

POLICY IMPLICATIONS OF NATIONALIZATION
OF OIL AND NATURAL GAS INDUSTRY
IN LATIN AMERICA

by

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ABSTRACT

Nationalization is a particular type of organizational structure where the state or nation controls the industry as opposed to private companies or multinational organizations. If one imagines a continuum of organizational structure, nationalization and privatization would be at opposite ends. Nationalization could include joint ventures where the state controls the industry but allows for private companies to participate in the resource extraction and retain some of the profit. Within the past few years, Venezuela and Bolivia have announced plans to renationalize their oil and natural gas industry.

The first part of this project seeks to perform a qualitative analysis to discern the common characteristics of a nationalized country focusing specifically on four countries – Bolivia, Venezuela, Mexico and Nigeria. There are various components influencing the efficiency of a nationalized industry including civil society, regionalism, and reliance on oil. The main findings were that a nationalized country with a high reliance on oil or natural gas and weak financial institutions will have an authoritarian form of government, and that there will likely be more incidences of Latin American countries nationalizing in the near future if oil prices remain high. The project also performs a quantitative analysis on indirect measures of efficiency using subsidies and also analyzes the effect of nationalization on social development using the Gini coefficient (a measure of income equality) and public spending on education. Nationalization is found to have a positive effect on income equality and a negative effect on public spending on education.

The project culminates with policy recommendations specifically focused on the four selected countries with implications for broader applications. The main objectives of the recommendations are to strengthen financial institutions, diversify the economy, and increase transparency and accountability of the industry.

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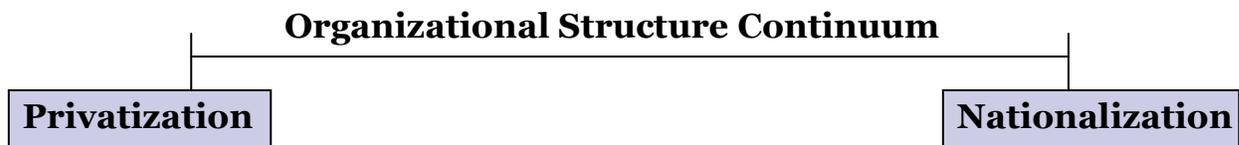
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I. Introduction

Nationalization

It is difficult to determine what natural resource policy is most fitting for Latin American nations, but this paper takes advantage of the recent outbreak of nationalization to conduct an analysis on nationalization and its effect on energy efficiency. A literature review revealed that nationalization is the policy by which an asset is placed under state-control. According to John Wirth, state owned control is defined as the policy by which “governments own, control, manage and exploit natural resources for national ends, in name of the common good.”¹ Thus, in the definition alone there is an implication of nationalization being for the benefit of society.

If one imagines a continuum of organizational structure, nationalization and privatization would be at opposite ends. Nationalization could include joint ventures where the state controls the industry but allows for private companies to participate in the resource extraction and retain some of the profit.



Creeping nationalization is the impending threat of nationalization before the policy is made official. Creeping nationalization has not taken as drastic a form in the first decade of the 21st century as outright expropriation had done in the 1970's,² but it does seem highly prevalent. Actions indicative of creeping nationalization include cumbersome labor and environmental regulations, taxation, and price and monetary controls.³

Importance of nationalization

Nationalization is a very pertinent topic to discuss at the moment because with the price of oil increasing steadily since its collapse in 1998, oil is becoming a more expensive commodity and the organizational structure of that industry will affect how it is extracted and distributed. Natural gas is not as much of a commodity as oil is because trade of it is limited to countries

¹ Wirth, John D. 1985. Introduction. *The Oil Business in Latin America: The Early Years*. Washington, DC: Beard Books.

² Kapstein, Ethan. 2006. Multinational Risks. *Wall Street Journal*, May 10.

³ Berlin, Alan. 2003. Managing political risk in the oil and gas industries. *Oil, gas and energy law Intelligence*. I (02). Online at http://www.stephankinsella.com/texts/berlin_political-risk.pdf (accessed February 2007).

within geographical proximity or to those with adequate pipelines established.⁴ According to Pauline Jones Luong and Erika Weinthal, different ownership structures will foster different institutional building of the regulation and financial structures within the country,⁵ which can have significant ramifications on the country's economy and governance. In 2004, close to 90% of the world's oil and natural gas reserves were controlled by the government (including partially privatized national oil companies).⁶ From a United States centric point of view, it is worth noting that in 2005, the U.S. was the greatest oil consumer and importer of any country.⁷ At least 40% of U.S.'s total gross oil imports came from countries with nationalized oil industries in 2005.⁸ For instance, between 1991 and 2005, Venezuela has supplied 14.2% and Nigeria has supplied 7.4% on average of the total gross oil imports into the U.S. amounting to over 20% of the U.S.'s total gross oil imports for just those two nationalized countries.⁹ As far back as 1941, Ralph K. Davies, deputy administrator of Petroleum Administrator for War told Secretary of the Interior, Harold L. Ickes:

“The United States must have extra-territorial petroleum reserves to guard against the day when our steadily increasing demand can no longer be met by our domestic supply...Looking ahead – and not so very far ahead – the petroleum resources of Mexico, Colombia, Venezuela and other Caribbean countries must be considered to be reserves for the United States. They are, in fact, more important to the United States than to the countries that have them, because they are more vital to the life of the consumer than the producer.”¹⁰

Putting a high priority on those countries means the U.S. is also interested in the oil policies of those countries which affect how the resource is used and manipulated. Oil companies in general are primarily motivated by the demands of capital markets and the investment community, but the producing countries are motivated by socioeconomic

⁴ Herrera, 2006

⁵ Luong, Pauline Joes and Weinthal, Erika. 2006. Rethinking the Resource Curse: Ownership Structure, Institutional Capacity, and Domestic Constraints. *Annual Review Political Science*. 9: 241-263.

⁶ Joint UNDP/World Bank Energy Sector Management Assistance Programme (ESMAP). 2004. Petroleum Revenue Management Workshop. Washington, DC: World Bank.

⁷ Energy Information Administration (EIA). 2005. Top World Oil Net Importers, 2005. http://www.eia.doe.gov/emeu/cabs/topworldtables3_4.html (accessed March 2007).

⁸ Derived from Energy Information Administration (EIA). 2005. Table 4.10 United States--Petroleum (Oil) Imports, 1991-2005. www.eia.doe.gov/emeu/ipsr/t410.xls (accessed March 2007).

⁹ Ibid.

¹⁰ Koppes, Clayton. 1982. The Good Neighbor Policy and the Nationalization of Mexican Oil: A Reinterpretation. *The Journal of American History*. 69.1: 62-81.

and political demands.¹¹ The consensus among policymakers is that nationalization leads to wasteful use of resources because it is generally believed that when revenues accrue to the state, especially during periods when the price of oil is high, the state has a propensity to become more authoritarian.¹² In this project, I argue that because nationalization increases state control over the industry allowing the state to directly receive all the revenue from the hydrocarbon industry, nationalization in general leads to more authoritarian governments that are less efficient.

II. Roadmap

There are various factors that lead countries to nationalize such as civil society, regionalism, and the potential conservation and economic benefits from nationalizing. Part of this project intends to focus on what leads countries to nationalize their oil and gas industry and then assess how the recent renationalization of Bolivia and Venezuela fits in with that reasoning. Using the understanding of what leads a country to nationalize, I want to perform a qualitative analysis to determine what the common characteristics of a nationalized country are.

There are opposing viewpoints on the efficiency of nationalized oil industries. Various authors such as Professor Paul Stevens of the Centre for Energy, Petroleum and Mineral Law and Policy at the University of Dundee¹³ propose that nationalization of a natural resource could lead to greater conservation. However, authors such as Ascher¹⁴ challenge that claim stating that nationalized natural resource industries lead to greater corruption and wastefulness. After discussing the opposing viewpoints, quantitative analysis will be performed on the various indirect indices of efficiency of nationalized oil and natural gas industry using the four countries that were selected – Bolivia, Venezuela, Mexico and Nigeria.

An evaluation of the efficiency of a nationalized policy requires an evaluation of the particular industry's industrial efficiency which requires very detailed information and a long time scale to collect the data, which are both beyond the scope of this project. Analyzing the energy efficiency of a country proved too difficult due to the inability to disaggregate the inputs and outputs of energy in order to focus solely on the energy efficiency of oil and natural gas. In

¹¹ ESMAP, 2004.

¹² Friedman, Thomas. 2006. First Law of Petropolitics. *Foreign Policy*. 154:28-36

¹³ Stevens, Paul. 2003. National Oil Companies: Good or Bad? A Literature Survey. *National oil companies workshop: Current roles and future prospects*. Washington, DC: World Bank.

¹⁴ Ascher, William. 1999. *Why Governments Waste Natural Resources*. Maryland: Johns Hopkins University Press.

the end, indirect measures of energy efficiency were used as a means of measuring the effectiveness of the nationalized policy.

The final step of the project makes recommendations on how these selected case studies could make the best use of the resources whether that be through the continued implementation of a nationalized organizational structure or perhaps the implementation of various policy instruments to improve the financial and political institutions of the country.

III. Materials and Methods

Case Selection

Latin America is a heavyweight in the crude oil industry but has far less of an impact in the natural gas industry. Latin America (for the purposes of this paper composed of Central and South America and Mexico) constitutes 9.0% of the world's proven oil reserves and 4.4% of the world's proven natural gas reserves.¹⁵ In 2003, Latin America was responsible for 13.2% of the world's crude oil production and 11.6% of the world's crude oil exports.¹⁶ Latin America is an interesting region to study because it is a likely trade partner with the United States due to its geographical proximity. Furthermore, many of the countries have had both periods of nationalization and privatization enabling one to look at comparisons within countries.

Venezuela and Bolivia were selected because of their recent announcements to renationalize their oil and gas industries within the past few years which were my main impetuses for taking on this project. Venezuela is the world's 10th largest oil producer and 8th largest oil exporter in 2005.¹⁷ Bolivia is not a major oil producer, however, it does have the second largest natural gas reserve in Latin America (behind Venezuela).¹⁸ Mexico has one of the oldest nationalized systems dating back to when the country's national oil company, PEMEX, was created in 1938. As of 2005, Mexico was the world's 5th largest oil producer and the world's 10th largest oil exporter.¹⁹ Although Nigeria is not a Latin American country, it does

¹⁵ EIA. 2005. 8.1 World Crude Oil and Natural Gas Reserves, January 1, 2005.
<http://www.eia.doe.gov/emeu/aer/txt/stb1104.xls>. (accessed January 2007)

¹⁶ EIA. 2003. 3.1 World Petroleum Supply and Disposition, 2003.
<http://www.eia.doe.gov/pub/international/iea2004/table31.xls> (accessed January 2007)

¹⁷ EIA. 2005. "Top World Oil Net Exporters, 2005" and "Top World Oil Producers, 2005."
http://www.eia.doe.gov/emeu/cabs/topworldtables1_2.html (accessed January 2007).

¹⁸ Herrera, Genero Arriagada. 26 October 2006. Oil and gas in Latin America. An analysis of politics and international relations from the perspective of Venezuelan policy. (Working Paper) *Real Instituto Elcano*.
<http://www.realinstitutoelcano.org/documentos/268.asp> (accessed November 2006).

¹⁹ EIA. 2005. "Top World Oil Net Exporters, 2005" and "Top World Oil Producers, 2005."

have some similarities with the aforementioned countries. Like Venezuela and Mexico, Nigeria is a major exporter and producer of oil. Nigeria is the world's 6th largest oil exporter and the world's 12th largest oil producer.²⁰ It has a nationalized oil industry, but has had a far different experience from the Latin American one due to violent outbreaks against oil companies.

Methods

In order to complete the objectives of the project, I performed an extensive literature review to evaluate the current arguments regarding nationalization of the oil and natural gas industry. I paid particular focus to literature on my four selected countries.

I also performed quantitative analysis that sought to evaluate arguments made regarding nationalization. As mentioned before, I could not perform an analysis of the energy efficiency of the industry. However, I did perform some rudimentary analysis on the effect of nationalization on social development indicators. The indicators I used were the Gini coefficient, subsidies and public spending on social programs.

Data Analysis

I was thankful to receive data from the International Energy Agency on Venezuela, Bolivia, Nigeria and Mexico. The data had the following parameters:

Table 1: Parameters of energy intensity²¹

GDP (billion US\$ at 2000 prices and ex. Rates)
GDP (billion US\$ at 2000 prices and PPPs)
Population (millions)
Oil Demand (thousand barrels/day)
Energy Production/TPES
Net Oil Imports/GDP (toe per thousand 2000 US\$)
TPES (Total Primary Energy Supply)/GDP (toe per thousand 2000 US\$)
TPES/GDP (toe per thousand 2000 US\$ PPP)
TPES/Population (toe per capita)
Oil Supply/GDP (toe per thousand 2000 US\$)
Oil Supply/Population (toe per capita)
Electricity Consumption/GDP (kWh per 2000 US\$)
Electricity Consumption/Population (kWh per capita)
Energy Consumption (Solid, Liquid, Gas, and Total)

²⁰ EIA. 2005. "Top World Oil Net Exporters, 2005" and "Top World Oil Producers, 2005."

²¹ International Energy Administration. 2006. "IEA Energy Balances of OECD Countries 2006 & "IEA Energy Balances of Non-OECD Countries 2006." Sent by Riccardo Quercioli riccardo.quercioli@iea.org, www.iea.org

All the data ranged from 1971 to 2004 and does not extend far enough to pick up the current incidences of renationalization in Venezuela and Bolivia.

By creating a timeline when Bolivia, Venezuela, Mexico and Nigeria had nationalized policies, I hope to be able to make comparisons between times when they were nationalized and when they were not to determine the correlation of the nationalized policies on the particular social development indicator of interest.

Creating a timeline from the literature search yielded the following:

Table 2: Timeline of nationalization²²

Country	Nationalized Policy	Not Nationalized Policy	Creeping Nationalization
Bolivia	1936 – 1959, 1969 – 1996	1960 – 1968, 1997-2004	2004 – Present
Venezuela	1973-1997, 2005 – Present	1960-1972, 1998-2005	2001-2005
Mexico	1938 – Present		
Nigeria	1977 – Present	1956-1977 ²³	

There are a few important points to be made about this table: 1) Private companies can often predict impending, or creeping nationalization and may change their actions in a country accordingly. Thus, even though the time ranges are the actual times when policies changed, companies may have had the foresight that a national change was approaching and before the new policy took effect adjusted their actions. 2) Even if a country is nationalized, there may still be a fair degree of joint venture that occurs with multinational companies as occurred with Venezuela in the 1990's during its Oil Apertura policy (where important activities of the oil industry reserved for the state were opened to transnational companies enabling the oil company to have some autonomy from the state²⁴), before officially declaring nationalization. 3) There are different degrees of nationalization between each of these countries. Countries incorporate joint ventures and royalties differently therefore, we can assume that even though a country may

²² BBC News. 2007. Timeline: Venezuela. Online at http://news.bbc.co.uk/2/hi/americas/country_profiles/1229348.stm (accessed 12 February 2007); BBC News. 2007. Timeline: Bolivia. Online at http://news.bbc.co.uk/2/hi/americas/country_profiles/1218814.stm (accessed 12 February 2007); BBC News. 2007. Timeline: Mexico. Online at <http://news.bbc.co.uk/2/hi/americas/1210779.stm> (accessed 12 February 2007); BBC News. 2007. Timeline: Nigeria. Online at http://news.bbc.co.uk/2/hi/africa/country_profiles/1067695.stm. (accessed 12 February 2007).

²³ Nigerian National Oil Corporation. 2005. History of the Nigerian Petroleum Industry. www.nnpcgroup.com/history.htm (accessed 20 March 2007).

²⁴ Petróleos de Venezuela S.A. 2006. From privatization to nationalization of the Venezuelan oil industry. <http://www.pdvsa.pdv.com> (accessed 20 March 2007).

have a nationalized policy, it may not be the same nationalized policy as in another country, but the main effects of the policy are relatively consistent among the countries.

In my analysis, I created a new binary variable for nationalization. The variable had a 1 for periods when the oil and gas industry was nationalized and 0 when the oil and gas industry was not nationalized according to the timeline in Table 2.

By coding the years within a country to whether or not they were nationalized, I can look at the social development indicators of those years to determine the effect of nationalization on those indicators. In the regressions used to evaluate the social development indicators I tried to take into account other pre-determined variables that could also influence the social development indicators in addition to the nationalization variable.

Quantitative Analysis - Subsidies

My quantitative analysis intends to take a deeper look at the nationalization policy and see what aspects of the policy could be leading towards a decrease/increase in energy efficiency. I wanted to determine whether subsidies were increasing or decreasing during periods of nationalization. Nationalized countries have been said to subsidize goods to society under the auspices of patriotism claiming that they are the people's goods and that the people should not have to pay full price for those goods.²⁵ Another form of subsidies is lowering the cost to the manufacturer to produce the good.

Conventional wisdom says that subsidies lead to a loss of economic efficiency by undermining the true cost of a commodity. Because they undermine the actual price of the product subsidies encourage consumers to consume more and be wasteful.²⁶ The World Development Indicators provide values for Subsidies: Subsidies and other transfers (% of expense) and Subsidies and other transfers (current LCU). However, the values are only provided for the past few years (mid to late 1990s to 2004) for the majority of the countries.

Ascher considers subsidies to be a government policy failure which leads to inefficiencies in the extraction of natural resources. Artificially low domestic prices undermine the growth of oil rich countries and lead to excessive consumption. Subsidized energy leads to inefficient use,

²⁵ Mommer, Bernard. 1998. The New Governance of Venezuelan Oil. *Oxford Institute for Energy Studies* Online at <http://www.oxfordenergy.org/pdfs/WPM23.pdf> (accessed 14 December 2007)

²⁶ Varangu, Kristi and Morgan, Trevor. 2002. Defining and Measuring Environmentally-Harmful Subsidies in the Energy Sector. *Presented at OECD Workshop on Environmentally Harmful Subsidies*. <http://www.iea.org/dbtw-wpd/textbase/papers/2002/kvsubsidies.pdf> (accessed February 2007).

energy squandering and more pollution.²⁷ Consumers have no incentive to conserve when the end-use price is lowered.²⁸ According to Ascher the increase in consumption will affect those exporting countries more than those that are not because the ones exporting will run out of oil quicker²⁹ (each of the countries is a major exporter). Furthermore, subsidies to producers shield those producers from competitive market pressure which yields less efficient plant operation and less optimal investment.³⁰ In addition, those subsidies to a particular energy sector may prevent another form of energy that could be more economically or environmentally attractive from being competitive.³¹

Subsidies are not necessarily all bad. Subsidies could be good if they subsidize alternative fuels that are environmentally friendly and/or more energy efficient.³² Also, in developing nations and transitional economies, subsidies that improve accessibility to modern energy sources for the poor can hardly be disputed.³³ A potential problem with calculating subsidies lies in the fact that defining subsidies is difficult and empirical analyses have found a large range of variation in estimating direct and indirect subsidies within a country.³⁴

Quantitative Analysis – Gini coefficient

In this project I wanted to analyze social development measures because part of the attraction of nationalization is that the revenue that enters the economy from the nationalized industry will go towards social development. One social development indicator that was selected to perform analysis on was the Gini coefficient, which is a measure of income inequality. The idea for the use of this measure is that nationalization will foster greater domestic investment and lead to provision of public goods.³⁵ President of Venezuela, Hugo Chavez pledged in 1998 during his election campaign to use oil revenue to spread equality among the population.³⁶ The Gini coefficient can be used to measure income inequality. The coefficient is a percentage where

²⁷ Varangu and Morgan, 2002.

²⁸ Varangu and Morgan, 2002.

²⁹ Ascher, 1999

³⁰ Varangu and Morgan, 2002.

³¹ Varangu and Morgan, 2002.

³² Varangu and Morgan, 2002.

³³ Varangu and Morgan, 2002.

³⁴ Varangu and Morgan, 2002.

³⁵ Luong and Weinthal, 2006.

³⁶ Smith, Michael and Wilson, Peter. 2005. Venezuela's Chavez Squeezes Oil Companies with Taxes, Raids. *Bloomberg.com*. http://quote.bloomberg.com/apps/news?pid=nifea&&sid=a3z63_HrIvtc (accessed 24 August 2005).

0% corresponds to perfect income equality (i.e. the distribution of income is equal across the population) and 100% corresponds to perfect income inequality (i.e. there is great disparity in income across the population).³⁷

The timescale for the data is from 1960 to 2005. A linear regression was performed to determine whether nationalization has a significant effect on Gini coefficient. In this linear regression, Gini coefficient was regressed on nationalization, which was a binary variable taking the place of 1 if nationalized and 0 if not, and time, gdp per capita, population and country identification, which were chosen because they were believed to influence the dependent variable.

Quantitative Analysis – Public spending on education

The other social development indicator that is analyzed in this project is public spending on education. Here the intention is to test the claim that the oil revenues from the state will go towards social development harking back to when President of Venezuela Hugo Chavez mandated that 10% of PDVSA's annual investment budget go towards social development programs.³⁸ In this analysis, public spending on education was regressed on nationalization which is again a binary variable, and time, GDP per capita, total GDP, the population aged 0 to 14, the population total, and the country identification variable, which were all chosen because they were believed to have some influence on the dependent variable.

Public spending on education is a percentage of GDP. The data was taken from the World Development Indicators and dated from 1960 to 2004. However, there is a potential underbelly to this analysis that the actual nominal value of public spending on education is increasing, but GDP is increasing at a greater rate. Therefore, the percent of public spending on education is a smaller percentage of GDP even though actually a larger amount is being spent.

IV. Background

Drivers behind nationalization

³⁷ Perkins, Dwight, et al. 2001. *Economics of Development*. Fifth Ed. New York: W. W. Norton & Company

³⁸ Hanson, Stephanie. 16 August 2006. Hugo Chavez's World Tour. *Council on Foreign Relations*. Online at http://www.cfr.org/publication/11285/hugo_chavez_world_tour.html (accessed on 22 August 2006).

There are three main drivers behind nationalization. Conservation is one. Private oil companies left to their own devices have too short a time horizon to be concerned with the depletion of oil. It was believed that states themselves should takeover oil industry and develop depletion policies in order to better sustain their resources.³⁹ The first state oil company was created in Argentina in 1922,⁴⁰ however most states did not nationalize until the 1970s when concern began that oil might run out. With that impending doom it was a general belief that governments should have depletion policies because private oil companies will exploit reserves too quickly for society's optimal requirements. These beliefs led to a period of nationalization and the creation of the national oil company (NOC) which was believed to be the best means of implementing a depletion policy because the NOC was created to protect society's interests.⁴¹

Another driver of nationalization is society's interests, which also ties back into the earlier conservation driver. When the industry was privatized, private companies were creating an enclave economy where they extracted the resources from the country and did not provide much in return to the society at large. Since under nationalization the oil revenues go straight to the state, it is believed that society will be better-off if the state received the benefits of its own resources.⁴²

Nationalization is also believed to spark domestic investment and provision of public goods, which could help the state break its dependency on its hydrocarbon resource.⁴³ The driver behind sovereignty and economic nationalism was bad experience with international oil companies. Most of these international oil companies were backed by governments with a history of imperialism. Prior to 1973, most of the major international oil companies operated in isolation from the rest of the domestic economy. Local labor was barely employed and domestic firms had a small presence. Thus, domestic governments had little access to information and the oil companies were reluctant to share this information because doing so would give the domestic governments more bargaining strength.⁴⁴

The empirical analysis seems to indicate that private and state interests in the oil sector are destined to differ. By having direct state participation, one can ensure national interests will

³⁹ Stevens, 2003

⁴⁰ Wirth, 1985.

⁴¹ Stevens, 2003

⁴² ESMAP, 2004

⁴³ Luong and Weinthal, 2006

⁴⁴ Stevens, 2003

be accounted for more so than market forces and private initiative would do.⁴⁵ The corporate purpose of an NOC is usually connected to the national purpose. They usually fulfill a political or social task that a private oil company would not do.⁴⁶ They also usually fill national pride as they are an extension of the state.⁴⁷

It is believed that an NOC increases the government's ability to implement more effective energy policy and environmental protection. Such objectives may be done indirectly with regulation (tariffs, taxes, etc), but such regulations are generally considered politically and socially insufficient and using an NOC is considered a better alternative for a government. Furthermore, after an NOC is established, a government may create more domestic objectives to increase government's social, political and economic control.⁴⁸

According to Stevens national oil companies are assumed to put national interests first.⁴⁹ Multinational diversified oil companies are more concerned with global optimization than with national optimization. However, private oil companies are considered to be better positioned to bear exploration risk than national oil companies according to the Levy Report proposed by W.J. Levy in 1960 to the International Bank for Reconstruction and Development in Washington D.C. in his evaluation of oil in developing countries and its implications on state and private enterprise.⁵⁰

Resource curse

Proper management of natural resources is critical in utilizing them at a sustainable rate. Developing countries that greatly depend on non-renewable resources have a tendency of overexploiting their reserves, which could have damaging effects on the national budget.⁵¹ The so-called resource curse suggests that mineral rich states tend to economically underperform their resource poor counterparts. Luong and Weinthal have argued that nationalization has often been perceived to be the way in which resource-rich states can break out of the dependency

⁴⁵ Stevens, 2003

⁴⁶ Stevens, 2003

⁴⁷ Stevens, 2003

⁴⁸ Stevens, 2003

⁴⁹ Stevens, 2003

⁵⁰ Stevens, 2003

⁵¹ Alberro, Economides and Tolan, 2002

cycle.⁵² Nationalization is largely believed to be beneficial because it will spark domestic investment and provide public goods,⁵³ which in the end, could lead to more sustainable withdrawal of the resource. Thus, Luong and Weinthal argue, and development economists have proposed a similar argument since the 1960s, that a move towards increased nationalization for oil and natural gas industries may enable developing countries to better sustain their natural resources.

Challenges facing nationalization

Looking at a general picture of nationalization, Ascher poses a number of reasons for why the policy often seems to fail. One particular cause for the failure is different political and economic objectives between government and state officials. Even among government officials there is disunity in objectives. When there is such a difference, officials may rely on the natural resource revenue to fulfill their objectives. Furthermore, a problem for natural resource extraction regardless of the organizational structure is that natural resources are often located in areas where marginalized minorities live who have poorly defined property and user rights.⁵⁴ Marginalizing these communities further could result in a backlash as has occurred in Nigeria, where communities who have been neglected by the profits made from the resource in their land demand a greater share of said profit.⁵⁵ Since officials can easily direct financial flows, government officials that are trying to increase accountability and transparency in the industry find it difficult to do so.⁵⁶ Thus, many of the reasons for nationalization's failure are due to human actions and not necessarily policy failures. Even so, nationalization enables government and state officials to manipulate the revenues easier than they would be able to if the industry were privatized and where financial institutions and governance are weak there is no means of ensuring proper accounting.

The difficulty lies in finding the proper control measure. Too much government control means that an NOC is just an extension of civil service, but insufficient control means an NOC may lose interest in non-commercial objectives and become like any oil multinational company

⁵² Luong, Pauline Jones and Weinthal, Erika. 2006b. Combating the resource curse: an alternative solution to managing mineral wealth. *Perspectives on Politics*. 4 (1): 35-53.

⁵³ Luong and Weinthal, 2006b.

⁵⁴ Ascher, 1999

⁵⁵ O'Neill, Tom. 2007. Curse of the black gold: Hope and betrayal in the Niger Delta. *National Geographic*. Online at <http://www7.nationalgeographic.com/ngm/0702/feature3/> (accessed February 2007).

⁵⁶ Ascher, 1999

that focuses solely on commercial success but not necessarily on a larger socio-economic and nationalistic objective.⁵⁷ However, without competition, an NOC may become complacent and lazy and develop goals of its own as opposed to those which it was created for.⁵⁸

It is generally found that NOCs are likely to be: overstaffed and pay more than market wages, located in politically desirable rather than economically desirable regions, charge prices either significantly below marginal cost to win political support or monopolize prices when political objectives dictate it to do so, lack environmental concern and are often the worst polluters.⁵⁹ Furthermore, NOCs tend to lack managerial and technical expertise because NOCs recruitment policies are more governed by tribal and religious considerations than merit.⁶⁰

However, the inefficiencies of NOCs cannot all be blamed on the companies themselves. Governments have been found at times to provide insufficient resources to NOCs hindering the companies' ability to undertake tasks and halting production or any increases in production. Governments suffering from budget deficits may have difficulty securing additional capital for the needs of the NOC.⁶¹ It is difficult to say though, whether governments are the culprits for the challenges facing NOCs or whether NOCs are adversely affecting the government. Suffice it to say that both the state and the national oil company need to work together to achieve efficient operations in either entity.

Alternatives to the NOC

To a certain degree, many objectives of NOCs may be better served by private companies -whether they be domestic or private does not seem to matter - operating under a regulated environment. If the regulation is minimal then a private company may be a more efficient solution than direct government intervention via NOC. When NOCs were established in the 1960's and 70's there was a belief in heavy regulations to combat multinational companies and open the way for NOC. That is no longer the case and now the expertise is already established and major companies are willing to engage in management training. Thus, private companies with light regulation appear to be a strong alternative to the NOC.⁶²

⁵⁷ Stevens, 2003

⁵⁸ Stevens, 2003

⁵⁹ Stevens, 2003

⁶⁰ Stevens, 2003

⁶¹ Stevens, 2003

⁶² Stevens, 2003

V. Case studies

Current trend of nationalization: Bolivia and Venezuela

Oil and gas rich countries in Latin America have recently been demanding a larger share of revenues from the extraction of their natural resources⁶³ and increased state control over the industries.⁶⁴ In addition to Bolivia and Venezuela, Ecuador has also sought greater royalties⁶⁵ but this may be due to the country seeking a greater share from the high price of oil that is producing greater revenues from sales.

Venezuela nationalization

Ever since Venezuela began exporting oil in 1917, Venezuelan leaders have sought to extract greater compensation.⁶⁶ In 1943, Venezuela worked out a “50-50” policy where private companies provided half of their profits to the Venezuelan government in exchange for long-term operating contracts. As time progressed, companies had to provide a greater share of their profits to Venezuela. According to Grayson, by the 1970’s this partially nationalized system left Venezuela dependent on the international economy and aggravated income disparities within the country.⁶⁷

Venezuela’s nationalistic policy was altered in 1998 when Venezuela increased privatization.⁶⁸ After the oil boom of the 1970s, Venezuela began reform efforts leading to growth of state enterprises. These efforts began in 1971, when Congress passed the Gas Nationalization Law. In this law, Venezuela was entitled to collect all associated gas for which the concessionaire had no economic use for at the price of its collection cost. Reservoirs of free gas were also nationalized.⁶⁹ In 1973, Congress passed the Domestic Market Nationalization Law. Under the law, hydrocarbons were considered basic commodities. The 1973 law was

⁶³ The Associated Press. 2006. EU, Brazil concerned by Bolivia nationalization of natural gas industry. *USA Today*, May 2. Online at http://www.usatoday.com/money/world/2006-05-02-bolivia-fofo_x.htm (accessed on 17 August 2006).

⁶⁴ Kobrin, Stephen. 1985. Diffusion as an Explanation of Oil Nationalization: Or the Domino Effect Rides Again. *The Journal of Conflict Resolution*. 29 (1): 3-32.

⁶⁵ The Associated Press, 2006

⁶⁶ Karl, Terry Lynn. 1997. *Paradox of plenty: Oil booms and Petro-states*. Los Angeles, CA: University of California Press

⁶⁷ Koppes, 1982

⁶⁸ Mommer, 1998

⁶⁹ Mommer, 1998

different from the 1971 in that it increased the government's hold over the economy rather than expropriate concessions as the 1971 law did. The state intervened in the domestic market to lower prices and protect national consumers from rising world market prices. Because they were owners of the natural resource, national consumers were not to be subject to the increase of the international ground-rent.⁷⁰ Venezuelan nationalization occurred on January 1, 1976. By the late 1970s, state enterprises accounted for 85.9% of all public-sector investment.⁷¹

Globally, nationalization had two consequences: the collapse of the rent capitalism (the rent that foreign companies pay for the use of the land in the oil producing host country) and the country left on its own could not find new energy infrastructures (the technological and structural capacity necessary for efficient energy production and distribution). The oil-exporting countries raised ground-rent and prices which hurt the oil-consuming countries.⁷² The state enterprises were criticized for lacking clear objectives, technocratic expertise and coordination in planning, and unsuccessful implementation and evaluation of projects. Lack of control over spending of public monies and absence of bureaucratic accountability led to low-level corruption and mismanagement. In Venezuela, the assured flow of oil revenues to state managers left little incentive to maximize efficiency of state enterprises. When nationalized, the oil industry could not tax multi-nationals to pay for their mistakes, as they could only tax themselves.⁷³

Domestic consumption on a whole was a loss to *Petróleos de Venezuela, S.A. (PDVSA)*. Prices eventually fell below technical costs after 1983. Prices in the domestic market were the sole domain of the government. Prices were disassociated from the international market and were lower for domestic consumers. Venezuelan consumers as resource owners felt they did not have to pay ground-rent. Furthermore, since the country had abundant energy resources, low prices were supposed to foster development of energy-intensive industries. The issuance of low prices made it difficult for governments to decide on reasonable prices.⁷⁴ After 1986, due to mismanagement and failure, there was no link between fiscal oil revenues and development.⁷⁵

⁷⁰ Mommer, 1998

⁷¹ Karl, 1997

⁷² Mommer, 1998

⁷³ Karl, 1997

⁷⁴ Mommer, 1998

⁷⁵ Mommer, 1998

Thus, in the mid-1990s Venezuela made efforts to privatize its national industries leading to the Oil Apertura policy.⁷⁶

In 2002, Hugo Chavez, however, took political control of PDVSA. He diverted funds of PDVSA to finance government's social programs. In 2004 the job of Energy and Oil Minister and PDVSA Chairman became the same increasing presidential control of company.⁷⁷ As a result, PDVSA is currently underinvesting (investing insufficient amounts to adequately perform a task) in exploration and production. PDVSA is even underinvesting in comparison to other state-owned oil companies.

This recent creeping nationalization that Chavez has been employing since he took office is seen as an affront to the U.S. Chavez is, moreover, using Venezuelan oil as a foreign policy instrument to form regional alliances with his neighbors by offering them preferential oil leases.⁷⁸ With a possible energy crisis ahead, analysts believe that Chavez is trying to position Venezuela (which has the largest oil reserve in the Western Hemisphere) into a spot where an energy thirsty world would be forced to integrate according to Venezuela's terms.⁷⁹ If Venezuela were to stop selling oil to the U.S., an \$11 per barrel crude oil price spike could result.⁸⁰ PDVSA is still considered to be one of the most successful large national oil companies in the Third World.⁸¹

Bolivia nationalization

Bolivia privatized its oil sector in the mid-1990's. Prior to that, the state owned oil company Yacimientos Petrolíferos Fiscales Bolivianos (YPFB) divested most of assets. After privatization, foreign companies owned most of Bolivia's oil sector. Bolivia also privatized its natural gas sector in the mid-1990's which resulted in more foreign investment leading to an increase in exploration resulting in an increase of 600% of proven natural gas reserves between

⁷⁶ Petróleos de Venezuela S.A. 2006.

⁷⁷ Herrera, 2006

⁷⁸ Orozco, Jose. 2006. Chavez: Seeking to Integrate Latin America on His Terms. *Worldpress.org*. 29 June 2006. Online at <http://www.worldpress.org/Americas/2400.cfm> (accessed 24 July 2006).

⁷⁹ Orozco, 2006

⁸⁰ Hanson, 2006

⁸¹ Mommer, 1998

1997 and 2005.⁸² In May 2006, Morales declared the renationalization of the country's hydrocarbon reserves giving control of reserves back to YPFB.⁸³

On May 1, 2006 President Morales gave the oil companies 180 days to sign new contracts with the state guaranteeing public control and management of activities. He also issued a profit sharing arrangement where companies that have operation in the biggest fields will resign 82% of their profit to the state and keep the remainder and companies in the smaller fields will resign 60% of their profit to the state and retain the remaining 40%. The Spanish company Repsol-YPF and the Brazilian company Petrobras will be the companies most affected by arrangements in Morales' proposals for nationalization.⁸⁴

In the case of Bolivia, this recent nationalization of its natural gas industry on May 1, 2006 might have serious repercussions considering that foreign companies accounted for 20% of the country's gross domestic product and approximately 20% of its tax revenue.⁸⁵ Bolivia had previously nationalized oil production in 1937 and 1969.⁸⁶ However, this time around, Bolivia has not kept to its six month timeline that it laid-out to restructure its state oil company in its current nationalization process, though it seems likely that Bolivia will follow through.⁸⁷ One theory behind President Morales's motives is that he is trying to embrace a regional perspective, combining forces with President Chavez of Venezuela, ignoring a more global one⁸⁸.

Rising earnings from natural gas exports is the driver of Bolivia's economic growth. Nationalization reportedly deterred foreign investment in natural gas sector in 2005 after the approval of a referendum calling for renationalization of the once state-owned Andina and Chaco oil and natural gas operators. The referendum also declared greater taxes on foreign hydrocarbon producers. Bolivia had 440 million barrels proven crude oil reserves in 2006. Bolivia also possessed proven natural gas reserves of 24.0 trillion cubic feet (Tcf) in 2006. It

⁸² Energy Information Administration (EIA). 2006. Country Analysis Briefs: Bolivia. Online at <http://www.eia.doe.gov/emeu/cabs/Bolivia/pdf.pdf>. (accessed 2 November 2006)

⁸³ EIA. 2006. Country Analysis Briefs: Bolivia.

⁸⁴ Herrera, 2006

⁸⁵ Zisis, Carin. 2006. Bolivia's Nationalization of Oil and Gas. *Council on Foreign Relations*. May 12. Online at http://www.cfr.org/publication/10682/bolivias_nationalization_of_oil_and_gas.html#1 (accessed 22 August 2006).

⁸⁶ Kobrin, 1985

⁸⁷ Associated Press. 2006. Brazil cancels high-level energy meeting with Bolivia amid escalating dispute. *International Herald Tribune*. September 14. Online at http://www.iht.com/articles/ap/2006/09/14/business/LA_FIN_Brazil_Bolivia_Gas.php (accessed 17 August 2006).

⁸⁸ Zisis, 2006

produced 64,000 barrels per day of oil during the first three-quarters of 2006 and consumed about 48,000 bbl/d of oil in 2006. Bolivia has two refineries but both are operated by Petrobras (the Brazilian oil company). Due to the nationalization decree, YPF is seeking to appropriate the majority stake in both refineries.⁸⁹

Mexico nationalization

Mexico nationalized its oil industry on March 18, 1938 and has remained nationalized since then. Koppes said that Mexico's nationalization was significant because it was "...the first time a country from the bloc that would become known as the Third World had seized control of a basic sector of its economy held by the capitalist center."⁹⁰ In the Mexican Constitution, articles 27 and 28 solidify Mexican sovereignty over its resources.⁹¹ Article 27 reserved subsoil rights to the state.⁹²

PEMEX was focused on putting social objectives (such as economic independence, subsidies and increased employment) ahead of market considerations. Lázaro Cárdenas, President at the time of the nationalization, sought to improve the living standard of the lower class through education and a greater role for state-run enterprise. He felt that nationalization would be a move towards economic self-determination.⁹³ Foreign oil companies, concerned over the precedent PEMEX was establishing, boycotted the company's exports. PEMEX oil sold abroad fell by 50% in the company's first year of nationalized operations.⁹⁴

In the 1950's PEMEX set objectives on expanding exploration and refining production techniques which increased Mexico's stature as a major player in world oil. According to Grayson, nationalization was critical to Mexico's economic emergence.⁹⁵

Nigeria nationalization

⁸⁹ EIA. 2006. Country Analysis Briefs: Bolivia.

⁹⁰ Koppes, 1982

⁹¹ Alberro, José, Economides, Michael J., Tolan, Sandy. Mexico, Oil, and the Geopolitics of Nationalization: Opening Remarks. *Center for Latin American Studies*. 12 September 2002. Online at <http://socrates.berkeley.edu:7001/Events/fall2002/09-12-02-Alberroetal/tolanremarks.html> (accessed 22 August 2006).

⁹² Koppes, 1982

⁹³ Koppes, 1982

⁹⁴ Koppes, 1982

⁹⁵ Koppes, 1982

Oil was first discovered in the Niger Delta region in 1956. The oil industry was nationalized in 1971. The national oil company, the Nigerian National Petroleum Corporation, Nigeria’s Bonny Light oil (a “sweet,” low-sulfur crude) currently accounts for 95% of the country’s export earnings and 80% of its revenues.⁹⁶ The country currently has sufficient reserves to produce 2.4 million barrels of oil a day.⁹⁷ Nigeria also has a significant amount of natural gas (184 trillion cubic feet) that could sustain current levels of production for 240 years when the oil is depleted.⁹⁸ Nigeria, once self-sufficient in food production relying on farming and fishing now imports more food than it produces.⁹⁹

Figure 1: Nigeria – Agriculture Sector’s Percent of GDP¹⁰⁰

Years	1985	1995	2004	2005
Agriculture (% of GDP)	37.3	31.6	16.6	23.3

Up until 1970, non-oil revenue contributed over 70% of Nigeria’s total revenue, but has decreased steadily thereafter as Figure 1 indicates,¹⁰¹ while oil revenues have steadily increased as Figure 2 indicates.

⁹⁶ O’Neill, 2007

⁹⁷ ESMAP, 2004

⁹⁸ O’Neill, 2007

⁹⁹ O’Neill, 2007

¹⁰⁰ World Bank Group. 2006. Nigeria at a glance. http://devdata.worldbank.org/AAG/nga_aag.pdf (accessed January 2007)

¹⁰¹ ESMAP, 2004

S/N	<i>Total Collected</i>		
	<i>Revenue</i>	<i>Oil Revenue</i>	<i>(%)</i>
1981	15,290.5	8,564.4	56.0
1982	11,433.7	7,814.9	68.4
1983	10,508.7	7,253.0	69.0
1984	11,253.3	8,269.2	73.5
1985	15,050.4	10,923.7	72.6
1986	12,595.8	8,107.3	64.4
1987	25,380.6	19,027.0	75.0
1988	27,596.7	19,831.7	71.9
1989	53,870.4	39,130.5	72.6
1990	98,102.4	71,887.1	73.3
1991	100,991.6	82,666.4	81.9
1992	190,453.2	164,078.1	86.2
1993	192,769.4	162,102.4	84.1
1994	201,910.8	160,192.4	79.3
1995	459,987.3	324,547.6	70.6
1996	520,190.0	369,190.0	71.0
1997	582,811.1	416,811.1	71.5
1998	463,608.3	289,532.3	62.5
1999	949,187.9	738,798.7	77.8

Figure 2: Nigeria oil revenue from 1981 to 1999¹⁰²

Throughout 2006, Nigeria’s civil society has made violent attacks on the oil industries within the country’s borders¹⁰³ and have sued the federal and state governments for “injustice, unfair and unconstitutional action” regarding their policies controlling oil.¹⁰⁴ The Movement for the Emancipation of the Niger Delta (MEND) is one particular militant group that has participated in a number of kidnappings and killings of security guards on platforms and pumping stations mostly operated by Shell Nigeria. The attacks have been sufficient enough to

¹⁰² ESMAP, 2004

¹⁰³ Naku, Dennis. 2006. N/Delta – Militants Hold 60 Hostages. *Daily Champion (Lagos)*. October 11. Online at <http://allafrica.com/stories/200610110012.html>. (accessed 19 October 2006)

¹⁰⁴ Akoni, Olasunkanmi, Oke, Tujeworo. 2006. Itsekiri Leaders Sue Federal Government Over Transfer of Oil Wells and Land to Ilaje. *Vanguard (Lagos)*. October 11. Online at <http://allafrica.com/stories/200610110471.html>. (accessed 19 October 2006).

disrupt the daily flow of 500,000 barrels of oil. However, the high oil prices offset the production losses that occurred in 2006.¹⁰⁵ In an article by *The Economist*, MEND said it will continue to fight until the central government gives control over the oil revenue to the states that produce the oil.¹⁰⁶

The Nigerian National Petroleum Corporation has established joint ventures with multinational oil companies operating within the country's borders that entitle it to between 55 and 60% of the multinational oil companies' revenues which translated to 60 billion dollars in 2005.¹⁰⁷

Yet, the population at large is not benefiting from the oil revenues. Nigeria's anticorruption agency estimates that in 2003 about 70% of Nigeria's oil revenues (over 14 billion dollars) were stolen or wasted.¹⁰⁸

In Nigeria, 85% of oil revenues go to 1% of the country's population.¹⁰⁹ The income disparity is a significant cause of the country's intense violent outbreaks on oil companies.

Nigeria's experience with the hostile environment between civil society, the government and the oil and natural gas industry is an interesting comparison to both Venezuela and Bolivia where the government, civil society and the oil and natural gas industry are on amicable terms. The purpose of the comparison is to gain greater understanding of the effect of civil society on state control of oil industries.

Qualitative Analysis

Reliance of developing nations on natural resources

Developing nations have the greatest reliance on natural resources (refer to Figure 3 to see oil and mineral reliance for selected countries) and therefore they are the countries that can least afford to squander them.¹¹⁰ They rely on resources such as oil and agriculture, to stimulate economic growth and provide a livelihood for low-income people.¹¹¹ Developing countries

¹⁰⁵ O'Neill, 2007

¹⁰⁶ *The Economist*. 2006. "A spectre of turmoil and conflict." February 23.

¹⁰⁷ O'Neill, 2007

¹⁰⁸ O'Neill, 2007

¹⁰⁹ Watts, Michael. 2007. "Crisis in Nigeria: Oil Inferno." January 2. Online at <http://www.counterpunch.org/watts01022006.html>. (accessed 17 March 2007).

¹¹⁰ Ascher, 1999

¹¹¹ Ascher, 1999

depend most heavily on natural resources for domestic production and foreign currency earnings through export.¹¹²

Of the four countries that I used as case studies, three of them had a great reliance on their hydrocarbon resource. Reliance is measured by the value of that particular fuel's export divided by the country's GDP. The ranking is according to all the countries that were taken into account globally.¹¹³ Having such a great reliance on a single export is problematic because it leaves the country vulnerable to the price changes of that export.

Figure 3: Oil and mineral reliance¹¹⁴

Country	Oil Reliance	Mineral Reliance
Nigeria	45.38 (Ranked 4 th)	
Venezuela	18.84 (Ranked 14 th)	
Bolivia		5.53 (Ranked 8 th)

Reliance on oil is just one of the components that define a Petrolist state. The second component is that the state has weak institutions or authoritarian governments.¹¹⁵ For example, Mexico is not a Petrolist state because it does not have a disproportionate reliance on hydrocarbons as an export and because it has relatively strong fiscal institutions.

Yergen and Stanislaw said energy is a “commanding height,” a pillar of any economy¹¹⁶ and therefore activities affecting it may become highly political. The organizational structure of the oil industry is often a political issue since oil itself is such an important commodity.¹¹⁷ Oil has often been used by state leaders as a foreign policy tool because it is unevenly distributed throughout the world and countries that possess it also possess some form of structural power over countries that do not possess it.

Oil and natural gas are non-renewable resources. Their use in energy production puts these limited resources in high demand. Their sustainability is, thus, crucial in providing sufficient energy to meet current and future demand. Population growth causes high demands for energy and manufactured goods,¹¹⁸ which forces developing countries to increase their reliance upon natural resources. The worldwide demand for oil is expected to grow 25-35

¹¹² Ascher, 1999

¹¹³ Ross, Michael. 2001. Does Oil Hinder Democracy. *World Politics*. 53: 325-361.

¹¹⁴ Ross, 2001

¹¹⁵ Friedman, 2006.

¹¹⁶ Yergen, D. and Stanislaw, J. 1998. *The Commanding Height*. New York: Simon and Schuster.

¹¹⁷ Stevens, 2003.

¹¹⁸ Herrera, 2006

percent over the next 15 years from a 1999 perspective.¹¹⁹ From 1994 to 2004, Central and South America including Mexico has accounted for between 12% and 15% of global oil production.¹²⁰

Recently, both Bolivia's and Venezuela's leadership have decided to increase state ownership and control over their oil and natural gas industries. Considering the scarcity of these resources, this change in ownership could have a significant impact on the distribution of global energy supplies. Perhaps most importantly, this change in ownership could affect how quickly the resources are withdrawn.

Ascher challenges the assumption that conservation is believed to be best implemented through state control as opposed to private control.¹²¹ With a limited supply, it is in the interest of state consumption to ensure that these resources are withdrawn at a sustainable rate. The ultimate intention of this project is to shed light on whether enhanced state control, as Bolivia and Venezuela have recently done, will lead to more sustainable use of their oil and natural gas resources or further exacerbate mismanagement of these vital resources. By evaluating various social development indicators under a nationalized policy this project hopes to elucidate whether a nationalized policy is more sustainable than the alternative organizational structures when applied to oil and natural gas industries.

Nationalization – Price of oil and pace of freedom

A general characteristic of countries with a nationalized oil industry (or even countries with just large oil reserves) is their response to the price of oil. A theory posed by Thomas Friedman stated that a rise in the price of oil leads to a decrease in the freedoms enjoyed by society.¹²² There are a few reasons behind this phenomenon, however, all stem back to the fact that the revenue of the hydrocarbon industry is directly received by the government.

One reason is the “taxation effect.” Since the government is receiving revenue to handle the bill of its programs and operations it does not tax its citizens and does not feel accountable to them. Since they are not taxed, citizens in turn do not demand representation in the actions of

¹¹⁹ Herrera, 2006

¹²⁰ Energy Information Administration. 2004. 2.2 World Crude Oil Production, 1980-2004. *International Energy Annual 2004*. <http://www.eia.doe.gov/pub/international/iealf/table22.xls> (accessed 12 February 2007).

¹²¹ Ascher, 1999

¹²² Friedman, 2006

government.¹²³ There is no viable taxation system established so the country is vulnerable to any dramatic drops in oil as occurred in 1998.

Another reason for the decrease in freedom is defined as the “spending effect” by Michael Ross where the revenue that does feed into the government is spent on cronyism and patronage which has negative effects on democracy.¹²⁴

Furthermore, according to what is entitled the “repression effect” money may be spent on security forces to stifle any opposition.¹²⁵

There is also a “modernization effect” that occurs, where oil wealth reduces the societal pressures to occupationally specialize and become educated because the country’s economy is predominantly focused on a single industry. In general, broad economic development is accompanied by such specialization and attainment of higher levels of education.¹²⁶

A final justification for the inverse relationship between the price of oil and the pace of freedom is what Ross defines as the “group formation” effect. The group formation effect is the ability of the government to use the power that the oil wealth provides to prevent the formation of social groups that are independent of the state and “may be inclined to demand political rights.”¹²⁷

Figure 4 below shows the price of oil represented as the white line and the measure of freedom represented by the black line for Venezuela. In the graph, the Freedom score was composed by Freedom House, a nonprofit, nonpartisan organization. The score was based on newspapers opening or closing, free and fair elections, arbitrary arrests, companies nationalized or not, and so on.¹²⁸

¹²³ Ross, 2001

¹²⁴ Ross, 2001

¹²⁵ Ross, 2001

¹²⁶ Ross, 2001 and Friedman, 2006

¹²⁷ Ross, 2001

¹²⁸ Friedman, 2006

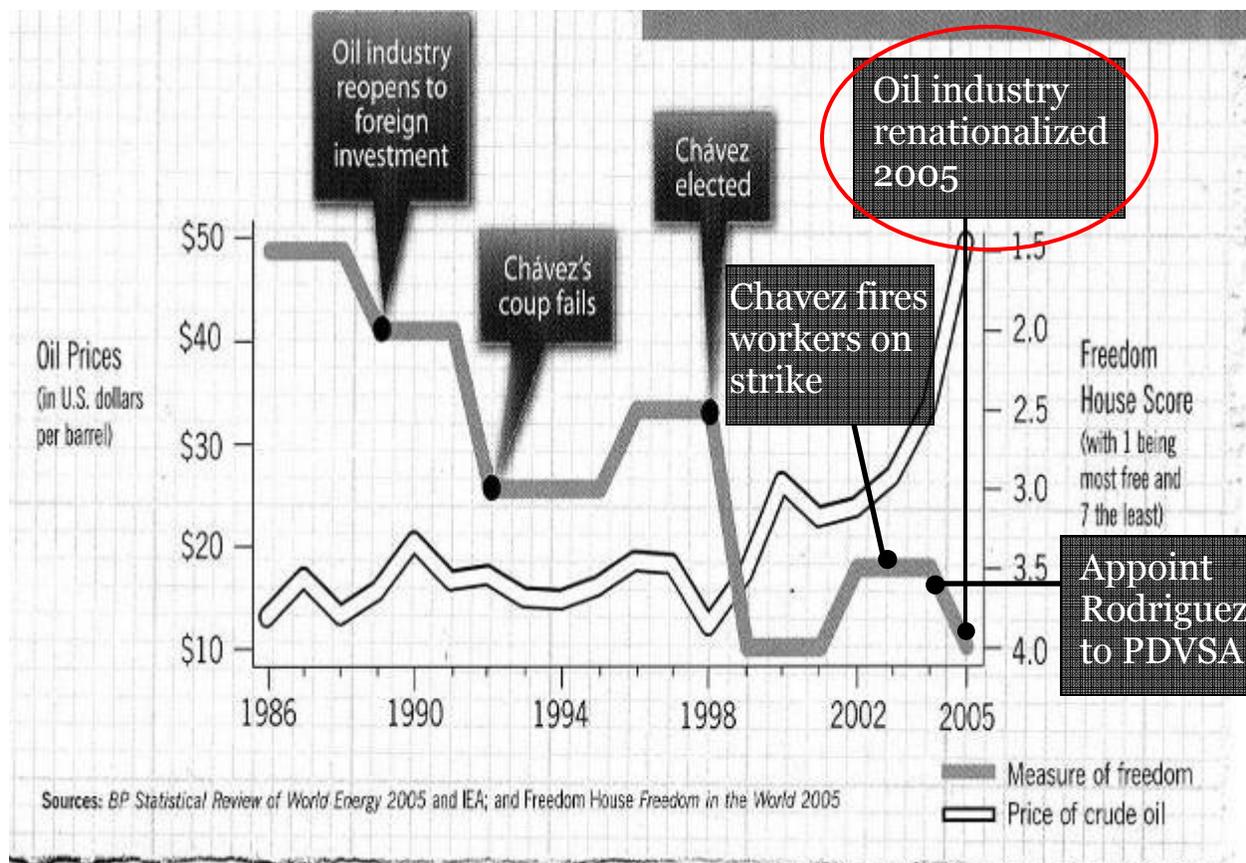


Figure 4: Venezuela: Price of oil vs. Measure of freedom¹²⁹

In December 2002, workers at the national oil company, PDVSA, went on strike to demand Chavez's resignation as President. Chavez declared the strike unconstitutional and fired nearly half of the entire workforce (around 18,000 workers).¹³⁰ In November 2004, Chavez appointed Rafael Rodriguez, Chavez's energy minister, to be chairman of PDVSA which enabled him to consolidate the power of the company under his hands.¹³¹ On the graph Venezuela renationalized its oil industry in 2005 when the Freedom Score was at its lowest and the price of oil was at its highest. The PDVSA announced in 2006 that it will no longer provide annual reports to US Securities and Exchange Commission (SEC) which lessens the transparency and accountability of the national oil company to external actors.¹³²

A similar inverse relationship between price of oil and pace of freedom was also found for Nigeria. When President Obasanjo came into power in 1999 he investigated human rights

¹²⁹ Friedman, 2006

¹³⁰ EIA. 2006. Country Analysis Briefs: Venezuela. Online at <http://www.eia.doe.gov/cabs/Venezuela.pdf> (accessed 18 September 2006).

¹³¹ EIA. 2006. Country Analysis Briefs: Venezuela

¹³² Herrera, 2006

violations and released political prisoners. Nigeria's constitution stipulates that a president may only serve two terms, four years each. President Obasanjo is finishing his second term as Nigeria's president. With the approaching end to his presidency, rumors have begun to circulate that President Obasanjo is bribing Congress to support his proposal to lessen the term limit of presidency and allow for a president to have more than two terms.¹³³

¹³³ Friedman, 2006

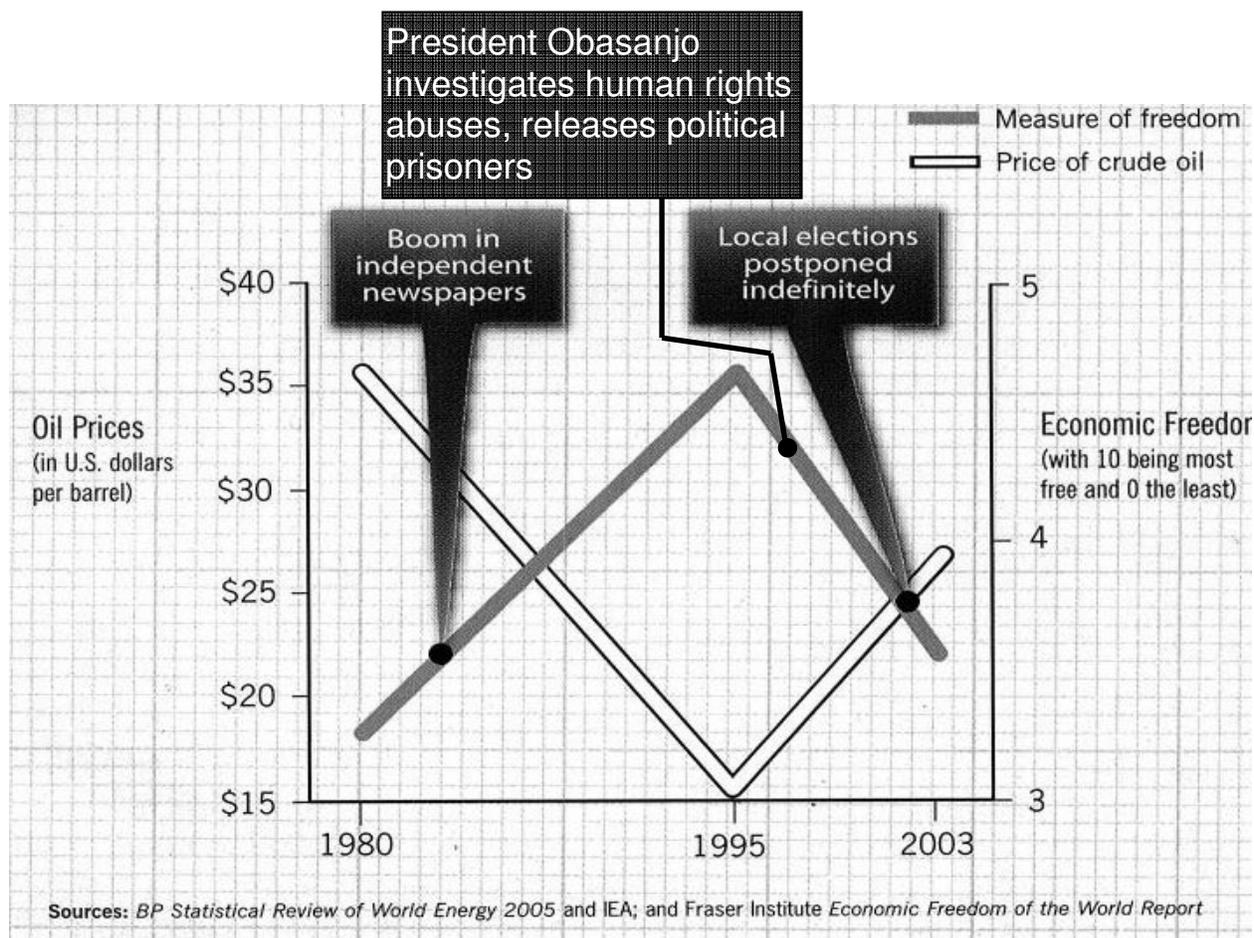


Figure 5: Nigeria – Price of oil vs. Measure of freedom¹³⁴

The Nigerian government has sufficient oil revenues to keep from taxing the populace and has no incentive to build schools or hospitals.¹³⁵ Nigeria is a democracy and had its presidential elections in April 2007. The governing party’s candidate, Umaru Yar’Adua was declared the winner to succeed outgoing President Obasanjo, both of whom are part of the People’s Democratic Party (PDP). Yar’Adua’s win has been marred by controversy due to accusations of polling stations opening late or not at all, shortage of ballots and vote-rigging and violence.¹³⁶ This recent event fits with Friedman’s theory where the “controversial” presidential election is correlated to a high price of oil in 2007.

¹³⁴ Friedman, 2006

¹³⁵ O’Neill, 2007

¹³⁶ Last, Alex. 2006. Nigeria poll mired in controversy. *BBC News*, April 24. Online at <http://news.bbc.co.uk/2/hi/africa/6586221.stm> (accessed on 25 April 2007).

Ross states that, overall, governments with large budgets who fund themselves via oil revenues are more likely to become authoritarian and governments who use taxes to fund themselves and are relatively small are more likely to become democratic.¹³⁷

Regionalism

I introduce this diffusion theory to initiate discourse that the same trend of countries adopting nationalization in the 1970s is occurring now in Latin America. According to Rogers and furthered by Kobrin, diffusion is a process of social communication involving information flows under uncertainty.¹³⁸ In 1962, Senator Hickenlooper compared the wave of nationalization in Latin America to a “prairie fire” where successful nationalizations would produce a domino effect. The domino effect did occur.¹³⁹

Prior to 1971, international oil companies had enough clout as to make any attempts at nationalization “dysfunctional.”¹⁴⁰ Post 1970 nationalizations have been initiated by a desire for greater strategic control over production and pricing.¹⁴¹ In 1976, 74% of (nonsocialist) international production nationalized its oil production operations. International oil companies controlled less than a third of the crude oil outside the United States as of 1980.¹⁴²

With the price of oil increasing steadily now since 1998 (sans a dip after 2001), it is profitable for a government to nationalize its oil and natural gas industries in order to directly receive the revenue from the resource. According to Herrera of the Real Instituto Elcano de Estudios Internacionales and Estratégicos “...opportunities for international oil politics are greater as crude prices rise.”¹⁴³ Venezuela is the first Latin American country to renationalize since the price of oil collapsed in 1998 and so far seems to be experiencing success with the change. The social interactions between Bolivia and Venezuela and the success that Venezuela has demonstrated with its nationalized industry may be part of the reason that Bolivia has also renationalized its hydrocarbon industry.

Chavez helped finance Morales’ election campaign that led him to become President of Bolivia. After taking office, Morales and Chavez both signed energy agreements. They signed

¹³⁷ Ross, 2001

¹³⁸ Kobrin, 1985

¹³⁹ Kobrin, 1985

¹⁴⁰ Kobrin, 1985

¹⁴¹ Kobrin, 1985

¹⁴² Levy, B. 1982. World oil marketing in transition. *Int. Organization* 36: 113-133.

¹⁴³ Herrera, 2006

an Energy Sector Cooperation Agreement (ACSE) and a Caracas Energy Cooperation Agreement (ACEC) establishing an exchange of energy and aid in modernizing infrastructure.¹⁴⁴

Civil society and nationalization

The management of natural resources is also influenced by the civil society of the country.¹⁴⁵ Nationalization of oil has been a large component of national identity and has provided people with a sense of independence, such as it did for Mexico when it nationalized its oil industry in 1938.¹⁴⁶ In the Mexican Constitution, articles 27 and 28 solidify Mexican sovereignty over its resources.¹⁴⁷

In Venezuela, Chavez has ordered the state-run oil company PDVSA, to spend at least 10% of its annual investment budget on social programs. However, this mandate has been stifling for the oil company whose output has dropped by 25% since 1999. That drop is likely the result of a lack of updated machinery and improved technology to tap into the newly discovered fields like Corocoro.¹⁴⁸ Thus, in Venezuela the social programs are given priority over sustaining the resource.

Another instance of social influence is what Assies describes as “social convulsions” in Bolivia that resulted in the Water War of 2000 and Gas War of 2003. The protests of indigenous communities that led to the Gas War of 2003 were over the belief that gas belongs to the nation and should be used to benefit the population first.¹⁴⁹

Even though civil society is often one of the drivers behind nationalizing the natural resource management, civil society can be hurt during nationalization. Petroleum revenue that feeds directly to the government creates an “enclave economy” where the government is not reliant on domestic taxation or a diversified economy.¹⁵⁰ The issue of the enclave economy refers back to Friedman’s point of the weakening freedoms people have in an oil-producing country as the price of oil increases. The taxation effect and repression effect both weaken the

¹⁴⁴ Herrera, 2006

¹⁴⁵ Assies, Willem. 2004. Bolivia: A Gasified Democracy. *Revista Europea de Estudios Latinoamericanos y del Caribe* 76: 25-43.

¹⁴⁶ Alberro, Economides and Tolan, 2002

¹⁴⁷ Alberro, Economides and Tolan, 2002

¹⁴⁸ Hanson, 2006

¹⁴⁹ Assies, 2004

¹⁵⁰ ESMAP, 2004

power of the civil society. One must only refer back to the impact of the taxation effect and the income disparity in Nigeria to see the significance of these effects on civil society.

VI. Results and Observations

Subsidies

For the first part of my quantitative analysis, I looked at Subsidies as a percent of transfers.

Figure 6: Means of subsidies and other transfers (% of expense) from 1998 to 2004¹⁵¹

Bolivia	Mexico	Venezuela
45.04	1.53	57.06

In this table you can see the mean of the subsidies for each country. As you may notice, both Bolivia and Venezuela have subsidies an order of magnitude greater than Mexico. There was no data for Nigeria, but Ascher did note that oil subsidies in Nigeria cost \$1.9 billion annually in early 1990s,¹⁵² however it is difficult to determine how that compares with the other three countries. It is important to note that there were not equal amounts of data among the three countries. Bolivia had data from 2002 to 2004; Mexico had data only for 2000; and Venezuela had data from 1998 to 2003. The discrepancy in data could cause a bias in our results. For instance, since Mexico had only one year available, there are no other years to assess whether subsidies for 2000 in Mexico were unusually low.

A couple items should be pointed out that could affect the outcomes. In late 1998, the price of oil crashed. This crashed caused non-OPEC countries to shut down wells and reduce exploration and production.¹⁵³ The price of oil has been increasing since 1999 as Figure 7 indicates.¹⁵⁴

¹⁵¹ World Bank. 2007. World Development Indicators.

¹⁵² Ascher, 1999

¹⁵³ EIA. 2006. OPEC revenues fact sheet. Online at http://www.eia.doe.gov/emeu/cabs/OPEC_Revenues/OPEC.html (accessed February 2007).

¹⁵⁴ EIA. 2006. OPEC revenues fact sheet.

Crude Oil Prices*, Real and Nominal

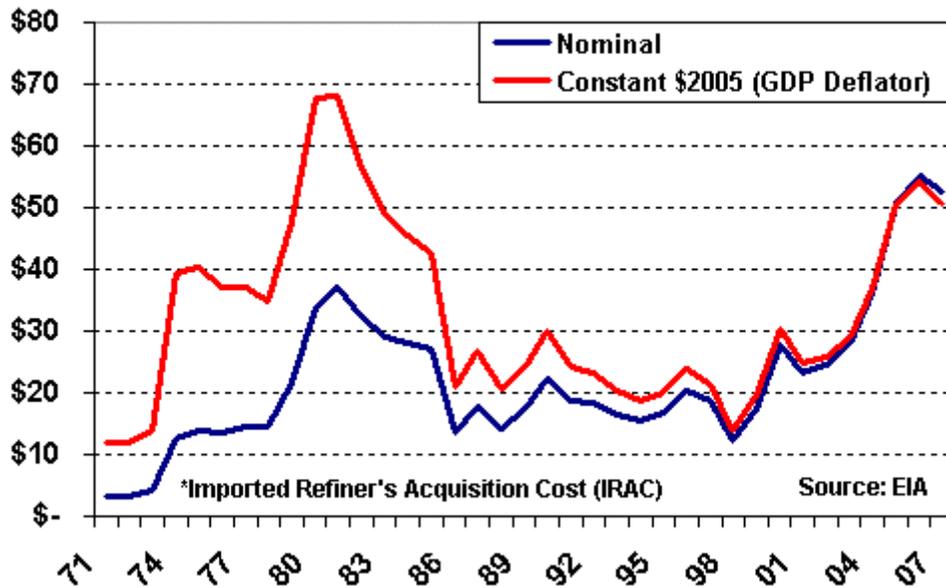


Figure 7: Crude oil prices, real and nominal¹⁵⁵

Furthermore, as is evident from the above graph, prices fell sharply after the terrorist attacks of September 11th 2001, but increased in 2002 and 2003.¹⁵⁶ These price fluctuations perhaps would not matter as much if we had more continuous years to sample from because oil prices are cyclical. Thus, because of the oil price collapse in 1998 and sharp dip in 2001, one might wonder if the use of this small sample of subsidies is biased and the analysis is picking up a skewed portion of oil prices that is not representative of historical prices.

Gini coefficient

I also wanted to analyze social development measures because part of the draw of nationalization is that the money will go towards social development. I looked at Gini coefficient which is a measure of income inequality. The idea for the use of this measure is that nationalization will foster greater domestic investment and lead to greater income equality among the population. For the Gini coefficient, 0% corresponds to perfect income equality (i.e. the distribution of income is equal across the population) and 100% corresponds to perfect income inequality (i.e. there is great disparity in income across the population).

¹⁵⁵ EIA. 2006. OPEC revenues fact sheet.

¹⁵⁶ EIA. 2005. Major Non-OPEC Countries' Oil Revenues. Online at <http://www.eia.doe.gov/emeu/cabs/opecnon.html> (accessed March 2007).

The timescale for the data is from 1960 to 2005. In this linear regression, Gini coefficient was regressed on nationalization, which was a binary variable taking the place of 1 if nationalized and 0 if not, and time, GDP per capita, population and country identification. The Country ID variable was created giving each country a different number in order to take the specific countries into account in the regression. Bolivia was denoted as 1. Mexico was denoted as 2. Nigeria was denoted as 3. Venezuela was denoted as 4. The output for the regression on Gini coefficient is in Figure 8 below.

Figure 8: Regression on Gini coefficient (percentage)

Variable	Coefficient	Standard Error
<i>Nationalized</i>	<i>-3.574</i>	<i>4.850</i>
Time	.00004	.293
GDP/Capita	.001	.0005
Population	5.93e-09	4.62e-08
Country Identification	-1.764	1.266
Constant	52.503	584.148

Public spending on education

The other social development indicator is on public spending on education. Here I wanted to test the claim that the increased revenues from the state will go towards social development as Chavez said he would do in 2002 when he took control of PDVSA and began diverting funds from the national oil company to go towards the government's social programs.¹⁵⁷

In this analysis, public spending on education was regressed on nationalization which is again a binary variable, and time, GDP per capita, total GDP, the population aged 0 to 14, the population total, and the country identification variable. Public spending on education is a percentage of GDP. The linear regression function again includes data from 1960 to 2005 for all four countries. The output for the regression on public spending on education can be found below in Figure 9.

¹⁵⁷ Herrera, 2006

Figure 9: Regression on public spending on education (public spending on education as percent of GDP)

Variable	Coefficient	Standard Error
<i>Nationalized</i>	-1.459	.740
Time	.227	.177
GDP/capita	.0008	.0009
GDP	4.03e-13	2.20e-11
Population aged 0-14	-2.21e-08	7.79e-08
Population Total	.201	.618
Country ID	-.138	1.411
Constant	-456.839	377.516

Nationalization was not significant in the regression. However, when Bolivia is excluded and the regression is based on the 3 other countries the coefficient becomes more severely negative and is found to be significant.

VII. Discussion

Subsidies

Both Venezuela and Bolivia are petrolist states with high mineral reliance and weak institutions and both have a large percent of subsidies compared to Mexico which has a nationalized industry but also has strong institutions, and is not reliant on mineral or oil resources. Thus, greater mineral reliance and weak institutions may lead to greater subsidies.

Venezuela, the country with the greatest percentage of subsidies, has had a history of undermining the price of oil to its consumers. In the 1970s, when the price of oil was rising, the government intervened in the domestic market to lower the price because the Venezuelan consumers were the owners of the national resources and should not be subject to the increase in international oil prices.¹⁵⁸

Gini coefficient

It was found that going from an unnationalized policy to a nationalized policy will decrease the Gini coefficient by around 3.5% indicating that nationalization is increasing income equality. This finding is not a surprise because it was believed that nationalization would

¹⁵⁸ Mommer, 1998

increase domestic investment and the provision of public goods¹⁵⁹ which would likely increase income equality.

Public spending on education

In this regression, moving from an unnationalized policy to a nationalized policy results in a 1.5 % decrease in percent of Public expenditure on education of GDP. The potential underbelly of this argument is that the actual nominal value of public spending on education is increasing, but GDP is increasing at a greater rate. Therefore, the percent of public spending on education is a smaller percentage of GDP even though actually a larger amount is being spent.

VIII. Findings

Of the four case selections, three are petrolist states that are highly reliant on oil or other minerals and have weak fiscal or regulatory institutions. It appears that nationalization is characteristic of petrolist states during periods of high oil prices as is the case of recent renationalization announcements in Bolivia and Venezuela during the current period of high oil prices.

Diffusion & increasing oil prices will likely lead to more Latin American countries nationalizing. Chavez has potentially begun a domino effect which may lead to other countries nationalizing.

From the case selections, it seems that the combination of nationalization and high oil prices lead to more authoritarian states that: have less freedoms; have stagnant or decreasing expenditure on social programs illustrated by the public spending on education regression; and have large subsidies in the case of countries with large mineral reliance and weak institutions.

However, nationalization appears to be correlated to greater income equality as expressed in the Gini coefficient regression potentially because nationalization leads to greater domestic investment. Though the linear regression may indicate greater income equality, this result was unexpected when one considers the media's representation of Nigeria and its apparent growing income disparity. The literature seems to imply that this income disparity is largely what has led to the violent outbreaks in Nigeria against the oil companies – a trait that was not found for any other selected countries.

¹⁵⁹ Luong and Weinthal, 2006

IX. Recommendations

I want to conclude this project by making policy recommendations for nationalized states. The main issue to address with nationalization is the growing authoritarianism in government that results in times of high oil prices. Thus, the chief recommendation is to build strong fiscal and regulatory institutions. These institutions will increase transparency and accountability and create a check on the government to ensure that it does not spend the revenue frivolously and ensure that the economy is not vulnerable to the volatile nature of hydrocarbon prices. One proposal to develop this solution is to initiate a Private Domestic Ownership Policy. The resource will still remain under domestic control and it is believed that a privatized environment with competition and no barriers to entry will foster transparency and since the government will want to tap into the revenues of those private organizations it will develop rules to regulate the private sector.¹⁶⁰

In retaining a nationalized policy, there are a number of suggestions that can help to improve fiscal policies. For instance, investing mineral revenues in economic diversification so the economy is not reliant on a single good is one solution.¹⁶¹

Another is decreasing reliance on external sources of revenue which will help to mitigate boom and bust cycles of commodity prices.¹⁶²

Curbing the state's ability to manipulate mineral revenues via the involvement of external actors (such as, International Financial Institutions like the World Bank and IMF and International nongovernmental organizations) to encourage transparency of funds and hold officials accountable for their actions is another recommendation.¹⁶³

A final suggestion is to distribute windfall revenues directly to the population similar to what takes place in Alaska. Conventional wisdom believes that the population at large will make better investment choices than a government with weak institutions and the population will have greater incentive to save than a state has. It might also encourage the public to engage more politically. The state would have incentive to create viable tax system to retrieve the revenue from the population. However, the downside to the argument is that Alaska has been found to be

¹⁶⁰ Luong and Weinthal, 2006

¹⁶¹ Luong and Weinthal, 2006

¹⁶² Luong and Weinthal, 2006

¹⁶³ Luong and Weinthal, 2006

more focused on consumption than investment and in general the state still controls the distribution of the money so could still mismanage funds.¹⁶⁴

In the end, efficient operation is best achieved through good governance which according to the Chatham House and the Centre for Energy, Petroleum and Mineral Law Policy (CEPMLP) consists of: “clarity of goals, roles and responsibilities, enablement to carry out the role assigned, accountability of decision-making and performance, transparency of information, sustainable development for future generations”¹⁶⁵

Recommendations applied to case studies

Each of the countries selected for this project are democracies. The officials in power have obligations to their constituents. Whether they care to acknowledge that obligation is their decision, but that obligation does exist. For the most part, officials will do what they can to gain the vote of their constituents. Therefore, I do not believe they would neglect the aforementioned recommendations if those recommendations would appease constituents particularly around the time of elections.

Mexico already seems to have stable financial institutions as one can glean from the low percentage of subsidies and a lack of large oil or mineral reliance. By not undermining the cost of commodities, consumers are not inclined to be wasteful. By not having a large reliance on oil or other minerals, the country’s economy is not vulnerable to the price fluctuations of a solitary good.

Nigeria appears to have the most corrupt government of the selected countries due to the large percentage of oil revenue that has been stolen or simply wasted over the past few years and the “sham” presidential elections that occurred in April 2007. In order to quell the violent attacks that the country faces, improving the distribution of oil revenue among the population may be one solution. MEND, just one of the militant groups, had told the Economist that it will continue to fight until the central government gives control over the oil revenue to the states that produce the oil.¹⁶⁶ Since there is such stark income disparity in the country, perhaps implementing a system akin to the one implemented in Alaska where oil revenue is distributed

¹⁶⁴ Luong and Weinthal, 2006

¹⁶⁵ Myers, Keith and Lahn, Glada. 2006. Good Governance of the National Petroleum Sector – Interim Report. Chatham House and the Centre for Energy, Petroleum and Mineral Law Policy. London. Online at http://www.chathamhouse.org.uk/pdf/research/sdp/gginterim_report.pdf (accessed March 2007).

¹⁶⁶ *The Economist*, 2006

directly to the population would be useful. Hopefully, if this distribution policy is implemented the citizens will make wiser investment decisions than the government.

Both Venezuela and Bolivia may benefit from reducing the amount of subsidies distributed to the population and rather, put that money used for the subsidies to go towards more social development programs. In Venezuela, Chavez is currently building ties with other like-minded Latin American leaders (and even leaders in Africa and Asia during his quest for a U.N. Security Council seat) using oil as a means of currency.¹⁶⁷ PDVSA is underinvesting in exploration and production¹⁶⁸ and has seen its output drop 25% as of 2006 since 1999 likely due to a lack of update machinery and improved technology.¹⁶⁹ Returning the oil company to a policy of Apertura could be helpful as it would open the company up to private companies which would increase competition, enable the company to be more autonomous from the state¹⁷⁰ and hopefully increase transparency and accountability and reduce oil revenues sent directly to the government. It is important to note that PDVSA stands to make money whether the price of oil is high or low as it participates in both the wholesale and retail side of oil sales in the U.S. (it owns CITGO, a major U.S. refining company and gas retailer).¹⁷¹

Bolivia has established pipeline connections and is in talks with countries about making a more extensive pipeline infrastructure to transmit its Liquefied Natural Gas to the U.S. West Coast and Northern Mexico.¹⁷² Protests have ensued (the aforementioned Gas Wars of 2003) regarding the creation of a pipeline through Chile, however, it is clear that Bolivia has the largest natural gas reserves in the Southern Cone which puts it in a powerful position in this region.¹⁷³ Talks of the creation of that pipeline have stalled, so the ramifications of Bolivia's nationalization will mostly be felt by the regional countries it sends its natural gas to as opposed to a more global audience. Bolivia also has a high percentage of subsidies as indicated by Figure 6. Improving financial institutions using the above recommendations could help to reduce this high percentage of subsidies. The current push towards renationalization appears to be Morales'

¹⁶⁷ Castañeda, Jorge G. 2006. Latin America's New Proxy War. *Newsweek International* September 25. Online at <http://www.msnbc.msn.com/id/14870277/site/newsweek/> (accessed 10 March 2007).

¹⁶⁸ Herrera, 2006

¹⁶⁹ Hanson, 2006

¹⁷⁰ Petróleos de Venezuela S.A. 2006

¹⁷¹ Corrales, Javier. 2006. Hugo Boss. *Foreign Policy* Jan/Feb (152): 32 - 40.

¹⁷² Assies, 2004

¹⁷³ Assies, 2004

means of appeasing the people and giving them control once again over their natural resources, so it is doubtful that Bolivia will change to a private domestic ownership structure.

X. Next Steps

The analysis performed here applies to only those four selected countries but the insight gleaned from that analysis could be applied to other nationalized countries. It is important to note that countries have different levels of nationalization as the continuum between nationalization and privatization has a significant amount of gray area. Furthermore, although any country could benefit from having stable financial institutions and a diversified economy, it seems more likely that a democratic country would take on such endeavors before an undemocratic country would because in the end, elected officials of democratic nations seek to appease their constituents who would be made better-off by such policies.

For future work to have some added value to this topic of interest, it would be beneficial to see a quantitative analysis done on the energy efficiency of a nationalized industry. A program evaluation of the nationalized policy that looked at oil and natural gas produced and exported and consumed. The appropriate methodology would have to be determined, but the results could be very enlightening.

XI. Acknowledgements

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XII. Appendix

Guidelines for Good Governance of Oil and Gas Sector

In governing the oil and gas sector, the Chatham House and the Centre for Energy, Petroleum and Mineral Law Policy (CEPMLP) have created guidelines according to certain values for the various stakeholders that are influential to that particular sector. All actors must fulfill their responsibilities in order for there to be effective governance of this sector. The actors involved are: the state/government, the national oil company (NOC), the investor, society, and multilateral institutions. The values that the Chatham House and CEPMLP have based their framework upon are responsibility, enabling, transparency, accountability, and sustainability. The complete set of guidelines is listed below and applies to states whether or not they have nationalized organizational structures.¹⁷⁴

RESPONSIBLE: Where do responsibilities lie in the governance of the oil and gas sector?

ACTORS:				
Government/ State	NOC	Investor	Society	Multilateral Institutions
The following functions must be allocated to the actors involved in the governance of the oil and gas sector. a. Policy b. Monitoring/Regulation c. Strategy/Implementation d. Operational Management				

¹⁷⁴ Chatham House and the Centre for Energy, Petroleum and Mineral Law Policy. 2005. Draft Principles of Good Governance. Online at <http://www.chathamhouse.org.uk/pdf/research/sdp/GGprinciples.doc> (accessed 20 March 2007).

<p>Government/ Parliament defines development policy: Clear, long-term, sustainable national development agenda within which the role of the OGS is defined.</p>	<p>Executes its mission: Optimise management and revenue of hydrocarbon resources over time. Fulfil national mission to the extent that there is a state need: (e.g., provide nation with energy, develop national capacity) As state capacity grows, the NOC focuses increasingly on optimising the development of resources.</p>	<p>Be compatible with and contribute to the national development agenda.</p>	<p>Provides checks and balances</p>	<p>Ensure security of demand and supply</p>
<p>Government/ Parliament sets O&G policy: Aim for long-term generation of revenue and resource management. Build national capacity, generate jobs, encourage privatisation in non-core activities, reduce emissions, encourage technology transfer</p>	<p>NOC Board elaborates strategy for implementation of O&G policy (use of operational expertise to translate government objectives into detailed industry strategy) NOC Board informs government to help it define the best policy for the OGS.</p>			
<p>Government responsible for wealth distribution and social development.</p>	<p>Ensure integrity, effectiveness, and efficiency of operations.</p>		<p>Develops work ethic</p>	
<p>Ministry or regulator monitors industry performance.</p>	<p>Operators responsible for operational management, HSE standards</p>			

ENABLING – Giving the players the means to execute their role

Government/ State	NOC	Investor	Society	Multilateral Institutions
Define a clear charter of remit and sufficient authority for each body - Ministry, NOC, Regulator, IOC. (define a clear NOC mission, limits of Ministry’s authority over NOC and independence of regulator from operator).				
Provide the NOC with a degree of management autonomy.				
Provide incentives for the OGS to carry out the role assigned to it in an accountable manner.	Transparent accounting practices.	Transparent spending on community projects		
A stable fiscal regime that optimizes revenues for the state and enables industry to perform effectively. Protect NOC funding from government intrusions.		IOCs allowed to earn required rate of return		
Build government/state capacity: To define appropriate OG policy; To take on the social functions of the NOC; To assess performance of operators.	Builds government/state capacity: Transfer skills and technology; Share best practice.	Assists with capacity building: Share best practice		Assist with capacity building

TRANSPARENT

Government/ State	NOC	Investor	Society	Multilateral Institutions
Transparent procurement of industry contracts and concessions. Transparent fiscal models for JV.				
Public disclosure of accounts requires education for media and public on how to interpret information.	Discloses transparent accounts to government	Spending on community projects (ensures value for money, best practice)		

ACCOUNTABLE – who, for what, to whom

Government/ State	NOC	Investor	Society	Multilateral Institutions
Clear definition of who is accountable for what and to whom Mechanisms for making players accountable for their roles				
Performance contract between NOC and government. Strong institutional frameworks				
Achieve national development goals - Define mechanism to assess success Create incentives for NOC best practice (benchmarking, competition)	Best management of resources at their disposal Transparent accounting Qualitative and operational benchmarking.	IOC delivers oil and gas Investors create value for shareholder		

SUSTAINABLE: How to develop finite resources in a sustainable manner for maximum benefit to society?

Government/ State	NOC	Investor	Society	Multilateral Institutions
Set up a fair and realistic local content policy, adapted to existing skills base.	Education is key to building national capacity (training, centres of excellences, knowledge transfer) Promote diversification (outsourcing, privatising non-core activities)	Contribute to building national capacity (knowledge transfer, share best practice with NOC and contractors, transfer technology)		
Ensure that the development of resource is environmentally, socially and economically sustainable.				
Good revenue management has to provide dividends to the people through government (and to IOC shareholders), invest for future generations, provide the operator with capital for investment and expansion, while minimising unaccounted and mismanaged funds.				