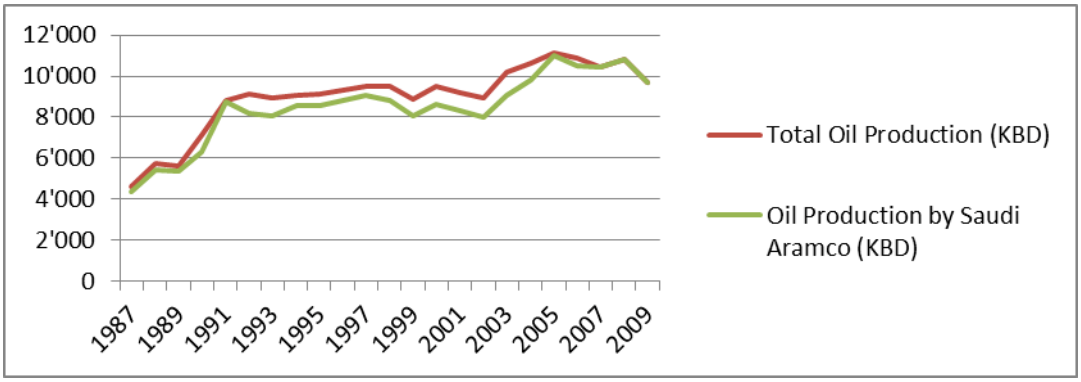
By including both domestic and international factors, antecedent and simultaneously interacting variables (please see Annex 1); this framework seeks to propose a set of pertinent and tractable explanations for the variation in upstream control structures identified particularly in the Middle East region. In the following, the model will be evaluated and most probably, refined by embarking on a paired comparison of the oil production sector in Saudi Arabia and the United Arab Emirates.

IV. Empirical Analysis: Saudi Arabia versus the UAE

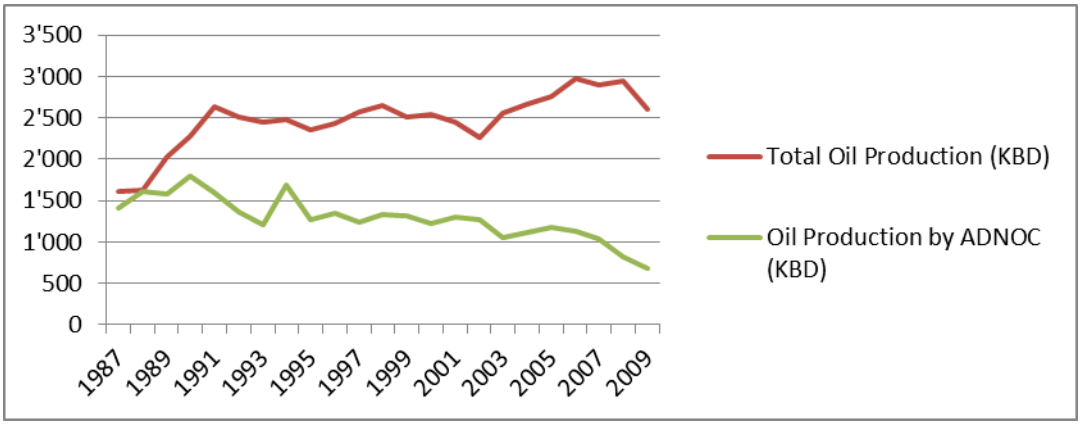
The empirical analysis will follow the strategy of paired comparison (Tarrow 2010, 233) while aided by process tracing. In the context of a controlled comparison, the aim is to isolate the difference in observed outcomes and explain it by assessing whether differences other than those in the main variable of interest might account for the variance in outcomes (George and Bennett 2004, 81).

Two divergent cases in terms of outcomes are selected for this analysis. These are Saudi Arabia and the United Arab Emirates. Based on the Petroleum Intelligence Weekly (PIW) dataset and BP's Statistical Review of World Energy 2010, the upstream control structures of the two countries over the timeframe 1987-2009 are graphically depicted. PIW dataset comprises the annual ranking of the world's 50 largest oil and gas companies and includes operating and financial data on over 130 firms between 1987 and 2009. BP dataset comprises historical data on several forms of energy production and consumption by country and region from 1965 to 2009. For Graph 1 and 2 below, data on total oil production is thus taken from BP's Statistical Review whereas data on oil production volumes by the state enterprise draws on PIW dataset 1987-2009.

Graph 1: Upstream control structures in Saudi Arabia, 1987-2009



Graph 2: Upstream control structures in the United Arab Emirates, 1987-2009



The graphical representations make it apparent that Saudi Arabia and the UAE have pursued different strategies in their upstream sector. More specifically, while the Saudi oil production has been almost completely dominated by the national oil company since 1987 (the time period for which data is available), in case of the UAE the difference between the curve of total oil production and oil production by the state-owned enterprise is large and indicates the contribution of IOCs. Obviously, the operations in the upstream are constrained by the legal regimes available to foreign oil companies in the two countries – namely, almost only 'risk-service contracts' in Saudi Arabia and 'production-sharing agreements' in the UAE.

The stakes are to research this difference in the upstream strategies by systematically addressing the factors in the theoretical framework (see Chapter III above) in both of these country cases.

Starting with the antecedent conditions, both countries have considerable oil reserves. Saudi Arabia contains approximately 260 billion barrels of proven oil reserves plus 2.5 billion barrels in the Saudi-Kuwaiti Neutral Zone, which amounts to no less than 20% of the proven, conventional world oil reserves (EIA 2009a, 2). The Emirates have less oil resources, namely 97.8 billion barrels of proven oil, which make up 7% of global oil reserves (EIA 2009b, 1f.). Although there is a clear difference in the proven oil volumes contained by the two analyzed countries, both of them are largely petroleum-rich. Depletion rates for the two countries vary depending on the source. In 2006, Platts Oilgram estimated a depletion rate of 6 to 8% on average in the existing oilfields in Saudi Arabia. In turn, the Ministry of Petroleum holds that the annual depletion rate does not exceed 2% on average (EIA 2009a, 2f.) Also, the UAE are

known for mature oilfields with limited exploration success in the past years and an estimated depletion rate of 6.7% per year (EIA 2009b).

While both Saudi Arabia and the UAE are well endowed with petroleum reserves and have comparable depletion rates, the major difference in terms of geological conditions between the two countries actually refers to the 'easiness' of oil. This element is well captured by the exploration and production costs or synonymously, upstream costs. Technically, there are two main motives for high E & P costs: first, oilfields become mature, production capacities decrease and optimized technologies are needed; second, the probability of discovering oil reserves onshore is low, which leads to costly exploration in deep waters offshore (Al-Attar and Alomair 2005, 248f.). Based on an OPEC review from 2005, the lowest E & P cost country is Saudi Arabia where total costs amount to $ 3 per barrel. By contrast, the UAE belong to the medium E & P cost countries, where only exploration costs are as high as $ 3 per barrel. Production costs add up to $ 1.8 and thus make total E & P costs equal $ 4.8 per barrel (ibid., 250). This clearly shows that upstream operations are more complex in the UAE and therefore, the geological conditions are less favorable than in Saudi Arabia.

Regarding the NOCs capabilities to meet the geological conditions, at this point concrete figures could not be found for the two analyzed countries. However, drawing on existing case studies (Myers Jaffe and Elass 2007, Suleiman 1988, Stevens 2010), it is known that both Saudi Aramco and ADNOC have kept a high interest in equipping themselves with increasingly more advanced technology and skills in upstream exploration and production. In this regard, Marcel emphasizes that "ADNOC, Saudi Aramco (…) are pressing ahead with efforts to participate in the research and development of new technologies that will give them an edge in the industry" (Marcel 2006, 148). On these premises, it is plausible to consider that both companies dispose of sufficient technological capacity to address the geological conditions in place.

Regarding thus the antecedent conditions, it is clear that oil is not only more abundant, but also less costly to explore and produce in Saudi Arabia than in the UAE. While technological capabilities of ADNOC might be advanced, it also turns out that the E & P process in the UAE is comparatively more demanding and complex than in the Kingdom. All these create a more favorable setting for Saudi Arabia

rather than the UAE to retain the upstream sector under state control. However, this is to be more weightily shaped by the level of domestic institutional inconsistency in the countries.

In order to understand how the decision-making process has been functioning both in the Kingdom and the Emirates, the oil sector organization in these two states will be circumscribed and the main stakeholders identified. In order to do this, some historical background information is not just in order but rather imperative.

In Saudi Arabia, the state-owned enterprise Saudi Aramco has a long history which goes back to the era of the oil concessions in the beginning of the 20th century. Mid-1940s, the Arabian-American Oil Company (Aramco) was a private consortium shared by Standard Oil Company of California (SoCAL: 30%), Texas Oil Company (Texaco: 30%), Socony-Vacuum (Mobil: 10%) and Standard Oil Co. of New Jersey (Exxon: 30%). In the aftermath of the 1956 Suez crisis, oil exporting countries started looking for more control over their petroleum resources. As Abdullah al-Tariki took up the oil minister position in 1960, he raised up the possibility of nationalizing Aramco. While several government officials supported his initiative, the idea was eventually not accepted at that time (Myers Jaffe and Elass 2007, 32f.). When Crown Prince Faisal became head of the state in 1962, Tariki was replaced by Ahmed Zaki Yamani who held the ministerial post until 1986. During his mandate, the state pursued a policy of increased participation in Aramco in line with the general trend of nationalizations emerging in the 1970s. However, by comparison with other oil producer countries which nationalized their petroleum industry outright, Saudi Arabia opted for the approach of incremental nationalization (Stevens 2010, 10 f.). Under the 1972 General Agreement, Saudi participation began at 25% and increased annually so that in September 1980 Saudi Arabia's government made public its complete purchase of Aramco's assets. The final paperwork for full nationalization was only signed in 1990, two years after Saudi oil industry was reorganized into a state monopoly, Saudi Aramco (Myers Jaffe and Elass 2007, 43ff.).

Despite a number of changes in ministerial posts with the leadership being transferred to Hisham Nazer and then Ali Naimi, not only has the petroleum industry in Saudi Arabia maintained the same organizational structure, but it has also upheld the state-dominated upstream strategy since the 1990s. This consistent pattern is rather surprising given that Saudi Arabia seems to not have reacted to international market influences, which runs counter to the arguments posed by several scholars in the

nationalization literature. If anything, the oil price fluctuations from the 1970s might have spurred the process of incremental nationalization in the Saudi oil sector, but have not affected the industry thereafter.

Since the 1970s, the Saudi government has given in upstream control to foreign oil companies only in the Saudi-Kuwaiti Neutral Zone. Traditionally, Japan's Arabian Oil Co. (AOC) operated two offshore fields in the Neutral Zone, but in February 2000 AOC lost the concession and Saudi Aramco took over the operation in these oilfields. The exceptional case is ChevronTexaco, which in 2008 obtained a renewed 60-year license for three onshore fields containing 2 billion barrels of proven reserves in the Neutral Zone (EIA 2009a, 4). Nevertheless, apart from the Neutral Zone, Saudi Arabia has been maintaining a strictly state-controlled upstream sector ever since Saudi Aramco assumed its role as a "state behemoth" in the 1990s (Myers Jaffe and Elass 2007, 25).

Decisions about Saudi upstream sector have been basically spanned between Saudi Aramco and Supreme Council for Petroleum and Mineral Affairs (SCPM) ever since. The decision-making process runs as follows: in a first stage, the corporate management committee and its chairman evaluates whether investment projects are commercial (hurdle rate: approx. 15%) and are worth pursuing by the company. If that is the case, in a second stage, senior professionals formulate the proposal and advance it to the Board of Directors, which is responsible for "high-level planning, budgeting and project decisions for Saudi Aramco" (Myers Jaffe and Elass 2007, 48f.). Although Saudi Aramco is the executive branch of the Saudi government and an economic unit in its own right, the composition of the board reflects the almost inexistent separation between the government and the company. Apart from Saudi Aramco's CEO Abdullah Jum'ah, ten other members are serving on the board: the Petroleum Minister Naimi, Finance Minister Ibrahim Al-Assaf, Chairman of the Ports Authority Abdul-Aziz Al-Manei, Supreme Economic Council Secretary-General Abdul-Rahman Al-Tuwaijeri, former Chairman of Standard Oil Harold Haynes, former President and CEO of Texaco Inc. James Kinnear etc. (Stevens 2010, 21). Undoubtedly, there is a strong overlap between the economic and political interests pursued by Saudi Aramco in its activities to such an extent that "Saudi Aramco analyzes, selects and implements projects on the basis of profit maximization, except in the occasional case where government-oriented political considerations override technocratic analysis and planning" (Myers Jaffe and Elass 2007, 51). In fact, in a third stage, Saudi Aramco' operational decisions come under the purview of the SCPM, which was created in 2000. The SCPM mission is to develop and approve the long-term strategy for the

petroleum and mineral industry, approve the five-year plans and capital investment programs of Saudi Aramco and in more general terms, help restructure the Saudi economy and encourage private investment in the energy sector. The membership of the SCPM is representative of NOC oversight bodies with the King holding the chair position, the Crown Prince as deputy chairman, and several other members of the cabinet as further members, including again the Petroleum Minister, Finance Minister, Supreme Economic Council Secretary-General etc. (Myers Jaffe and Elass 2007, 52; Stevens 2010, 21). Additionally, there also exists a ministry in charge of overseeing the petroleum and mineral sector but its role is known to clash with that of the SCPM.

Not only does the organizational structure of the petroleum industry in Saudi Arabia not observe any clear separation of executive, commercial and regulatory functions, but it is in fact the King and his royal family who ultimately decide over the petroleum affairs – in short: high level of domestic institutional inconsistency. This makes Steffen Hertog allege that the petroleum industry in Saudi Arabia seems like a family business, the Al Saud's business, with "the state apparatus" being merely "a resource that could be apportioned in order to settle conflicts within the ruling family" (Hertog 2010, 15, see also Herb 1999, 11). Political rationality has clearly taken over economic considerations in a country where "segmented clientelism" (Hertog 2010) and patrimonial relations have been costly to uphold while the Al Saud family has clung to power. Clearly, the geological conditions epitomized by the lowest crude oil E & P costs worldwide (Al-Attar and Alomair 2005) as well the transformation of Saudi Aramco into an instrument of Saudi foreign and domestic policy (Stevens 2010) since the 1990s have all paved the way to a widely state-controlled upstream sector (apart from the Neutral Zone). Not least, this has been made possible by the unusually high dominance of vertical over horizontal links in Saudi politics – in Hertog's (2010, 13) parlance, "many states have strong hierarchies, but it is rare for one to have so few countervailing forces that can integrate politics. The Kingdom knows no ruling party, no parliament, and no organized pressure groups that could force a stronger horizontal integration of the system".

In the United Arab Emirates, Abu Dhabi National Oil Company (ADNOC) was set up in 1971 to operate in all areas of the emirate's oil and gas industry. Already mid-1940s, a 75-year concession for all the onshore oil rights in Abu Dhabi was granted to the Petroleum Development Company (Trucial Coast), to be renamed Abu Dhabi Petroleum Company (ADPC) in 1962. This was a subsidiary of the Iraq Petroleum Company (IPC), itself a joint venture of several international oil companies involving BP, Shell, Total, Exxon and Mobil (Butt 2001, 232). Additionally, an offshore concession was awarded to

D'Arcy Oil Company, which passed it on to Abu Dhabi Marine Areas (ADMA) two years later (Metz 1993). In 1971, ADNOC acquired a 25% stake in both ADMA (later, ADMA-OPCO) and ADPC and increased its participation to 60% just three years afterwards.

Nonetheless, Abu Dhabi is a rather special case in the Middle East because unlike most Gulf countries, it never claimed 100% ownership of the industry. Nowadays most production is still carried out by the pre-1974 consortia with ADNOC as the majority partner in both the onshore and offshore consortia (Marcel 2006, 32). More specifically, the Abu Dhabi Company for Onshore Oil Operations (ADCO) has been the consortium in charge of the emirate's onshore operations since 1978. Its shareholders have been: ADNOC (60%), BP (9.5%), Shell (9.5%), Total (9.5%), Exxon (4.75%), Mobil (4.75%), and Partex (2%), all these foreign companies being the shareholders of ADPC. As for the offshore consortium, ADNOC also owns 60% of the shares, with BP (14.66%), Total (13.33%), and JODCO (12%) taking up the rest of the equity (Butt 2001, 233).

The participation structure has stayed the same till today. Similarly to the Saudi case, the oil sector organization has also stayed unchanged since the late 1980s/ early 1990s. ADNOC and the Supreme Petroleum Council (SPC) have been the main decision-making entities in the petroleum industry. ADNOC has assumed the role envisaged for NOCs as a link between government institutions, which set up the petroleum policy, and operating companies, which are in charge of executing approved projects. By contrast to Saudi Aramco, ADNOC has been yet rather insulated from the state and its political agenda to a considerable degree. In a rather comprehensive case study on ADNOC, Suleiman shows that "The law established ADNOC in the form of commercial entity, a limited liability joint-stock company (although the shares are wholly-owned by the Government), with a separate juridical personality in order to allow it more freedom from administrative rigidities and empower it to exercise a reasonable degree of independence in its decision making and the performance of its activities. ADNOC is certainly not a part of the Government machine and does not enjoy the prerogatives of public authority." (Suleiman 1988, 9f.)

To be noted, this characteristic is central to the organization and development of the upstream sector in Abu Dhabi where economic and political interests have remained separated throughout time. Even though as a NOC, ADNOC is supposed to reconcile national and commercial objectives, the decisions

about exploration and production investments have largely followed “the considerations of normal commercial practice” (Suleiman 1988, 10). In turn, the political interests of Abu Dhabi are represented by the SPC, which replaced the Governmental Department of Petroleum in 1988 and has been in charge of the administration and supervision of the country’s petroleum affairs since then (cf. The Supreme Petroleum Council website). The SPC is chaired by the President of the UAE and Ruler of Abu Dhabi whereas the other ten members sitting on the board come from the main ruling families in the UAE.

While it cannot be stated that patrimonial relations have circumvented the Abu Dhabi petroleum industry, this has clearly been less poignant than in Saudi Arabia. Based on the stable upstream strategy pursued by Abu Dhabi already since the 1970s, it can actually be inferred that economic rationality has gained prevalence over political motives and the level of domestic institutional inconsistency in the petroleum industry is low. In the absence of any real opposition groups, the petroleum industry has been ruled at the apex as deemed appropriate (Al-Suwaidi 2009). Because of the comparatively more complex crude oil E & P process in the UAE (Al-Attar and Alomair 2005), it is assumed that the government has willingly consented to work on a production-sharing agreement with foreign oil companies both in the onshore and offshore oilfields in order to meet the technological challenges and keep the security of supply upright. Yet, energy economics seem to have played less of a role in the state leaders’ calculations. Additionally, like in Saudi Arabia, rising oil prices have hardly impacted the upstream control structures of Abu Dhabi. Besides the increase in participation to 60% in the mid-1970s when oil prices were indeed on the rise, no other significant international market influences can be traced down.

The analysis of the oil upstream sectors in Saudi Arabia and the UAE – in particular, since the creation of their NOCs – has shown rather different developmental trajectories. The combination of highly favorable geological conditions, i.e. largely available oil reserves and very low upstream costs, has made it possible for the Al Saud family to transform the oil upstream into (more or less) a family business and keep it closed to foreign investments. While the oil sector is comparatively important in the UAE, economic considerations have apparently had considerably more weight in the decision-making over the upstream strategy. Due to the medium costs associated with the exploration and production of Abu Dhabi crude oil, state leaders have opted for an open upstream sector with a clear separation of functions ever since the 1970s. Non-existent domestic opposition to the upstream strategies pursued in

both countries has enabled state leaders to design the petroleum industry at their own will: Saudi leaders have therefore imposed their political agenda and blurred the mandate of different relevant institutions while keeping full upstream control and holding unrestricted access to the oil revenues; by contrast, the UAE leaders have preferred to design a more transparent decision-making process in the petroleum industry and loosen up the grip over the upstream while working together with foreign companies – this way, they have secured a constant flow of oil revenues from a geologically more complex E & P sector in an allegedly sustainable fashion.

V. Preliminary Conclusions

This paper has sought to fill in a gap identified in the Political Science literature by proposing a theoretical framework to explain the variation in oil upstream strategies. Empirically, this work has confirmed some single-factored explanations advanced by previous studies while disconfirming others. Geography and geology are not sufficient explanations for the variation in upstream control structures. Although relevant, they only create the contextual factors which mark out the state leaders' room for decision-making over the rational upstream strategy to pursue. International market conditions were proven only marginal (if at all) in explaining the strategies followed by Saudi Arabia and the UAE since the establishment of their state-owned enterprises.

No opposition to restrain Saudi leaders' political rationality, an opaque governance of the petroleum sector marked by a high degree of domestic institutional inconsistency, a very favorable geological environment and a technologically well-endowed NOC, have all facilitated the pursuit of a close E & P strategy. By comparison, the economically-oriented ruling leaders and the clear separation of functions in Abu Dhabi petroleum industry have led to a relatively open upstream sector where the NOC has been working closely with foreign oil companies for over 35 years. The preference for such an upstream strategy is likely to have been also underpinned by less favorable geological conditions in the Emirates and thereby, more complex technological requirements.

All in all, the theoretical explanations advanced in this paper have proven right both for Saudi Arabia and the UAE. As part of a larger project, these will be furthermore tested on additional country cases: both qualitatively on two more case studies and quantitatively on the population of the Middle East oil producer states in the timeframe 1987-2009. This way the common critique of conclusiveness following

small-N analysis will be addressed and also, the potential claim of exceptionalism in the case of Saudi Arabia as a swing producer will be removed. The less relevant factor, which could be taken out of the proposed framework, is the level of oil price. Given its insignificance for the developmental trajectories of national oil sectors in the two analyzed countries, more work needs to be invested in the role of international factors for the variation in upstream strategies. Their effect has to be more closely isolated and more narrowly assessed. Additionally, more research has to be done particularly with regard to domestic politics and domestic institutions. Due to the shortcomings of the existing secondary literature, on which the empirical analysis had to draw in the absence of primary data, the panoply of motives pertaining to each of the actors involved in the decision-making process over the E & P strategy could be only partly hammered out. In the course of future research, data should be collected on all stakeholders in the upstream and not least, on potential countervailing forces – both formal and informal institutions. This will not only provide a more in-depth insight into the driving forces of the national oil sectors in petroleum-rich countries and their upstream strategies, but also open up the black box of

Middle East domestic politics more widely than it has been made possible based on the available data.

Ultimately, this paper should raise awareness among scholars and policy-makers alike about the little knowledge we have on the mechanisms driving the upstream strategies in oil producer countries. There is still a lot of work ahead that scholars of energy development strategies need to grapple with.

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Annex 1: A theoretical framework explaining oil exploration and production strategies