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Do sovereign wealth funds mitigate authoritarian rule?: a statistical analysis of sovereign wealth funds and the resource curse.

G. Jason Smith
University of Louisville

DO SOVEREIGN WEALTH FUNDS MITIGATE AUTHORITARIAN RULE? A STATISTICAL ANALYSIS OF SOVEREIGN WEALTH FUNDS AND THE RESOURCE CURSE

By G. Jason Smith
B.S., University of Louisville, 2003

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by the following Thesis Committee:

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Thesis Director

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DEDICATION

This thesis is dedicated to my wife,

whose sacrifices and encouragement made this thesis possible

and continues to support my academic endeavors.

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ABSTRACT

DO SOVEREIGN WEALTH FUNDS MITIGATE AUTHORITARIAN RULE?

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AND THE RESOURCE CURSE

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The famous oil baron John Paul Getty once defined his secret to success in three parts, "Rise early, work hard, strike oil." This recipe, however, has not lead to political and economic success for oil-reliant, emerging market states. Rather than experiencing a resource blessing, these states have been plagued by a resource curse. This project introduces and tests my theory that sovereign wealth funds offer an exit to the resource curse and pathway back to the resource blessing. This theory is based on two observations I noticed during previous research on the subject: states with sovereign wealth funds boost occupational specialization and government transparency. Since both of these factors are believed to be necessary for democratization, then states with sovereign wealth funds should be less authoritarian. My findings suggest that the political transparency claim is true and that sovereign wealth funds do increase occupational specialization. However, the findings also suggest that occupational specialization is no longer a causal mechanism of the resource curse.

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CHAPTER I

SOVEREIGN WEALTH FUNDS AND OIL

The end of World War II redefined global borders as former imperial colonies throughout the world gained independence from Europe. In the Middle East, this period marked a shift in the petroleum trade from colonial exploitation to self-control of natural resources. Rather than producing oil only for the parent state, nascent governments in the Middle East were now free to sell the state's oil on the global market to any country and at any price it wished. Development economists theorized that the revenues generated from the sale of natural resources would provide the capital necessary for these states to industrialize. If early proponents of modernization theory were correct, then industrialization would increase incomes and occupational specialization leading to the emergence of democratic governments in the region. Clearly these predictions did not come true. Today the Middle East is a region dominated by authoritarian regimes that remain economically reliant on oil exports. To explain the Middle East anomaly to modernization theory, academics developed a theory called the resource curse.

As scholars debated the origin and impact of the resource curse over the past forty years, the fiscal management of resource-reliant states bifurcated into two types of countries: states with sovereign wealth funds and states without sovereign wealth funds. Traditional fiscal policy relied on commodity export taxes to fund the government, which left the state's finances exposed to the global commodity price cycle of booms and busts.

During the oil price spikes of the 1970s, several governments established investment accounts with the excess revenue.

The original goal of these funds was to promote fiscal stability or save for future government obligations. States hoped these funds would offer a buffer between the government's finances and declining export taxes when commodity prices decreased in the future. Over time, capital levels in these funds exceeded the amount necessary to accomplish its original objective, so states began to use these funds to accumulate wealth to be reinvested in the domestic economy. Today, the term sovereign wealth fund is used to describe these funds. Sovereign wealth funds are essentially state-owned investment vehicles funded by government revenues that seek to accumulate wealth for the state. The purpose of this paper is to explore how these funds affect the domestic politics and economics of the states that create and benefit from them.

RESEARCH QUESTIONS

Academics produced an enormous volume of literature over the past four decades defining and explaining the antidemocratic effects of the resource curse and debating if an exit to the curse exists. Michael Ross empirically tested the various causal mechanism introduced by these scholars in 2001. Ross concluded that the resource curse was a reality for both oil and minerals and that deindustrialization and the rentier effect are the causal mechanisms. His research also suggests that the resource curse is not path dependent, but rather the resource curse is an ingrained characteristic of resource-rich states that can be subjugated by careful management of resource wealth (Auty, 1994; Davis, 1995; Ross, 2001).

The goal of my thesis is to explore the political and economic effects that sovereign wealth funds apply on the resource curse by answering the following questions. "Do sovereign wealth funds promote occupational specialization and political transparency?" And "Are states with sovereign wealth funds less authoritarian than counterpart states without these funds?" I hypothesize that sovereign wealth funds promote occupational specialization and political transparency, leading to less authoritarian regimes in the states that create these funds. That is, sovereign wealth funds offer an exit to the antidemocratic effects of the resource curse by ingraining careful wealth management into the state governments that create the fund.

According to Ross, the resource curse prevents democratization efforts in resource-rich states because a complex series of economic pressures prevent industrialization and occupational specialization from occurring. Sovereign wealth funds are state-owned investment vehicles funded by government revenues that seek wealth accumulation as the primary investment objective; thus, states with sovereign wealth funds have a separate source of investment capital that bypasses the complex economic issues that prevent the emergence of industrial and service sector employment that plague other resource-rich states. This essentially confirms the claim made by modernization scholars that resource-rich states get wealthy from the sale of oil without industrializing (Mahdavy, 1970; Bruno and Sachs, 1982; Corden and Neary, 1982; Corden, 1984; Krugman, 1987; Beblawi, 1990; Auty, 1990; Auty 1993; Auty 1994; Auty and Evans, 1994; Ross 1999; Ross 2001).

I will also argue that despite the opaque nature of sovereign wealth funds, states that operate these funds are forced to conduct government activities more transparently

than resource-reliant states that do not have sovereign wealth funds. The reasoning behind this theory is that sovereign wealth funds are increasingly investing capital in Organisation for Economic Cooperation and Development (OECD) member states where the fund is subject to the same national security disclosure laws that mutual funds and hedge funds must follow. Since increased levels of transparency are necessary for democratization to occur, I believe that states with sovereign wealth funds will have less authoritarian regimes.

SUMMARY OF FINDINGS

To test my theories, I compiled a pooled time-series cross-sectional dataset from information published by: Freedom House; International Labour Organization; Polity IV Project: Political Regime Characteristics and Transitions, 1800-2009; Sovereign Wealth Fund Institute; Transparency International; United Nations Educational, Social, and Cultural Organization; World Bank, and the World Christian Encyclopedia. I performed difference in means tests on this data to examine the central premises that sovereign wealth funds promote occupational specialization and political transparency. Furthermore, multivariate regression analysis provides the statistical tools necessary to estimate what effect my hypothesized explanatory variables exert on regime type while controlling for factors associated with authoritarian and democratic regimes.

To test the first claim that sovereign wealth fund states increase occupational specialization, I separated resource-reliant states into two groups based on whether the state had a sovereign wealth fund or not. The difference in means test suggests that sovereign wealth funds promote occupational specialization, but only within the service

sector of the economy. I performed another difference in means test to determine if resource-reliant states with sovereign wealth funds are less opaque than counterpart states without investment funds. To determine if increased transparency does mitigate authoritarian rule, I introduce a corruption variable into the basic regime estimation model. The difference in means test revealed that resource-reliant states with sovereign wealth funds are more transparent than counterpart states.

I then developed an auto-regressive integrated moving average (ARIMA) regression model with panel corrected standard errors similar to the model Ross used to estimate regime type. Examining parameter variability within the model will tell us if the elevated levels of occupational specialization and political transparency generated by sovereign wealth funds actually produces less authoritarian regimes. The ARIMA model results confirmed my theory that political transparency mitigates the antidemocratic effects associated with the resource curse; however, the results contradict the assertion that occupational specialization still fosters democratization. It appears that states with sovereign wealth funds have greater levels of occupational specialization, but occupational specialization no longer influences regime type.

SOVEREIGN WEALTH FUNDS AS A RESEARCH SUBJECT

History has a tendency to repeat itself and sovereign wealth funds are no exception. Kuwait and Kiribati created the first dedicated funds in the 1950s. Oman and the United Arab Emirates followed suit during the oil price spike that occurred between the 1973 Arab Oil Embargo and the 1979 Iranian Revolution energy crisis. Other states followed this trend leading to the creation of several more funds during the 1980s and

1990s. The real tipping point for the sovereign wealth investment account concept occurred during the commodity price spikes of the last decade when another 32 funds were launched (Rozanov, 2005; Jens, 2007; Kimmitt, 2008). By observing what affect the funds created before 1990 had on the political structure of the states that created them, we can determine if sovereign wealth funds mitigate the antidemocratic forces associated with the resource curse in the past. If this claim is true, then sovereign wealth funds could offer a pathway to careful wealth management capable of mitigating the antidemocratic effects of the resource curse in states with recently established funds.

STUDY OVERVIEW

The rest of this study is divided into five chapters. Chapter two covers the resource curse literature and the primary causal mechanisms uncovered by Ross. The chapter starts with an overview of the resource blessing literature published by developmental economists who hypothesized that the discovery of oil would lead to economic and political modernization including industrialization and democratization. The next two sections summarize the economic and political research into the resource curse that emerged in the 1970s when it became clear that industrialization and democratization were not occurring in the Middle East. The next section explores the causal mechanisms identified by Ross that provide the theoretical foundation to my claim that sovereign wealth funds promote occupational specialization that leads to less authoritarian regimes. The various resource curse theories also provide the control variables included in my statistical analysis.

Chapter three covers the change in sovereign wealth fund investment objectives that occurred over time and formally defines the term sovereign wealth fund. The chapter concludes with the introduction of my theory concerning the democratizing effects exerted by sovereign wealth funds. The basic premise is that sovereign wealth funds promote occupational specialization and encourage more transparent government finances, which lead to less authoritarian regimes. By providing citizens with the skills necessary to lobby the government and opening the methods by which governments finance fiscal expenditures, then the social and cultural changes necessary to foster democratization can emerge.

Chapters four and five cover the statistical analysis I used to test my theory. Chapter four outlines the data I use for my statistical analysis and examines the essential premises of my theory using bivariate regression analysis. I test my hypotheses using a pooled time-series cross-sectional database I compiled. The descriptive statistics and bivariate regression analysis suggest that states with sovereign wealth funds are less authoritarian than states without these funds.

Chapter five introduces my research methodology, presents the inferential statistics, and summarizes the empirical tests performed on my theories. Results of the statistical analyses were mixed. Support was found for the central claim that sovereign wealth funds exert a democratizing influence, but only through increased political transparency. The difference in means test suggests that sovereign wealth funds increase participation for both males and females in the service sector of the economy only; however, the regime-estimation model implies that occupational specialization is no longer a determinant of regime type. Evidence from the political transparency difference

in means test suggests that sovereign wealth funds are correlated with more transparent regimes. The regime-estimation model reinforces my claim that elevated levels of political transparency associated with sovereign wealth funds produce less authoritarian regimes. Finally, chapter six covers the conclusion of my research and suggests several future research questions regarding the internal effects of sovereign wealth funds.

CHAPTER II

THE POLITICAL-ECONOMY OF THE RESOURCE CURSE

The discovery of oil in the Middle East was originally considered a resource blessing as scholars hypothesized that the revenue generated by oil exports would usher in an era of political and economic development throughout the region. Development economists theorized that these states could reinvest capital generated by export taxes on oil to expedite growth of the domestic manufacturing sector. Modernization scholars assumed that corresponding increases in personal wealth and occupational specialization that naturally accompany the industrialization process would generate demand by citizens for democratic reforms. These predictions have not come to fruition; and today the Middle East remains economically-reliant on oil exports and dominated by authoritarian regimes.

This chapter explores the evolution of political and economic research into the resource curse. The first section covers the resource blessing theory postulated by development economists. This section outlines the theory that a resource-rich state could use its commodity exports to fund economic development. The next two sections cover the various economic and political theories that emerged as evidence mounted that the discovery and sale of oil perpetuated authoritarian regimes and hindered industrialization. The fourth section covers Michael Ross's empirical testing of the different resource curse

theories, while the fifth section covers the causal factors of the resource curse identified by Ross and introduces the possibility for states to return to a resource blessing.

RESOURCE BLESSING

Former colonies were granted independence from imperial states following World War II. Development economists hypothesized that the colonial history of these nascent states would create a barrier to economic development. Because colonial rule prevented these countries from developing during the Industrial Revolution, these states lacked the manufacturing and labor efficiency necessary to compete against industrialized states in global markets. Decreased demand for exports from underdeveloped states would reduce foreign direct investment leading to an economic imbalance within the inchoate state: a surplus of labor and a shortage of investment capital. Therefore, governments had to increase capital inflows and employment opportunities before industrialization could occur (Viner 1952, Lewis 1955, Hirschman 1958, Spengler 1960, Baldwin 1966).

Oil and other natural resources offered an obvious solution to the capital inflow and labor surplus problems. The rebuilding efforts in Europe increased demand for oil and raw materials that the incipient governments could exploit to fix its economic problems. Allowing multinational corporations to enter the resource extraction sector would increase foreign direct investment and employment. Moreover, governments could increase capital inflows by levying export taxes on the natural resources these companies removed. The revenue generated from those taxes could be reinvested in the domestic economy thereby promoting manufacturing endeavors separate from the resource extraction sector. Labor force efficiency would increase as the manufacturing

sector developed eventually allowing the state to fully industrialize and compete for exports (Viner 1952, Lewis 1955, Hirschman 1958, Spengler 1960, Baldwin 1966).

THE ECONOMICS OF THE RESOURCE CURSE

A small minority of mainly structuralist economists levied the first criticisms against the resource blessing theory, thus laying the groundwork for future studies into the economic effects of the resource curse. Their criticism included three objections to the assumptions made by the development scholars. The first criticism asserted that wealthy industrialized states would collectively use its economic power during commodity price declines to tilt the balance of trade in its favor. As prices cycled over time, resource exporting states would experience a downward spiral in terms of trade (Prebisch, 1950; Singer, 1950). Economic research suggests that aggregate terms of trade for primary commodities have declined 0.1 to 1.3 percent per annum providing support for the argument that the degradation in terms of trade tend to inhibit economic growth (Ross, 1999). However, research conducted by John Cuddington undermines this conclusion in regards to oil. His study separately tested the terms of trade for twenty-six different commodities from the time period 1900-1983 and concluded that the terms of trade for oil remained trendless during this period (Cuddington, 1992).

The second criticism argued that gains in industrial output separate from the commodity sector were unlikely if the process of oil and mineral extraction was dominated by multinational corporations that expatriated profits rather than reinvesting capital in the country (Hirschman, 1958). That argument has seldom been tested, because the trend among resource-rich states veered towards nationalization of the commodity-

extraction sector before enough data was available to reach a valid conclusion. In fact, the rentier state literature assumes that authoritarian political leaders will inevitably act to capture the enormous revenues generated by commodity exports for their own usage (Mahdavy, 1970; Beblawi and Luciani, 1987; Karl, 1997; Vandewalle, 1998; Auty, 2001; Jones Luong and Weinthal, 2006). Moreover, Pauline Jones Luong and Erika Weinthal's research into the resource curse reveals that states with greater levels of private sector involvement in the commodity sector are more likely to democratize than counterpart states with greater state control over resources (Jones Luong and Weinthal, 2006).

The third criticism levied was that sharp cyclical price swings common to commodity markets would make future export taxes hard to predict and increase the monetary risk faced by foreign investors (Ragnar, 1958; Levin, 1960). Government nationalization of the resource sector once again prevented scholars from testing this claim; however, research into the effects oil and natural gas exports had on the Netherlands proved that volatile monetary policy can exert negative economic influences on resource exporting states similar to those hypothesized. The Dutch Disease model that emerged from this research found that an increase in commodity exports often exerts several complex economic effects that culminate in a concentration of capital and labor resources in the commodity extraction sector. Rather than promoting industrialization efforts, oil exports appear to cause deindustrialization that hinders economic modernization (Bruno and Sachs, 1982; Corden and Neary, 1982; Corden, 1984; Krugman, 1987).

DUTCH DISEASE

Dutch Disease occurs when a state experiences a rapid increase in resource exportation that culminates in indirect and direct deindustrialization.[1] Indirect deindustrialization occurs within the labor market of the afflicted state by pushing workers out of the manufacturing sector into the resource extraction and service sectors (Corden and Neary, 1982; Bruno and Sachs, 1982; Corden, 1984). Increased demand for resources by world markets boost wages in the resource-extraction sector of the economy. Higher wages then attract skilled labor from manufacturing companies resulting in a shift of educated personnel from the industrial sector to the resource-extraction sector (Corden and Neary, 1982; Bruno and Sachs, 1982; Corden, 1984). As the situation continues, the state's workforce loses its comparative advantage in tradable manufactured goods further promoting deindustrialization (Krugman, 1987). The spending effect further impedes labor movement into the industrial sector by increasing employment demand in the service sector as the state uses its new-found commodity wealth to boost government expenditures on public and social services (Ross, 1999; Ross 2001). Increased demand for labor in those employment areas elevate wages and creates an incentive for unskilled workers to enter the service sector over the industrial sector (Krugman, 1987).

Rising incomes increase internal demand for manufactured goods and services that leads to price escalation and domestic inflation (Bruno and Sachs, 1982; Van Wijnbergen, 1984). Inflation combined with elevated global demand for resources increase the real exchange rate of the state's currency resulting in direct

[1] These are the most commonly used terms in the Dutch Disease literature.

deindustrialization (Van Wijnbergen, 1984). The process of direct deindustrialization unfolds as follows. An increase in the real exchange rate makes goods manufactured in the resource-rich state relatively more expensive on the global market than goods produced in countries without inflation problems. Higher exchange rates also make imports relatively cheaper than domestic production for the resource-rich state (Bruno and Sachs, 1982; Krugman, 1987). The resulting economic situation incentivizes the importation of manufactured goods over domestic production for Dutch Disease afflicted states. Over time, these circumstances erode the ability of the inflation-distressed state to export manufactured goods leading to direct deindustrialization. The cycle continues with each peak in commodity prices leaving resource exporting states ever more vulnerable to deindustrialization (Corden and Neary, 1982; Bruno and Sachs, 1982; Corden, 1984; Van Wijnbergen, 1984; Krugman, 1987; Auty, 1990; Auty, 1993; Auty, 2001).

Concentration of labor resources in the commodity extraction sector of the economy does not produce the type of occupational specialization conducive to democratization because of the unique nature of that industry. Specifically, technical advances and worker productivity tend to increase slower in resource-extraction jobs than in the traditional manufacturing sector (Ross, 1999). Limited exposure to technological development prevents employees from developing the critical thinking skills necessary to challenge the government because workers are not required to continue their education beyond the initial learning process (Lipset, 1959; Inglehart, 1960; Deutsch, 1961; Ross, 1999; Ross, 2001). The slow evolution of worker productivity inherent in the resource extraction sector tends to further hinder occupational specialization through a separate

process (Ross, 1999). To maximize worker efficiency under the Dutch Disease circumstances, employees are not shifted around to different jobs. As such, unions and other industrial groups do not form to protect workers.

THE POLITICS OF THE RESOURCE CURSE

The political side of the resource curse emerged from attempts to explain why resource-rich states did not democratize despite increasing wealth. Classical modernization scholars hypothesized that industrialization would inevitably generate higher incomes and occupational specialization that promote the social and cultural changes necessary for democratization to occur in post-colonial states (Lipset, 1959; Inglehart, 1960; Deutsch, 1961). While these scholars did not address resource wealth directly, the implicit assumption was that rising incomes in the Middle East would have the same effect as elsewhere (Ross 1999; Ross, 2001). Democratization efforts did not come to fruition during the 1960s and 1970s despite the fact that personal incomes and per-capita GDP rose dramatically in the region; and the persistence of authoritarian regimes challenged the theoretical relationship between wealth and democracies established by early modernization theorists.[2]

Modernization scholars, Middle Eastern experts, and developmental economists each offered competing theories to explain the Middle Eastern anomaly to modernization theory. According to Ronald Inglehart, "Is the linkage between development and democracy due to wealth per se? Apparently not: if democracy automatically resulted

[2] Israel and Turkey are the only two democracies in the Middle East today and neither state has a significant amount of natural resources. Wealth still appeared to be a necessary condition for democratization, but it certainly was not a sufficient condition.

from simply becoming wealthy, then Kuwait and Libya would be model democracies" (Inglehart, 1997: 163). Seymour Martin Lipset stated, "An extremely high correlation between aspects of social structure, such as income, education, religion, on the one hand, and democracy, on the other, is not to be anticipated even on theoretical grounds, because to the extent that the political sub-system of the society operates autonomously, a particular political form may persist under conditions normally adverse to the emergence of that form" (Lipset, 1959: 70).

Many scholars pointed to the strong correlation between Islam and authoritarian rule as the reason why Middle Eastern states did not democratize (Skocpol, 1982; Sharabi, 1988; Lipset, 1994; Midlarsky, 1994; Waterbury and Salamé, 1992; Hudson, 1995; and Barro, 1997; Ross, 1999; Ross, 2001). The reasons for this correlation, and even the claim that Islam is the causal factor, remain open for debate. Several scholars claim that a combination of Islam and post-colonial rule hindered the formation of democratic rule in Muslim states (Clapham, 1985; Ayoob, 2005). By arbitrarily dividing the territory within Africa and the Middle East with little regard to historical and tribal history, those regions inherited socio-political issues that prevented the formation of democratic regimes in the area (Young, 1988; Ayoob, 2005). The predicament was further compounded by the simultaneous promises to Arabs under the Sharif-McMahon correspondence and to the Jews in the Balfour Declaration for control of the Palestine-Israeli areas. This post-colonial malaise left newly formed states trying to discover its identity in a region filled with Pan-Arab nationalism and regional conflict (Monroe, 1963; Ayoob, 2005).

Other scholars argue that Muslim exceptionalism accounts for the inability of Islamic states to democratize. Among these scholars, several theories emerged to explain why Islam is not generally compatible with democratic governance. One theory is that the adherence to religious dogma prevents the proper formation of political philosophy necessary for a state to democratize (Ramazani, 1966; Hunter, 2005). Other scholars suggest that Islam is naturally intertwined with monarchy rule (Curzon, 1892; Hunter, 2005). A third school of thought argues that Islam is not inherently authoritarian, but rather subverts the social and cultural changes necessary for a state to democratize. This theory rests on the assumption that civil societies separate from the government and above the family level must emerge and unite a state's citizens before the social changes necessary for democratization could occur (Putnam, 1993).

Middle Eastern specialists refused to accept Islam as the explanatory factor for the failure of democratization in the region. Instead, these scholars argued that the global economic structure inhibited democratization by creating rentier states in the Middle East (Mahdavy, 1970; Beblawi and Luciani, 1987; Beblawi, 1990, Lam and Wantchekon, 1999). According to the economist David Ricardo, "Mines, as well as land, generally pay rent to their owners and this rent...is the effect and never the cause of the high value of their produce" (Ricardo, 1821: 590). Thus, rents are unearned benefits and rentier states are countries economically reliant on the unearned revenues paid by the sale of natural resources. Hazem Beblawi published four characteristics that define a rentier state. First, the rent situation predominates. Second, the economy must rely on a substantial external rent – and therefore does not require a strong domestic productive sector. Third, only a small proportion of the working population is actually involved in the generation of the

rent. Fourth, and most importantly, the state's government is the principal recipient of the external rent (Mahdavy, 1970: 428; Beblawi and Luciani, 1987: 85).

The rentier state theory can be viewed as the ideological inverse of the American Revolution: "There is no representation without taxation" (Beblawi, 1991: 10). Export taxes on oil generated enough revenue that the state did not need to levy internal taxes on its citizens to fund government operations; thus, citizens and civic institutions lacked the will to demand democracy (Luciani, 1990). Another way to view this concept is that citizens implicitly accept the cost of authoritarian rule in exchange for the benefit of paying no taxes (Entelis, 1976; Beblawi, 1987; Beblawi and Luciani, 1990; Shambayati, 1994; Anderson, 1995; Vandewalle, 1998).[3] Some scholars argue that governments actually use oil export capital to fund its military and mukhabarat (internal police forces), which are then used to stifle internal dissent and squash democratic institutions before they could assert their presence (Moore, 1966; First, 1980; Vandewalle, 1994; Shambayati, 1994). This addendum to the rentier state theory is commonly called the repression effect.

A third explanation for the lack of democratization emerged based on the Dutch Disease literature. Economists noticed a peculiar trend that emerged during the 1970s oil price spikes. Instead of experiencing widespread economic gains, states reliant on oil exports endured deindustrialization throughout the decade. The Dutch Disease theory claims that rising oil revenues accelerate government spending leading to rapidly rising inflation rates. Inflation destabilized the state's currency increasing the monetary risks associated with foreign direct investment. The exchange rate risk was especially

[3] See also Charles Tilly, Phillip T. Hoffman, and Kathryn Norberg.

dangerous in economic sectors not affiliated with oil extraction further aggravating industrialization efforts (Prebisch, 1950; Singer, 1950; Bruno and Sachs, 1982; Corden and Neary, 1982; Corden, 1984; Krugman, 1987).

The Dutch Disease phenomenon was further exacerbated by increased government spending on public services and the nationalization of oil companies. Both of these actions increased the level of government spending relative to GDP, which magnified the crowding-out effect for private industry (Bruno and Sachs, 1982; Corden and Neary, 1982; Corden, 1984). By the early 1980s, the crowding-out effect and nationalization of oil companies virtually eliminated private industry in the Middle East. As private actors withdrew investment capital from non-energy industries, labor moved from general manufacturing to the oil sector. Thus, states were able to develop economically and generate wealth without industrializing (Ross, 1999; Ross, 2001).

EMPIRICAL TESTING OF THE RESOURCE CURSE

The resource curse theories were methodologically sound, but remained qualitative in nature and had not been quantitatively tested (Ross, 2001). Ross fixed that oversight by empirically testing the basic premise of the resource curse and several of the underlying assumptions present in different existing theories. He concluded that that resource curse claim was valid. The correlation between oil and authoritarian rule is present and statistically significant even after accounting for the presence of Islam (Ross, 2001). Oil also hurt poorer states more than it hurt wealthier states, which means that even a relatively small amount of oil export revenue can hurt democratization efforts in relatively poor states (Ross, 2001). Ross also tested the regional claim and discovered

that the resource curse does exist outside the Middle East. The results suggest that the presence of oil hindered democratization efforts in Indonesia, Malaysia, Nigeria, Mexico, and possibly several Central Asian states (Ross, 2001).

Concerning the various causal mechanisms, Ross found tentative support for the rentier, repression, and modernization effects (Ross, 2001). Ross looked at tax rate and government spending to test the rentier theorists' claim that governments suppress democratic pressure by bribing citizens with low tax rates and welfare spending. Statistical testing revealed that lower corporate and personal tax rates are strongly correlated with more authoritarian governments, but the effect was only significant in the short run (Ross, 2001). The hypothesis that government spending dampens democratization was statistically significant in the short and long term, though, adding credence to the spending effect claim (Ross, 2001). Testing the repression effect revealed a statistically robust correlation between military spending and authoritarianism in oil-reliant states, but there was little support for the claim that these states used the military to physically repress its citizens. Ross concluded that military spending rose because the strategic value of oil required strong militaries for defensive efforts (Ross, 2001).

Ross tested the modernization scholars claim that deindustrialization diminished a population's desire for democracy. He concluded that claims made by modernization scholars were essentially valid. There is a strong correlation between deindustrialization and authoritarian regimes; however, the results could be interpreted two ways. Modernization theory is valid, but the only real effect is that resource wealth inhibits occupational specialization outside of the oil sector (Ross, 2001). Another possible

interpretation suggests that the rentier effect and modernization effect occur simultaneously in oil-reliant states (Ross, 2001). Widespread industrialization does not occur because there is no demand for labor outside of the oil sector; however, this situation is not a problem for the state because the government can disperse oil wealth via welfare spending without industrializing. Since the public never develops the cultural skills associated with economic modernization, the system inherently dampens internal dissent and demands for democracy (Ross, 1999; Ross, 2001).

EXITS TO THE RESOURCE CURSE

Ross concluded that the presence of oil and other natural resources exert negative pressures on democratization, but he also determined that the resource curse was not path dependent (Auty, 1993; Auty, 1994; Auty, 2001; Ross, 2001). He did not expound on what an exit to the resource curse might look like, but his regression results suggest that escape from the trap was theoretically possible (Ross, 2001). This finding contradicts previous research that asserts the only way an oil-rich state could exist as a democracy is if that state was a functioning democracy at the time oil was discovered (Beblawi, 1987; Beblawi and Luciani, 1990). Any state that was not had not fully democratized by the time oil was discovered would remain intrinsically plagued by the poor economic growth and weak civic institutions that perpetuate authoritarian regimes.

What options exist for an exit from the resource curse? Samuel Huntington defined three methods for democratic transition called: transformation, transplacement, and replacement. Transformation occurs when elites push for change. Transplacement takes place when joint action from the government and opposition groups foster

democratization. Replacement occurs when opposition groups act alone to overthrow the authoritarian regime and implement a democratic government (Huntington, 1991). Given the unique situation presented by the resource curse, transformation and replacement are highly unlikely to occur in resource-reliant states. That leaves transplacement as the only logical escape for the resource curse.

Jones Luong and Weinthal (2006) argue that Beblawi's fourth characteristic of rentier states is the determinant factor for transplacement. Their approach differs from previous research by treating the structure of the oil industry as an endogenous rather than an exogenous variable. When the state is the primary recipient of oil revenue, government officials inherently increase their authority over the entire oil institution from the extraction process to revenue collection. This situation creates an incentive for the state actors overseeing the distribution of wealth to focus solely on the short-term with little regard for the long-term consequences of their actions. This situation ingrains political corruption that thwarts the emergence of civic institutions. The failure to expand civic institutions inhibits the formation of civil society, thus preventing the occurrence of transplacement events (Jones Luong and Weinthal, 2006).

Furthermore, privatization of the resource sector in authoritarian regimes is rare because external political pressures encourage greater state-ownership of resources (Jones Luong and Weinthal, 2006). The Organization of Petroleum Exporting Countries (OPEC) and the global political structure encourage policy convergence among resource producing states by rewarding compliant governments with oil prices higher than free-market equilibrium would produce. Adherence to the status quo hinders the formation of

political competition and alternate revenue streams thus fomenting internal constraints on the oil institution that perpetuate authoritarian rule (Jones Luong and Weinthal, 2006).

The entrance of private actors in the oil institution mitigates the antidemocratic effects of the resource curse through two channels. First, states that allow private corporations to enter the oil sector create an avenue for wealth dispersion separate from the government (Jones Luong and Weinthal, 2006). Diminished power over the distribution of oil wealth means the state must develop revenue streams separate from oil export taxes. If the only way to generate more government revenue is through internal taxes, then the relationship between social welfare benefits and the cost of authoritarian rule will shift out of equilibrium. Transformation events could theoretically emerge from this imbalance.

The second channel offers a more direct route to transplacement. When private owners earn a stake in the outcome of the oil sector, the oil institution offers an economic incentive for private actors to engage the government in negotiations over resource property rights and taxes (Jones Luong and Weinthal, 2006). According to Jones Luong and Weinthal, "Thus, privatization to domestic actors offers an alternative path out of the 'resource curse' because it creates an incentive for both state and non-state actors to bargain over and eventually establish the formal rules of the game" (Jones Luong and Weinthal, 2006). Transplacement should naturally emerge under these circumstances.

Strong property rights must exist before these circumstances can promote transplacement. Private corporations that enter states where weak property rights prevail face an investment risk that cannot be mitigated by normal profit margins (Ross, 1999).

However, multinational resource extraction companies can maintain operational profitability by hiring rebels, gangs, or private militia to enforce its property rights (Ross, 1999). This situation creates a unique economic structure conducive to slow industrial growth and a booming resource extraction sector (Chicilnsky, 1994; Ross, 1999).[4] Resource export taxes surpass other forms of government revenue over time further enhancing the antidemocratic effects of the resource curse. These effects are compounded because states with poorly enforced property rights tend to gain a comparative advantage over other states in export markets (Chichilnsky, 1994).

OVERVIEW

Ross settled many of the academic disputes found in the resource curse literature. Empirical testing validates the existence of a statistically robust relationship between economic reliance on resource exports and authoritarian regimes; thus confirming the basic premise of the resource curse. The regression models also suggest that oil export revenues inhibit occupational specialization and increase government spending resulting in deindustrialization and the persistence authoritarian regimes (Ross, 2001). Strictly speaking, these results confirm that the modernization and rentier effects are the causal mechanisms of the resource curse. This chapter also introduced evidence that the resource curse is not path dependent and can be overcome by careful management of the wealth associated with resource exports (Auty, 1994; Ross, 2001; Jones Luong and Weinthal, 2006). The next chapter introduces my theory about how states might escape from the resource curse.

[4] According the Ross, the correlation between slow economic growth and resource export dominance is spurious. Both are a result of poorly enforced property rights (Ross, 1999).

CHAPTER III

SOVEREIGN WEALTH FUNDS

Sheikh Abdullah Al-Salem Al-Sabah of Kuwait charted the first sovereign wealth in 1953 (Kimmitt, 2008). The primary investment objective of the Kuwait Investment Authority was to reduce the state's economic dependence on a single non-renewable resource and promote domestic economic diversification. The concept was ahead of its time, but caught on quickly during the 1970s oil price spikes. Three more national funds were chartered between the 1973 Arab Oil Embargo and the 1979 Iranian Revolution energy crisis: Singapore (Temasek Holdings, non-commodity), the United Arab Emirates (Abu Dhabi Investment Authority, oil), and Oman (State General Reserve Fund, oil).[5] Another four were launched in the early 1980s, bringing the total to nine funds.[6] The idea reemerged during the spike in oil and commodity prices that started in the late 1990s

[5] The United Arab Emirates created their flagship AIDA fund during this time. The fund was officially chartered by Abu Dhabi; however, the fund essentially served as the United Arab Emirates' federal fund until 2007 when the Emirates Investment Authority fund was created. Several U.S. states and a Canadian province also have sovereign wealth funds. Since U.S. states and Canadian provinces are not strictly sovereign, these funds are excluded from this study.

[6] The nine funds are the Kuwait Investment Authority (Kuwait), Revenue Equalization Reserve Fund (Kiribati), Temasek Holdings (Singapore), Abu Dhabi Investment Authority (United Arab Emirates), State General Reserve Fund (Oman), Government of Singapore Investment Corporation (Singapore), Brunei Investment Agency (Brunei), International Petroleum Investment Company (United Arab Emirates), and the Social and Economic Stabilization Fund (Chile).

leading to the creation of at least 32 new funds since 2000 (Jens, 2007; Kimmitt, 2008).[7] Today, there are as many as 40 different funds representing 34 different states (Kimmitt, 2008).[8] A list of these funds can be found in Appendix A.

Currently these funds control an estimated $2 - $3 trillion in assets, a number that could grow by as much as $1 trillion a year for the foreseeable future (Rozanov, 2005; Jens, 2007; Kimmitt, 2008). Furthermore, Morgan Stanley analysts estimate that sovereign wealth funds could potentially manage as much as $12 trillion in assets by 2015 (The Economist, 2008).[9] Individual funds range in size from $400 million in Kiribati's fund to $875 billion controlled by the Abu Dhabi Investment Authority (ADIA) Fund (Jens, 2007; Kimmitt, 2008).[10] Given these facts, researchers should not ignore the future impact sovereign wealth fund managers will apply to domestic and global economic systems.

The first section of this chapter delineates the term sovereign wealth fund. The U.S. Treasury Departments official definition is the most widely used and appropriate characterization of sovereign wealth funds for this paper. The next section briefly describes how sovereign wealth funds are capitalized. Current literature divides funds

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[7] Jens reported that 31 funds have been created since 2000 (Jens, 2007). Since the publication of the article, Saudi Arabia has announced the creation of a new fund (www.sovereignwealthinstitute.com).

[8] Estimates vary based on the different definitions of sovereign wealth funds and how the assets for non-transparent funds are estimated. The Sovereign Wealth Fund Institute, which offers the broadest definition and counting scheme, claims that there are now 50 separate national funds that are actively managed.

[9] To put this in perspective, hedge funds managers control $1.7 trillion in assets, while pension funds and mutual funds collectively manage about $53 trillion in assets (Jens, 2007; Kimmitt, 2008).

[10] Jens states that the United Arab Emirates had three separate sovereign wealth funds (Jens, 2007). According to the Sovereign Wealth Fund Institute, the UAE now operates at least seven separate sovereign wealth funds (www.sovereignwealthinstitute.org).

into commodity and non-commodity funded. The third section covers the different types of sovereign wealth funds. And the final section introduces my hypotheses about how these funds promote democratization by cultivating occupational specialization and political transparency.

SOVEREIGN WEALTH FUNDS DEFINED

The idiom sovereign wealth fund was first used in 2005 by Andrew Rozanov for an article published in the *Central Banking Journal* (Rozanov, 2005). Prior to 2005, the terminology sovereign wealth management was generically used to refer to the four different types of sovereign wealth investment vehicles: official reserve funds, stabilization funds, public pension funds, and state-owned enterprises. The term originated because a number of official reserve funds, stabilization funds, and public pension funds had accumulated far more capital than was required for its original investment objectives. The high opportunity costs of idling excess capital encouraged many fund managers to invest accumulated wealth in less-liquid, higher growth investments. Rozanov's article explored this trend and proposed that the new moniker sovereign wealth funds be introduced to describe funds that had out-grown its original mission (Rozanov, 2005).

What is a sovereign wealth fund? According to the U.S. Treasury Department, sovereign wealth fund are defined as: "[G]overnment investment vehicles funded by foreign exchange assets and managed separately from official reserves" (Kimmitt, 2008: 122). A sovereign wealth fund is essentially a state-owned investment account funded by excess government revenues with the investment objective of seeking larger capital gains

than official reserve funds (Rozanov, 2005; Jens, 2007; Kimmitt, 2008). Notably, sovereign wealth funds are differentiated from traditional official reserve funds, public pension funds, and stabilization funds by the investment objective of the fund.

The U.S. Treasury Department definition specifically separates sovereign wealth funds from official reserves funds, because of the difference in investment objectives between the two. Official reserve funds seek to protect against finance payment imbalances and offer a buffer against exchange rate volatility. With this objective in mind, official reserve funds typically invest in highly liquid securities that offer safer returns (Kimmitt, 2008).[11] The primary investment objective of sovereign wealth fund managers is to seek higher returns than official reserve funds. Thus, "[Sovereign wealth fund] managers typically have higher tolerance for risk and seek higher returns than do official reserve managers" (Kimmitt, 2008: 127). To accomplish this objective, fund managers typically invest in stocks, corporate bonds, real estate, and other financial instruments or investments (Jen, 2007; Kimmitt, 2008).

Since sovereign wealth funds are officially separated from official reserve funds, its activities are not subject to the International Monetary Fund's transparency guidelines. Therefore, information about the exact source of capital and investment objective is not published for most funds.[12] The lack of transparency exhibited by sovereign wealth funds compelled numerous academic debates over potential ulterior motives given to fund managers by state governments. This argument shifted to the political and public

[11] Official reserve funds are typically managed by a state's monetary authority, which is usually the state's central bank (Rozanov, 2005). Official reserve funds typically invest in very safe, highly liquid assets such as government bonds (Jens, 2007; Kimmitt, 2008).
[12] Sovereign Wealth Funds are still required to follow national security laws, including requests for disclosure statements, requested by states where the fund invests assets.

spheres following the Chinese National Offshore Oil Company's (CNOOC) attempted buyout of Unocal and the Dubai World's Ports deal. Quarrels over how these proposed merges would affect national security raged in Congress and on the front pages of newspapers. The heated nature of this controversy generated a plethora of news and academic articles debating how sovereign wealth funds affect global political structures. As such, this subject matter has been extensively covered by academics and journalists alike. The internal political effects of sovereign wealth funds have thus far been left out of the literature. This is an oversight I hope to remedy in this thesis.

SOVEREIGN WEALTH FUND CAPITALIZATION

Despite the lack of transparency, there is enough information available to separate funds into two broad categories based on general funding sources. These classifications are commodity and non-commodity capitalized funds. Commodity funds include both mineral and oil capitalized funds, while most non-commodity funds are created with excess export taxes levied on manufactured goods. This classification just recently emerged, because before 1993 Singapore owned the only non-commodity capitalized fund. Prior to this classification, investment funds were typically called either oil or mineral funds (Rozanov, 2005). Over the last decade 12 non-commodity funds originated as export-oriented industrializing states followed the same path used by resource exporters to achieve higher returns on excess currency reserves (Rozanov, 2005; Jens, 2007; Kimmitt, 2008). There are currently 16 non-commodity funds in operation; however, commodity capitalized funds still account for two-thirds of all sovereign wealth

funds as of 2008 (Jens, 2007; Kimmitt, 2008). Whether or not non-commodity funds have the same effect commodity funds remains to be seen.

THE HISTORY OF SOVEREIGN WEALTH FUNDS

Classifying sovereign wealth funds based on investment objectives is a difficult project for several reasons. Lack of adherence to IMF transparency guidelines means few funds publish investment objectives or strategies. Even if the objective can be implicitly discovered, funds occasionally shift objectives in reaction to changes in the state's finances or global financial markets. Sorting sovereign wealth funds by investment strategy is even more difficult. Just as every state has its own foreign policy tailored to the unique nuances of its circumstances, each sovereign wealth fund has a different investment strategy customized to match the state's specific fiscal and monetary position.

Despite these setbacks, scholars identified three types of wealth management funds based on the original investment objective: stabilization funds, public pension funds, and state-owned enterprises (Rozanov, 1995; Jens, 2007; Kimmitt, 2008). There are two things to remember about this taxonomy. The first thing to keep in mind is that wealth management funds start with these objectives. As the fund matures over time, capital levels surpass the threshold for fulfilling the original fund objective. This is the point that wealth management funds turn into sovereign wealth funds (Rozanov, 2005; Kimmitt, 2008).[13] Second, every established sovereign wealth fund seeks higher returns than the state's official reserve funds (Kimmitt, 2008).

[13] An agreed upon naming scheme for funds based on their investment objectives has yet to emerge in the literature. For this paper I will use the names offered by Robert Kimmitt because these names most clearly define the fund,s objectives and appear to be the most

STABILIZATION FUNDS

Official reserve funds and stabilization funds have the same basic objective: to buffer a state's economy against macroeconomic volatility.[14] The difference between the two is how they promote stability. Official reserve funds invest in foreign currencies which the state can use to fortify monetary stability during inflationary periods. Stabilization funds take more risks than official reserve funds, but tend to invest in safer, more liquid assets than sovereign wealth funds. Common investments include low-risk, income-oriented asset classes such as high-yield bonds and blue-chip stocks.

Stabilization funds first appeared between the 1973 Arab Oil Embargo and the 1979 Iranian Revolution energy crisis. It was during this period that Oman and the United Arab Emirates followed the lead set by Kiribati and Kuwait by creating wealth management funds.[15] The new funds differed from those established by Kuwait and Kiribati in that the fund was originally charged with the task of promoting fiscal stabilization rather than saving for future generations.[16]

The theoretical genesis of the stabilization fund concept is the economic axiom: "Make hay while the sun shines." According to Arrau and Claessens, "During periods of high commodity prices – and high exports earnings – the country would accumulate

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widely used terms. Funds that seek macroeconomic stability will be referred to as stabilization funds. Funds that invest for future generations will be called public pension funds. Funds that promote domestic industries will be referred to as sovereign wealth enterprises.

[14] These two names are commonly substituted for each other in the literature. For this paper, official reserves are funds managed by central banks and typically do not invest in anything other highly liquid assets that can be used to balance monetary stability.

[15] This trend has apparently been repeated over the past decade. Most of the sovereign wealth funds created during this period have fiscal stabilization listed as the primary investment objective.

[16] The funds established by Kiribati and Kuwait were originally created as public pension funds, but both funds undertook actions to increase fiscal stability during the 1970s.

foreign assets which it would draw down in periods of low commodity prices" (Arrau and Claessens, 1992: 3). The fund invests excess revenues in relatively safe asset classes during oil price booms. During the price bust section of the cycle, the government withdraws capital from the fund to bolster the domestic economy. The end goal is to stimulate fiscal stability throughout the commodity boom-bust cycle.[17]

As the funds grew in size during the 1980s and 1990s, increasing national wealth displaced fiscal stabilization as these funds, primary investment objective. The optimal short-term size of a stabilization fund is less than one month's exports, while the optimal long-term size should be much smaller (Arrau and Claessens, 1992). The opportunity costs of idling capital in excess of this amount are too high for most states to endure for an extended period of time. Following the Persian Gulf Crisis, the average stabilization fund contained capital equal to about four months worth of exports; and the pace of capital accumulation accelerated during the global stock market boom of the late 1990s (Arrau and Claessens, 1992).

It was during this time period that the tipping point between wealth management and sovereign wealth funds was surpassed. With opportunity costs rising and no end in sight for sky-high commodity prices, many of the traditional wealth management funds like stabilization funds added wealth accumulation to the fund's investment objectives (Rozanov, 2005). By the end of the 1990s, most established funds had made the full transition from wealth management to wealth accumulation. This trend continued during the first decade of the new century as fund asset levels and government export tax

[17] The line between the two is further blurred because stabilization funds will occasionally act to promote monetary stability if such actions help to promote fiscal stability. The reverse does not hold true, though, as official reserve funds almost never attempt fiscal stabilization.

receipts rapidly increased in response to emerging market demand for commodities to fuel industrialization efforts.

PUBLIC PENSION FUNDS

"Public pension funds are investment vehicles funded with assets set aside to meet the government's future entitlement obligations to its citizens" (Kimmitt, 2008: 120). Most public pension funds were initially funded by excess capital from official reserve or stabilization funds. Public pension funds have not traditionally met the definition of sovereign wealth funds for two reasons: public pension funds are denominated in local currencies and these funds traditionally did not invest in foreign or riskier assets. The line between the two blurred as public pension funds moved capital abroad to reap the benefits offered by greater asset allocation and diversification (Kimmitt, 2008). Like stabilization funds, many public pension funds turned into wealth accumulation funds as its portfolio grew well beyond the capital levels necessary to fund the state's future obligations.[18] Today, mature funds of both types seek wealth accumulation as the primary investment objective while funding future generations and promoting fiscal stability are now secondary goals.

STATE-OWNED ENTERPRISES

As defined by Kimmitt, "State-owned enterprises (SOES) are companies over which the state has significant control, through full, majority, or significant minority ownership" (Kimmitt, 2008: 120). The primary objective of state-owned enterprises has traditionally been the promotion of domestic industries, but these funds have typically

[18] There is another implicit difference between sovereign wealth funds and public pension funds not covered in the literature. Public pension funds have a specific goal for funding future generations or government obligations, whereas sovereign wealth funds often have the more nebulous goal of increasing national wealth.

been allowed to invest in foreign opportunities if the state believed that investment would achieve the desired goal of domestic development (Kimmitt, 2008). State-owned enterprises have commonly targeted oil companies, particularly companies involved in the extraction of oil (Mahdavi, 1970; Schaefer, 1983; Beblawi and Luciani, 1987; Karl, 1997; Vandewalle, 1998; Auty, 2001; Jones Luong and Weinthal, 2006). But these enterprises have been chartered for other reasons too. For example, Singapore's Temasek holding company was created to take advantage of the state's unique geographic importance as a transshipment point.

The rentier state literature on this subject assumes that oil and mineral wealth is always state-owned by necessity (Mahdavi, 1970; Beblawi and Luciani, 1987; Karl, 1997; Vandewalle, 1998; Auty, 2001; Jones Luong and Weinthal, 2006). Nationalization of commodity wealth was prevalent from the 1950s to 1970s as many oil and mineral rich states seized control of commodity extraction companies under the assumption that the government was the only entity that possessed the enough capital resources to continue commodity extraction (Jones Luong and Weinthal, 2006). Rather than reinvesting tax revenues and capital generated by these ventures to promote industrialization efforts, governments used it to nationalize all of the corporations in the resource sector via state-owned enterprises. Thus, the de-facto goal of this form of sovereign wealth management was to give the government full control over the entire resource sector.

The research conducted by Pauline Jones Luong and Erika Weinthal give credence to the claim that greater levels of private ownership over resources correlates with more democracy, while greater state-control correlates with more authoritarian rule

(Jones Luong and Weinthal, 2006).[19] In other words, state-owned enterprises contribute to the resource curse because the process of nationalization has three harmful effects on developing states (Ross, 1999). Foreign multinational corporations insulate developing states from export instability. After the nationalization process, this buffer disappears leaving the governments of these states exposed to market shocks (Levin, 1960; Schaefer, 1983). Another side-effect of the nationalization process is the relaxation of fiscal constraints that often lead to excessive borrowing for the resource-reliant governments (Kornai, 1986). Finally, state-owned enterprises often lack access to foreign direct investment and external technical assistance making parastatal oil corporations notoriously inefficient and incapable of boosting productivity (Ross, 1999).

State nationalization of the commodity extraction sector operating within its borders was the typical model for state-owned enterprises until the past decade. China redefined the model in its search for new commodity sources. Since China does not have particularly large oil reserves, the central government sought external oil supplies to fulfill its rapidly growing demand. As such, China recently acquired several foreign corporations through its own state-owned oil companies: China National Petroleum Corporation (CNPC), Sinopec, and China National Offshore Oil Corporation (CNOOC) (Lewis, 2007).[20] The primary goal for Chinese oil corporations appears to be the promotion of China's growing manufacturing sector. Thus, China's state-owned oil companies appear to be one of the only state-owned enterprises that successfully achieve the goal of promoting domestic industrialization.

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[19] See Chapter 2 for more details.

[20] The Chinese government has not publicly disclosed its intention for these acquisitions; however, the general consensus is that China is purchasing these companies to shore up oil supplies for its rapidly growing manufacturing sector (Lewis, 2007; Kimmitt, 2008).

SOVEREIGN WEALTH FUNDS AND THE RESOURCE CURSE

Richard Auty asserts that the resource curse is not an iron-clad law, but rather the curse is an ingrained characteristic of resource-rich states that can be subjugated by careful management of resource wealth (Auty, 1994; Davis, 1995).[21] My theory is that sovereign wealth funds ingrain the characteristics of careful wealth management into the government, thus mitigating the antidemocratic effects of the resource curse. In particular, I argue that sovereign wealth funds elevate occupational specialization and unveil government finances promoting transparency in resource-reliant states.

OCCUPATIONAL SPECIALIZATION

Michael Ross's results can be construed two ways. The first interpretation confirms the basic validity of modernization theory; however, occupational specialization is the only causal mechanism (Ross, 2001). The lack of occupational specialization hinders the emergence of social and cultural changes such as unionization, civic group formation, and the development of oratory and critical thinking skills that modernization scholars believe must appear before democratization efforts begin. The second interpretation suggests that the rentier effect and modernization effect occur at the same time in resource-rich states (Ross, 2001). The modernization effect blocks the emergence of occupational specialization that bestows upon citizens the autonomous critical thinking skills necessary to challenge the state's elites and demand more representation (Ross, 2001). The rentier effect further prevents the public from mobilizing politically by

[21] Ross also concluded that the resource curse was not path dependant (Ross, 2001). Auty also states that, "The mineral economies have underperformed compared with countries of a similar size and level of economic development which lack the mineral bonus" (Auty, 1994: 12).

providing social benefits without collecting taxes from the population (Lipset, 1959; Inglehart, 1960; Deutsch, 1961; Mahdavy, 1970; Beblawi, 1987; Ross, 2001).

My theory is that sovereign wealth funds promote occupational specialization via a two-step process. The first step occurs when sovereign wealth funds break the Dutch Disease cycle. Sovereign wealth funds accomplish this by promoting monetary and fiscal stability. Since most sovereign wealth funds started out as stabilization funds, these funds should remain capable of counter-acting the inflationary pressures that frequently plague resource-reliant states. Providing an exit to the Dutch Disease cycle allows the state's economy to develop a viable industrial sector over time.

The second step emerges after the fund adds wealth accumulation as an investment objective. My theory is that sovereign wealth funds provide a reliable stream of income separate from the commodity extraction sector. Rather than concentrating wealth in state-owned enterprises, sovereign wealth funds distribute excess capital to other sectors of the economy resulting in wide-spread industrialization. The end result is that states with sovereign wealth funds create occupational specialization in both the non-resource industrial and service sectors of the economy. Workers then develop more specialized skills that grant them greater bargaining power against the economic elites of the state (Lipset, 1959; Inglehart, 1997; Ross, 1999; Ross, 2001).

POLITICAL TRANSPARENCY

This section introduces a rudimentary theory I am developing about sovereign wealth funds and political transparency. Unfortunately the time allotted for this thesis does not permit inclusion of a finalized version of this theory; however, I still plan to test the basic claim that sovereign wealth funds correlate with elevated levels of political

transparency ceteris paribus. My argument rests on the premise that sovereign wealth funds hire non-government employees and rely on international advisors for their investment expertise. Sovereign wealth funds are large institutional investors that require numerous asset managers, investment analysts, and support personnel to operate, which increases domestic awareness of the government's finances. Relying on external advisors should increases international awareness of the state's finances.

CASE STUDY OF THE UNITED ARAB EMIRATES

To illustrate how this theory operates in the real world, this section offers a brief case study of the United Arab Emirates. Sheikh Zayed bin Sultan Al Nahyan, the founder of the United Arab Emirates, started the Abu Dhabi Investment Authority (ADIA) as a stabilization fund in 1976 (Roy, 2006; Thornton and Reed, 2008). ADIA was not a new endeavor, but rather an expansion and repurposing of the British colonial investment board that was created during the 1960s (Thornton and Reed, 2008).[22] ADIA operated as a small stabilization and official reserve fund for the first ten years, but emerged as the preeminent sovereign wealth fund over the last two decades. I believe ADIA's status as the paramount sovereign wealth fund makes it the prime example of how sovereign wealth funds can increase occupational specialization and political transparency.

ADIA receives most of its external capital from the Abu Dhabi National Oil Company (ADNOC). A continual infusion of new capital from ADNOC combined with above-market returns on investment means the fund currently controls an estimated $600

[22] The original fund was run by a British colonial officer who served as an advisor to the Abu Dhabi royal family.

to $875 billion in assets (Roy, 2006; Thornton and Reed, 2008). This makes ADIA the second largest institutional investor in the world behind the Bank of Japan (Roy, 2006; Thornton and Reed, 2008).[23] With such a large portfolio, ADIA certainly includes wealth accumulation as an investment objective. ADIA's success over this time period also established its status as the benchmark for newly created and existing sovereign wealth funds (Roy, 2006; Thornton and Reed, 2008).

ADIA AND POLITICAL TRANSPARENCY

Elevated levels of political transparency are a by-product of ADIA's portfolio size, which increases access to the United Arab Emirates' finances through two channels. The first channel appears in the operational structure of the fund itself. Managing a portfolio worth well over half a trillion dollars requires a grandiose number of employees. By hiring these employees, ADIA increases the number of people with access the government's financial information. More access to the government's finances by definition results in increased political transparency.

To understand how this works, a more detailed description of ADIA's management structure is necessary. ADIA functions as a single investment entity controlling one global fund. The government appoints a board of directors composed of members of the royal family (Roy, 2006; Thornton and Reed, 2008).[24] The board is responsible for the overall performance of the fund but not the mundane daily operations. To facilitate routine management, investments are broken down into sub-funds based on

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[23] The fund currently averages an annualized rate of return of 10% with new capital flowing in on a monthly basis (Roy, 2006).

[24] ADIA's Board of Directors is officially the supreme body with absolute control over ADIA's offices and business. It is comprised of a Chairman, Managing Director and other board members, all of whom are senior government officials appointed by Ruler's Decree (Roy, 2006: Thornton and Reed, 2008).

asset classes. Internal administrators are then appointed by the board of directors to oversee each of these sub-funds. To bolster investment expertise, 70% to 80% of fund's assets are also supervised by external managers (Roy, 2006). ADIA employs 1,100 people internally, 70% of which are foreigners educated in Europe and North America (Thornton and Reed, 2008). Most of the domestic managers, analysts, and support staff were educated in Western colleges, with ADIA paying for their educational costs via scholarships (Thornton and Reed; 2008). As more domestic employees finish their Western educations, ADIA hopes to reduce external manager involvement to 60% of the fund's assets.

The second channel opened when ADIA adjusted investment strategies as the fund's capital levels surpassed the threshold required to achieve the fund's initial objective. ADIA shifted from an alpha-oriented to a more conservative beta-oriented investment strategy. According to Saeed Mubarak Al Hajeri, the executive director of the ADIA's emerging markets department, "We [ADIA] are not speculators. We don't like to change companies or try to take out the management. We are long-term conservative investors" (Roy, 2006).

In 2008, ADIA shifted its passive investment allocation from 45% of its total assets to 60% (Thornton and Reed, 2008). Passive investments refer to mutual and index funds. Most mutual and index funds are located in North America or Europe, which require routine security exchange filings listing major fund investors and the individual assets owned by the fund. Essentially, these security exchange filings unveil where and how ADIA invests 60% of its assets. The increased size of ADIA's portfolio and movement towards more conservative holdings also make it increasingly difficult for the

fund to keep its ownership stake in individual equities under the 4.5% threshold that requires ADIA to file its own security exchange reports (Roy, 2006).

ADIA AND OCCUPATIONAL SPECIALIZATION

Elevated levels of transparency are not the only reason I believe sovereign wealth funds affect regime type. I also theorize that sovereign wealth funds promote occupational specialization through two channels. We saw in the previous section how ADIA directly promoted occupational specialization by providing college scholarships to employees. ADIA also increases occupational specialization indirectly by investing in the domestic economy. To understand how this occurs, a brief explanation of the fund's asset allocation is necessary. ADIA invests its assets as follows: 50% to 60% in equities, 20% to 25% in fixed income, 5% to 8% in real estate, 5% to 10% in private equity, and 5% to 10% in alternative investments (Roy, 2006; Thornton and Reed, 2008). Equities and fixed income combined account for approximately 70% to 80% of the fund's total assets. Most of the fund's equity and fixed income assets are invested outside of the Middle East (Roy, 2006). The remaining 20% to 30% of the fund's assets are invested domestically through real estate, private equity, and joint ventures.[25]

Rather than developing an export oriented economy, the United Arab Emirates and ADIA focus internal investments on rebranding the state as the financial, service, and tourist capitol of the Arab world. ADIA and the government work together through a tangled web of state-owned enterprises and public-private partnerships to achieve these goals. An entire case study would have a difficult time untangling this web, so I will

[25] ADIA invests very little in Middle Eastern stock markets and commodities themselves as a hedge against the state's inherent reliance on oil exports (Roy, 2006).

only focus on the three largest ventures. These ventures are the Abu Dhabi Investment Company (ADIC), Nakheel Properties, and Emaar Properties.

The ADIC was charted by the government using capital invested by ADIA. The Abu Dhabi Investment Authority and Abu Dhabi Investment Company officially exist as separate entities; however, ADIA owns 97.9% of ADIC (Roy, 2006). In reality, the ADIC essentially acts as ADIA's domestic investment branch. The company's primary task is promotion of the financial sector, although ADIC does own some real estate and invests in the Abu Dhabi Aviation Company.[26] ADIC currently invests in the following financial corporations: National Bank of Abu Dhabi, Abu Dhabi Commercial Bank, Union National Bank, Al Hilal Bank, and the Abu Dhabi National Insurance Company.[27]

To promote tourism and real estate efforts in the United Arab Emirates, the government chartered two real estate corporations that are funded by ADIA. Nakheel Properties operates as state-owned enterprise while Emaar Properties functions as a public-private partnership.[28] Nakheel Properties often does business under the name Dubai World.[29] Emaar Properties is publicly traded on the Dubai Financial Market.[30] The two enterprises are officially competitors, but the companies often cooperate on

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[26] Information for companies owned by ADIC is available on the company's homepage. Information was downloaded on Dec. 3, 2010. http://www.zawya.com/cm/profile.cfm/cid777831

[27] ADIA directly owns a 73% stake in the National Bank of Abu Dhabi (Roy, 2006).

[28] Nakheel Properties receives a substantial amount of capital from both ADIA and ADNOC. Of course, some of the capital invested by ADNOC might not otherwise be invested in Nakheel Properties if ADIA did not exist.

[29] The same Dubai World of the Dubai World's Ports Deal discussed in Chapter 1.

[30] Emaar Properties conducts business under 60 different corporate names. Emaar Middle East (EME) is a joint venture between Emaar Properties and Al Oula Real Estate Development Company. EME was created to manage several high value projects in Saudi Arabia. ADIA and ADIC, though, seldom do much business in other parts of the Middle East.

projects critical to the state. In these situations, Nakheel typically handles the financing and construction of the project while Emaar Properties functions as the project manager.

Nakheel Properties and Emaar Properties recently completed two ambitious real estate deals designed by the government to bolster the state's tourist base. The first deal was the Dubai Palm Islands project, which consists of a series of islands jutting out into the Persian Gulf (Stensgaard, 2004). Together the islands form the shape of a palm tree surrounded by a crescent.[31] Resorts, entertainment centers, and high rise condos were built on each island to attract tourists and real estate moguls. The second deal completed buildings for Middle Eastern branches of the Louvre and Guggenheim museums (Cornwell, 2006; Goldenberg, 2006, Guggenheim, 2006; Manibo, 2008).

Large-scale construction projects, especially the massive Dubai Palm Islands deal, increase demand for skilled labor in the construction and dredging sectors of the economy. All three projects should increase occupational specialization over the long-term by adding new forms of employment in the service sector to handle increased demands from tourists. Nakheel and Emaar also assist government efforts to establish the United Arab Emirates as the regional service capitol of the Middle East. These construction projects include a New York University campus and a regional outpost for the Cleveland Clinic, and the recently completed Burj Khalifa (Stack, 2005; Lewis 2009). The New York University campus should increase the number of the state's citizens that receive a top-notch education. The Cleveland Clinic will elevate demand for highly specialized medical personnel within the state. Many future projects, including the

[31] The Dubai Palm Islands was divided into three separate projects: Palm Jumeirah, Palm Jebel Ali, and Palm Deira. These names are often used interchangeably in news reports and mass media.

Nakheel Tower, have been put on hold till global financial prospects recover. I do not expect ADIC's influence on the United Arab Emirates' domestic economy to diminish anytime soon.

OVERVIEW

The concept of state-funded investment funds started in the 1950s. Traditionally these funds were referred to as sovereign wealth management funds and divided into four categories based on the fund's investment objective: official reserve funds, stabilization funds, public pension funds, and state-owned enterprises. From the 1990s on, capital levels increased in stabilization and public pension funds well beyond the level necessary to achieve the fund's initial investment objective. The opportunity cost of idle capital was too high for the state to ignore, so fund managers were tasked with wealth accumulation as the fund's new primary investment objective. To accomplish this goal, managers began to invest excess capital in riskier, growth-oriented financial products. The term sovereign wealth fund was created to accurately reflect the shift in investment objectives experienced by established wealth funds over the past two decades.

The second half of the chapter introduced my theory that sovereign wealth funds assuage the political effects of the resource curse by promoting occupational specialization and political transparency. The sovereign wealth fund exit to the resource curse works by breaking the Dutch Disease cycle of deindustrialization and introducing a resource-independent stream of government spending that invests in diverse economic enterprises. Sovereign wealth funds accomplish these feats through the promotion of fiscal stability and the creation of non-resource state-owned enterprises. The chapter

concluded with a brief case study that illustrates how my theory works in the real world with regards to the United Arab Emirates' Abu Dhabi Investment Authority (ADIA) sovereign wealth fund.

CHAPTER IV

DESCRIPTIVE STATISTICS

The purpose of this chapter is to provide an overview of data collection efforts for the time-series cross-sectional database I developed for this study. The chapter starts by formally introducing my hypotheses then defines the dependent and independent variables. Independent variables are broken down into three main sections: base model variables, the explanatory variable, and test variables. The base model section is broken down into two sub-sections: resource curse variables and control variables. The test variables section is divided into two sub-sections. The first section introduces the occupational specialization variables used to test hypotheses one and two. The second section covers the test and unique control variables used to evaluate hypothesis three.

The chapter also introduces the multivariate auto-regressive integrated moving-average (ARIMA) model I use in Chapter 5 to test the sovereign wealth fund effect on regime type. The regime-estimation model is:

$$Regime_{i,t} = a_1 + b_1(Oil_{i,t-5}) + b_2(Minerals_{i,t-5}) + b_3(LogIncome_{i,t-5}) + b_4(Islam_i) + b_5(Regime_{i,t-5}) + b_6(SWF),$$

where i is the state and t is the year.[32] The dependent variable *Regime* measures the authoritarian and democratic characteristics of each government. The variables *Oil* and

[32] I borrowed the basic elements of Michal Ross's regime estimation model to for my statistical analysis; thus, my data collection techniques and variable names for control variables will mimic those found in Ross's paper.

Minerals respectively measure oil and mineral exports as a percent of gross domestic product (GDP) for each year from 1970 to 2008. *Log Income* measures the natural logarithm of GDP per capita for each year included in the study. *Islam* measures the percent of each state's population that professed Islam as their faith in the year 2000. *Regime* run on a five year lag is included in the model as an independent variable to control for each state's unique historical trajectory. Finally, the variable *SWF* is a dummy variable coded 1 for each year that a state had a sovereign wealth fund and 0 otherwise.

The data for this analysis was collected from the following sources: Freedom House Inc. (FH); International Labour Organization (ILO); Polity IV Project: Political Regime Characteristics and Transitions, 1800-2009 (Polity IV); Sovereign Wealth Fund Institute (SWF Institute); Transparency International (TI); United Nations Educational, Social, and Cultural Organization (UNESCO); World Bank, and the World Christian Encyclopedia. Data was gathered for as many of the 192 member states of the United Nations possible for the years 1970 to 2008.[33]

HYPOTHESES

To answer the first question, I broke the central claim that sovereign wealth funds promote occupational specialization into two testable hypotheses. The first hypothesis (H_1) is: *Resource-reliant states with sovereign wealth funds create more occupational specialization than resource-reliant states without those funds.* The second hypothesis

[33] By most accounts, there are 195 states in the world that meet the minimum criterion for independence. The three states that meet the criterion for independence but are not UN member states are Kosovo, Taiwan, and the Vatican City.

(H_2) is: *Greater levels of occupational specialization associated with sovereign wealth funds result in less authoritarian regimes.* That is, resource-reliant states with sovereign wealth funds are less authoritarian than counterpart states, because the funds' promote occupational specialization. I distilled the second research question into a third hypothesis to test the transparency claim. The third hypothesis (H3) is: *Sovereign wealth fund states have lower corruption index scores compared to counterpart states.*

To test the first hypothesis, I separate resource-reliant states into two groups based on whether the state had a sovereign wealth fund or not and ran a difference in means test. This difference in means test will tell us if sovereign wealth funds promote occupational specialization. I test the second hypothesis using the regime-estimation ARIMA model introduced at the beginning of this chapter. Examining parameter variability within the model will tell us if the occupational specialization created by sovereign wealth funds produces less authoritarian regimes (Ross, 2001).

I performed another separation of means test to determine if resource-reliant states with sovereign wealth funds are more transparent than resource-reliant states without these funds. Resource-reliant states are divided into two groups based on the presence of sovereign wealth funds using the same methodology as the occupational specialization difference in means test.[34] Finally, I introduce a transparency variable into the ARIMA regime-estimation model to see if the difference in corruption levels associated with sovereign wealth funds produces less authoritarian regimes.

[34] In Chapter 5, I define resource-reliant states as any country where oil or mineral exports exceed 5% of GDP over the time period that particular test covers. Both difference in means tests and the political transparency ARIMA cover the time period 1992 to 2008. The ARIMA model for occupational specialization covers 1970 to 2008.

DEPENDENT VARIABLE

The dependent variable *Regime* measures the presence of democratic and authoritarian characteristics present in each state's government. Gurr, Jaggers, and Marshall's Polity IV regime scores were used for this variable. The Polity I Project was originally started by Ted Gurr with the intent of creating a database of authoritarian regime characteristics that could be used in comparative quantitative analysis. The Polity IV dataset is the most appropriate measure of regime type for my thesis because it does not treat the concepts of democracy and autocracy as mutually exclusive forms of government (Ross, 2001). Scores cover a 21 point range that offers a wider spectrum of governance forms than other measures of regime type. This is important, because the sovereign wealth fund effect may not be large enough to be fully captured by more discrete measures of regime types.

The Polity IV Project run by Monty Marshall and Keith Jaggers updated the Polity III scores by coding six different political characteristics indicative of authoritarian or democratic rule (Gurr et al, 2010). These six components further break down the four principles present in government institutions that indicate regime type: qualities of executive recruitment, constraints on executive authority, political competition, and changes in the institutionalized qualities of governing authority (Gurr et al, 2010).

A total of ten characteristics are coded: six for the components and four for the principles. The Polity IV researchers evaluate each government using the ten characteristics. If the government exhibits a democratic trait for that characteristic, that aspect is coded +1. If the government exhibits an authoritarian trait for that characteristic, that aspect is coded -1 (Gurr et al, 2010). The final regime score is

calculated by adding the authoritarian and democratic scores together. The dataset for the Polity IV Project covers every major, independent state in the world system with a population of 500,000 or more. A total of 163 states are included in the Polity IV Project.

Polity scores range from -10 to +10. A score of -10 is assigned to a government classified as a fully institutionalized autocracy such as a hereditary monarchy. A score of +10 is assigned to states with fully consolidated democratic governments. Generally, states with scores between -10 and -6 are called *autocracies*; scores from -5 to +5 are called *anocracies*; and scores from +6 to +10 are considered *democracies*. Incoherent forms of government are assigned the special values of -66 and -99 (Marshall, Gurr, and Harff, 1999). To make interpretation easier for this thesis, I followed Ross's lead and rescaled the -10 to +10 scores into a new scale ranging from 0 to 21 with a 0 corresponding to an original score of -10 and 21 corresponding to a +10 (Ross, 2001).

Data is not available for states with populations less than 500,000.[35] I borrowed Ross's concept for countries excluded by the Polity IV Project. This methodology creates a Polity IV score by adding the state's Freedom House scores for political rights and civil liberties and rescaling the result onto a 21 point scale (Ross, 2001). After transforming Freedom House Scores, regime data was available for all 190 states.[36] Incoherent forms of government coded as -66 or -99 are excluded.

The descriptive statistics can be found in Table 4.1 on the next page. There are 2,233 instances of autocratic governments in a given year over the 1970 to 2008 time period covered in this study. Autocratic governments account for 33.8% of the total

[35] Polity IV scores are available for every major oil exporting state except Brunei Darussalam.
[36] The two states missing data were Nauru and Tuvalu.

available data. There are 1,442 instances of anocratic rule accounting for 21.80% of the valid cases; and 2,940 instances of democratic rule accounting for 44.4% of valid cases. Of the total data available, there were 268 cases of incoherent governments accounting for 3.9%.

Table 4.1 Regime Type

	Frequencies	Percent	Valid Percent
Autocracy	2233	32.4	33.8
Anocracy	1442	21.0	21.8
Democracy	2940	42.7	44.4
Incoherent	268	3.9	
Total	6883	100.0	100.0

Source: Gurr and Jaggers Polity IV and Freedom House Index

INDEPENDENT VARIABLES: BASE MODEL

The base model includes five control variables. The base model is:

$Regime_{i,t} = a_1 + b_1(Oil_{i,t-5}) + b_2(Minerals_{i,t-5}) + b_3(LogIncome_{i,t-5}) + b_4(Islam_i) + b_5(Regime_{i,t-5})$.

The variables *Oil* and *Minerals* are included to measure the resource curse effect associated with oil and mineral exports. I explore these variables in the section resource curse variables. Two variables are included to control for factors that modernization scholars determined are vital determinants of democratization. These variables are *Islam* and *Log Income*. I also included the variable *Lag Regime* in the base model. The purpose of this variable is to control for each state's unique political history. The variables *Islam*, *Log Income*, and *Lag Regime* are covered in the control variables section.

RESOURCE CURSE VARIABLES

The variables *Oil* and *Minerals* are included to measure each state's economic reliance on oil and mineral exports.[37] Data for these variables were downloaded from the World Bank's World Development Indicators database. The database reports oil and mineral exports as a percent of merchandise exports. These numbers were multiplied by the total currency value of merchandise exports for the appropriate year to find the actual value of oil and mineral exports for each case.[38] That number was then divided by the state's total GDP to calculate the percent of each state's GDP accounted for by oil and mineral exports. Data for fuel and mineral exports are available from 1962 to 2008.

Oil export values include all mineral-based fuels as defined by the United Nations Standard International Trade Classification (SITC) revision 3, sections 32 to 35. This includes: coal, coke, and briquettes (32), petroleum and petroleum related products and materials (33), natural and manufactured gas (34), and electric current (35). Mineral export values include all ores and metals defined by the SITC revision 3, sections 27, 28, and 68 under nonfuel minerals. This classification includes: crude fertilizer and associated minerals (27), metalliferous ores and scrap (28), and non-ferrous metals (68). Oil-reliant states are classified as any country where oil exports accounted for an average of 5% of GDP between 1970 and 2008.

Following the methodology of Ross as well as Sachs and Warner, oil and mineral export values for Singapore and Trinidad and Tobago were adjusted to reflect net exports (Sachs and Warner, 1995; Sachs and Warner, 1999; Ross, 2001). This is necessary

[37] The variables Oil and Minerals are similar to the variables used by Leite and Weidmann (1999) and Ross (2001).

[38] Each case represents one year for each state. All economic data is measured in current U.S. dollars.

because Singapore and Trinidad are major transshipment points for oil and minerals extracted by states within the region (Sachs and Warner, 1995; Sachs and Warner, 1999; Ross, 2001). Reporting the World Bank numbers would artificially inflate the variables *Oil* and *Minerals* for these two states. Singapore and Trinidad and Tobago were adjusted to 0.01%. Mineral-reliant states are classified as any country where mineral exports accounted for an average of 5% of GDP between 1970 and 2008.

The descriptive statistics can be found in Table 4.2 for variable *Oil*. An adequate number of data points were available for SPSS to create a moving average of the *Oil* variable for 175 of the 190 states for which data was collected. Missing states account for 7.9% of the 190 states included in the study. For the variable *Oil*: 32 states for which data was available were oil-reliant accounting for 16.75% of the original 190 state population and 18.29% of the 175 state-sample. There where 143 states not reliant on oil exports accounting for 75.16% of the original 190 state population and 81.71% of the 175 state-sample.

Table 4.2 Oil

	Frequencies	Percent	Valid Percent
Oil-Reliant States	32	16.75	18.29
Non Oil-Reliant States	143	75.16	81.71
Missing	15	7.9	
Total	190	100.0	100.0

Source: World Development Indicators, World Bank

The descriptive statistics can be found in Table 4.3 for the variable *Minerals*. An adequate number of data points were available for SPSS to create a moving average for the *Minerals* variable for 175 of the 190 states for which data was collected. Missing states account for 7.9% of the 190 states included in the study. For the variable *Minerals*: 18 states for which data was available were mineral-reliant accounting for 9.47% of the

original 190 state population and 10.29% of the 175 state-sample. There where 157 states not reliant on mineral exports accounting for 82.63% of the original 190 state population and 89.71% of the 175 state-sample.

Table 4.3 Minerals

	Frequencies	Percent	Valid Percent
Mineral-Reliant States	18	9.47	10.29
Non Mineral-Reliant States	157	82.63	89.71
Missing	15	7.9	
Total	190	100.0	100.0

Source: World Development Indicators, World Bank

I ran a bivariate regression between the variable *Regime* and *Oil*. The dependent variable was the moving average of *Regime* from 1970 to 2008. The independent variable was the moving average of *Oil* for the same time period. To control for autocorrelation and ensure causality, the variable *Oil* was run on a five year lag. The bivariate coefficient between *Regime* and *Oil* was -0.277.[39] This relationship is significant at the 99% level with a p-value of 0.000.

Using the same methodology for variable *Minerals* that I used for the variable *Oil*, the coefficient of the bivariate regression between the variables *Regime* and *Minerals* is -0.021. Interestingly, this relationship is not statistically significant with a p-value of 0.875. I reran the test using data from 1970 to 2000 and found that the relationship for that time period was significant at the 95% level with a p-value of 0.024. Either the states that emerged during the third wave of democratization, the commodity boom of the past decade, or some combination of the two mitigated the mineral resource curse.

[39] This methodology and the time periods covered are consistent with the multivariate ARIMA model used in Chapter 5.

CONTROL VARIABLES

Islam is an important control variable because previous studies suggest that a statistically significant negative correlation exists between states with a high population percentage of Muslims and democratic rule (Bollen, 1983; Lipset, 1994; Saleme', 1994; Waterbury, 1994; Barro, 1997; Midlarsky, 1998; Barro, 1999; Ross, 1999; Ross, 2001). There also exists a strong correlation between the presence of Islam and oil reserves. The exact coefficient size, theoretical explanations, and whether or not this relationship will continue into the future are open for debate.[40] Without taking sides on this issue, I make the assumption that Islam is currently strongly correlated with authoritarian rule and will control for it appropriately.

The variable *Islam* measures the percent of a state's population who professed Islam as their religious faith in 2000. The data comes from the second edition of the World Christian Encyclopedia while missing values were collected from the *U.S. Religious Freedom Report 2002*, *U.S. Religious Freedom Report 2006*, the *International Religious Freedom Report 2009*, and the *UN Vital Statistics Report*. Information was obtained for all 190 states with known regime type. The Pearson correlation between the variables *Islam* and *Regime* type in 2000 was -0.564 and was significant at the 99% confidence level. The p-value reported by SPSS was 0.000. The Pearson correlation

[40] Barro reported a correlation of (-0.38) between democracy and Islamic populations (Barro, 1997: 13). Ross also found a correlation of (-0.44) between Islam and Oil. Concerning the future of Islam and democratic rule, two predominantly Muslim states have recently made sharp moves from authoritarian rule. Nigeria's Polity IV score jumped from a -6 to +4 in 2000 and remained there shifting Nigeria from an autocracy to an anocracy. Following the 1965 military coup and General Suharto's ascendance to the presidency, Indonesia's score moved to -7 in 1970 and remained there until the late 1990s. In 2009, Indonesia's Polity IV score had risen to a +8. That moves Indonesia from a solid autocratic to a solid democratic score in a decade.

between *Oil* for the year 2008 and *Islam* is 0.30 and is significant at the 98% level with a p-value of 0.005.

A breakdown of the descriptive statistics can be found in Table 4.4. The Muslim population comprised less than 20% of the population in 134 states accounting for 70.5% of the total 190 states included in the study. The Muslim population constituted 20% to 80% of the total population in 32 states accounting for 10.6% of the states. I ran a bivariate regression model with the moving average of *Regime* for the years 1970 to 2008 as the dependent variable and *Islam* as the independent variable. The coefficient between *Regime* and *Islam* is -9.212. The relationship is significant at the 99% level with a p-value of 0.000.

Table 4.4 Islam

	Frequencies	Percent	Valid Percent
0-20%	134	70.5	70.5
20-40%	9	4.7	4.7
40-60%	6	3.2	3.2
60-80%	7	3.7	3.7
80-100%	34	17.9	17.9
Total	190	100.0	100.0

Source: World Christian Encyclopedia; U.S. Religious Freedom Report 2002; U.S. Religious Freedom Report 2006; International Religious Freedom Report 2009; and the UN Vital Statistics Report

Income levels are an important prerequisite for democratization in modernization theory (Lipset, 1959; Deutsch, 1961; Inglehart, 1997). The resource curse literature emerged in part because resource-rich states did not democratize despite increasing income levels. To ensure that income levels are high enough to promote democratization in resource-rich states and that the tested effects are actually the true explanatory effects, I include the *Log Income* variable in the base model. The *Log Income* variable measures the natural log of real per capita GDP in current U.S. dollars.

Data was downloaded from the World Bank's World Development Indicators database. Source data for the World Indicators dataset comes from the OECD National Accounts data files and the World Bank's own national accounts data. The World Bank calculates real GDP by adding the gross value added by all of a state's citizens to product taxes and subtracting any subsidies not included in the value of the products.[41] GDP per capita is then calculated by dividing GDP by the state's midyear population. The data used was reported in current U.S. dollar. Since per capita GDP can only be a positive number, the log of per capita GDP is used instead. Using the natural log also makes interpretation easier.

The descriptive statistics can be found in Table 4.5. There are 175 cases of states with log income levels between 0 and 1.9. These low income states account for 3.6% of the total cases. 68.3% of the states have log income levels between 2.0 and 2.9. And 28.1% of these states have log income levels between 3.0 and 4.0. The bivariate coefficient between the moving average of *Regime* from 1970 to 2008 and the moving average of *Log Income* run on a five year lag is 2.939. The relationship is significant at the 99% level.

Table 4.5 Log Income

	Frequencies	Percent	Valid Percent
0-1.9	175	2.9	3.6
2.0-2.9	3338	55.3	68.3
3.0-4.0	1375	22.8	28.1
Missing	1150	19.0	
Total	6038	100.0	100.0

Source: World Development Indicators, World Bank

[41] The World Bank does not include deductions for depreciation of fabricated assets or the depletion of natural resources in its calculations for Real GDP.

INDEPENDENT VARIABLE: EXPLANATORY VARIABLE

The variable *Sovereign Wealth Fund* is a dummy variable that measures the presence of a wealth fund for each country. The variable is coded 1 for each year that a state possesses a sovereign wealth fund and 0 for any year it does not. The time series covers the time period from 1970 to 2010. The data for these variables was compiled from data available on the Sovereign Wealth Fund Institute's homepage. See Appendix B for the data used to create this variable. The descriptive statistics can be found in Table 4.6. Data was available for all 190 states included in the study. There are 6,728 cases of the *Sovereign Wealth Fund* variable that SPSS can utilize to create a moving average variable. Of these cases, 420 were coded 1 for the presence of a sovereign wealth fund and 6,308 were coded 0 to indicate the absence of a sovereign wealth fund in a state for a specific year.

The variable *Sovereign Wealth Fund* does not distinguish between capitalization sources in the statistical analysis; however, I do break down the states here by funding source for the reader. States with sovereign wealth funds capitalized by oil exports are: Algeria, Azerbaijan, Bahrain, Brunei, East Timor, Iran, Kazakhstan, Kuwait, Libya, Mauritania, Nigeria, Norway, Oman, Qatar, Russia, Saudi Arabia, Trinidad and Tobago, the United Arab Emirates, and Venezuela. States with funds capitalized by minerals are: Botswana (diamonds and minerals), Chile (copper), and Kiribati (phosphates). States with funds capitalized by non-commodity sources are: Australia, Brazil, China, France, Hong Kong, Indonesia, Ireland, Malaysia, New Zealand, Singapore, South Korea, and Vietnam.

Running a bivariate regression with *Regime* as the dependent variable and the moving average of *Sovereign Wealth Fund* as the independent variable produced a coefficient of -3.952 that is significant at the 98% level with a p-value of 0.007. Consistent with the methodology of this paper, the variable *Sovereign Wealth Fund* was run on a 5 year lag. Since the variable *Sovereign Wealth Fund* is a dummy variable, the coefficient is the actual difference in the regime score for states with and without sovereign wealth funds. Therefore, sovereign wealth funds are associated with a decrease of 3.952 points on the 21 point Polity IV scale.[42]

Table 4.6 Sovereign Wealth Funds

	Frequencies	Percent	Valid Percent
States with SWF	420	6.2	6.2
States w/o SWF	6308	93.8	93.8
Total	6728	100.0	100.0

Source: Sovereign Wealth Fund Institute

INDEPENDENT TEST VARIABLES: HYPOTHESES ONE AND TWO

Occupational specialization is a key link between economic growth and democracy according to modernization theory (Lipset, 1958; Inglehart, 1960; Deutsch, 1961). Ross also found that occupational specialization appeared to be the only causal mechanism between modernization theory and the resource curse (Ross, 2001).[43] The first two hypotheses test the claim that resource-reliant states with sovereign wealth funds generate more occupational specialization by reinvesting excess capital than counterpart

[42] The bivariate regression analysis does not control for resource exports. I expect the relationship between sovereign wealth funds to shift positive after controlling for the resource curse effects.

[43] The Dutch Disease section of Chapter 2 offers a more detailed explanation of how occupational specialization affects democratization.

states that do not have sovereign wealth funds. The first hypothesis (H_1) is: *Resource-reliant states with sovereign wealth funds create more occupational specialization than resource-reliant states without those funds.* The second hypothesis (H_2) is: *Greater levels of occupational specialization result in less authoritarian regimes in resource-reliant states with sovereign wealth funds compared to counterpart without sovereign wealth funds.* To test the occupational specialization claim, I added four new variables to the multivariate model: *Men in Industry*, *Women in Industry*, *Men in Services*, and *Women in Services*. The model for hypotheses one and two is:

$$\text{Regime}_{i,t} = a_1 + b_1(\text{Oil}_{i,t-5}) + b_2(\text{Minerals}_{i,t-5}) + b_3(\text{LogIncome}_{i,t-5}) + b_4(\text{Islam}_i) + b_5(\text{Regime}_{i,t-5}) + b_6(\text{SWF}_{i,t-5}) + b_7(\text{Government Activity}_{i,t-5}) + b_8(\text{Men in Industry}_{i,t-5}) + b_9(\text{Women in Industry}_{i,t-5}) + b_{10}(\text{Men in Services}_{i,t-5}) + b_{11}(\text{Women in Services}_{i,t-5}).$$

The variables *Men in Industry* and *Women in Industry* measure the percent of the working population that are employed in industrial activities, while the variables *Men in Services* and *Women in Services* measures the percent of the working population that are employed in the service sector.

The data for the occupational specialization variables was downloaded from the ILO's online Laborsta database page. The information can be found in Table 1C: Economically Active Population, by occupation and status in employment. The ILO collected data for this table from UNESCO educational surveys and government census forms.[44] Missing values were inputted from the World Bank's World Development Indicators database. In the ILO dataset, information is reported in three classification categories: International Standard Industrial Classification (ISIC) revision 4, International

[44] This data can be found in print in the ILO's Yearbook of Labour Statistics.

Classification of Status in Employment (ISCE) 1958, and International Classification of Status in Employment (ISCE) 1993.

The World Bank data was reported in two classification categories: ISIC revision 2 and ISIC revision 3. Industrial sectors are defined in ISIC revision 4 in tabulation categories B-F and include: mining and quarrying (B); manufacturing (C); electricity, gas, steam, and air conditioning supply (D); water supply including sewerage, waste management, and remediation activities (E); and construction (F). Full classifications and subcategories for all five classifications can be found in Appendix C. The variables *Men in Industry* and *Women in Industry* were created by adding these categories together which yields the percent of the working population employed in industrial activity.

Descriptive statistics for industrial participation variables can be found in Table 4.7 and Table 4.8. Data was available for 33.1% of the total cases for the variable *Men in Industry* and 32.5% of the total cases for the variable *Women in Industry*. Enough data was available for SPSS to create moving averages of both variables for 172 of the 190 states included in the time-series cross-sectional dataset. That accounts for 90.53% of the total 190 state population.

Table 4.7 Men in Industry

	Frequencies	Percent
Men in Industry	2224	33.1
Data Missing	4504	66.9
Total	6728	100.0

Source: Laborsta Dataset, ILO and World Economic Indicators, World Bank

Table 4.8 Women in Industry

	Frequencies	Percent
Women in Industry	2186	32.5
Data Missing	4542	67.5
Total	6728	100.0

Source: Laborsta Dataset, ILO and World Economic Indicators, World Bank

The bivariate coefficient between the moving average of *Regime* and the moving average of *Men in Industry* run on a five year lag is 0.194. The bivariate coefficient between the moving average of *Regime* and the moving average of *Women in Industry* run on a five year lag is 0.097. The relationship between *Regime* and *Men in Industry* is significant at the 99% level; however, the relationship between *Regime* and *Women in Industry* is not statistically significant. The p-value for *Men in Industry* was 0.000, while the p-value for *Women in Industry* was 0.132.

Service sector activity is defined in ISIC revision 4 in tabulation categories G-P and include: wholesale and retail trade including repair of motor vehicles (G); transportation and storage (H); accommodation and food service activities (I); information and communication (J); financial and insurance activities (K); real estate activities (L); professional, scientific, and technical activities (M); administrative and support service activities (N); public administration and defense including compulsory social security (O); education (P); human health and social work activities (Q); arts, entertainment, and recreation (R); other service activities (S); and household activities including the production of undifferentiated goods and services (T). Full classifications and subcategories for all five classifications can be found in Appendix D. The variables *Men in Services* and *Women in Services* were created by adding these categories together which yields the percent of the working population employed in service activity.

Descriptive statistics for the service sector participation variables can be found in Table 4.9 and Table 4.10 on the next page. The coefficient between the moving average of *Regime* and *Men in Services* from 1970 to 2008 is 0.046. The coefficient between the moving average of *Regime* and *Women in Services* from 1970 to 2008 is 0.080. The

relationship between *Regime* and *Men in Services* is not significant; however, the relationship between *Regime* and *Women in Services* is significant at the 99% level. In other words, occupational specialization does affect regime type, but only for men in industry and women in services. The p-value for Men in Services was 0.265, while the p-value for Women in Services was 0.001.

Table 4.9 Men in Services

	Frequencies	Percent
Men in Industry	2223	33.0
Data Missing	4505	67.0
Total	6728	100.0

Source: Laborsta Dataset, ILO and World Economic Indicators, World Bank

Table 4.10 Women in Services

	Frequencies	Percent
Women in Industry	2187	32.5
Data Missing	4541	67.5
Total	6728	100.0

Source: Laborsta Dataset, ILO and World Economic Indicators, World Bank

INDEPENDENT TEST VARIABLES: HYPOTHESIS THREE

I distilled the transparency claim into a the third hypothesis (H3): *Resource-reliant states with sovereign wealth funds have lower corruption index scores compared to resource-reliant states without sovereign wealth funds.* My claim is that despite opaque structures, sovereign wealth funds still increase government transparency since fund managers must comply with local security laws present in the states where they invest money; and sovereign wealth funds unveil government's finances to the citizens employed by the fund. As assets have increased, sovereign wealth fund managers have

gained a significant amount of economic power within the government that created the fund (Rozanov, 2005). That power might also elevate transparency levels.

More capital available for investment motivated many governments to seek external advice regarding the strategy and management of its sovereign wealth fund. The massive $700 billion AIDA fund created by the United Arab Emirates leads the way in this regard. In 2008, AIDA executives met with a who's who of Wall Street including: veteran investor Wilbur Ross, Blackrock Financial CEO Larry Fink, Goldman Sachs CEO Lloyd Blankfein, and Warren Buffet from Berskhire Hathaway. Also, 70% of the fund's 1,100 professional employees are foreigners mainly educated in the United States and Europe (Thornton and Reed, 2008).

To test hypothesis three, I created the variable *Political Transparency*, which measures the level of perceived corruption present in the government of each state for each year from 1995 to 2008. The variables *Political Stability* and *Foreign Direct Investment* are included to control for any correlation between stable governments and sovereign wealth funds that might exist. The model for the second claim is:

$$\text{Regime}_{i,t} = a_1 + b_1(\text{Oil}_{i,t-5}) + b_2(\text{Minerals}_{i,t-5}) + b_3(\text{LogIncome}_{i,t-5}) + b_4(\text{Islam}_i) + b_5(\text{Regime}_{i,t-5}) + b_6(\text{SWF}_{i,t-5}) + b_7(\text{Political Transparency}_{i,t-5}) + B_8(\text{Political Stability}_{i,t-5}) + b_9(\text{Foreign Direct Investment}_{i,t-5}).$$

The test variable for this claim is *Political Transparency*. The variable was created by downloading each state's Corruption Perception Index (CPI) from the Transparency International online database. According to Transparency International, the CPI is a "survey of surveys," combining data from thirteen different global surveys that measure the perceived level of corruption in each state. A higher score on the index means that state is more transparent, while a lower score translates to a less transparent

state. Data is available for 177 of the 192 United Nations member states from 1998 to 2010.

Data was missing for: Andorra, Azerbaijan, the Bahamas, the Federated States of Micronesia, Fiji, Liechtenstein, the Marshall Islands, Monaco, North Korea, Palua, San Marino, St. Kitts and Nevis, and Suriname. The lowest score possible is a 1 and the highest score possible is a 10. Transparency International collected data from ten independent institutions for the 2009 index including: Columbia University, Economists Intelligence Unit, Freedom House, Information International, International Institute for Management Development, Merchant International Group, Political and Economic Risk Consultancy, United Nations Economic Commission for Africa, World Economic Forum, and World Markets Research Centre. Descriptive statistics can be found in Table 4.11. 78.08% of the 177 states that data was available for had a CPI score below 5, indicating that these states are not transparent. Only 21.92% of the 177 states were classified as transparent.

Table 4.11 Political Transparency

	Frequencies	Percent	Valid Percent
1-1.9	109	4.44	6.51
2-2.9	511	20.81	30.53
3-3.9	367	14.94	21.92
4-4.9	190	7.74	11.35
5-5.9	130	5.29	7.77
6-6.9	101	4.11	6.03
7-7.9	89	3.62	5.32
8-8.9	87	3.54	5.20
9-10	90	3.66	5.38
Missing	782	31.84	
Total	2456	100.0	100.0

Source: Corruption Perception Index, Transparency International

I ran a bivariate regression analysis to determine the correlation between the presence of sovereign wealth funds and political transparency. The dependent variable was the mean of the variables *Political Transparency* from the years 1995 to 2008. The independent variable was the mean of the variables *Sovereign Wealth Fund* for the same time period. The variable *Mean Sovereign Wealth Fund* had a coefficient of 1.589 and is significant at the 98% confidence level. The p-value was 0.007.

While researching emerging market BRIC states for Goldman Sachs, Jim O'Neill and his fellow economists discovered a large and highly significant correlation between greater levels of political stability and increased levels of foreign direct investment (O'Neill, 2007).[45] If sovereign wealth funds are related to higher levels of political stability, then increased foreign direct investment might account for greater occupational specialization in sovereign wealth fund states. I created the variables *Foreign Direct Investment* and *Political Stability* to control for the possibility that political transparency is correlated with both political stability and foreign direct investment.

The variable *Political Stability* measures the year over year change in each state's Polity IV score for every year in the analysis. This variable was created by subtracting the previous year's Polity IV score from the current year's Polity IV score. If no change was measured, a 0 was coded for that year. This method produces both positive and negative values. A positive value indicates a political movement towards democratization, whereas a negative value indicates a political movement towards more authoritarianism. Since we are only interested in the magnitude of political change and

[45] The citation came form *The BRICs and Beyond*, a book published by Goldman Sachs in 2007. The claim originated in a Goldman Sachs working paper titled "The World Needs Better Economic BRICs" published in 1999. The term BRIC stands for the large emerging market states of Brazil, Russia, India, and China.

not the direction of that change, the absolute value of these scores was taken. The result is a positive number showing the size of the political movement, but not the direction of that movement.

Descriptive statistics for the variable *Political Stability* can be found in Table 4.12. After controlling for incoherent forms of government, data was available for 95% of the 6,728 total cases. There were 5,675 cases for where no regime change occurred. This accounts for 88.8% of the available data. Polity IV defines a "minor regime change" as a shift of 1 to 6 points. There were 578 minor regimes changes accounting for 9.0% of the valid cases. Polity IV defines a "major regime change" as a shift of 7 to 20 points. There were 137 major regime changes accounting for 2.1% of the valid cases.

Table 4.12 Political Stability

	Frequencies	Percent	Valid Percent
0	5675	84.3	88.8
1-6	578	8.6	9.0
7-20	137	2.0	2.1
Missing	338	5.0	
Total	6728	100.0	100.0

Source: Polity IV Project: Political Regime Characteristics and Transitions, 1800-2009

I ran a bivariate regression analysis to determine the coefficient between the presence of sovereign wealth funds and political stability. The dependent variable was the mean of the variable *Political Stability* from the years 1970 to 2008. The independent variable was the mean of the variable *Sovereign Wealth Fund* from 1970 to 2008. The variable *Mean Sovereign Wealth Fund* had a coefficient of -0.330. The relationship was not statistically significant, because the p-value was only 0.126.

The variable *Foreign Direct Investment* was downloaded from the World Bank's World Economic Indicators database. The variable is *foreign direct investment* (net

inflow, % GDP).[46] The World Bank defines foreign direct investment (FDI) as the net inflow of investment capital used to attain a management interest in enterprises that operate in a state other than the investor's own state.[47] The World Bank uses the balance of payments method to measure the net inflow of FDI in current U.S. dollars measured as a percent of GDP.[48] Net inflows are calculated by subtracting new investment inflows minus disinvestment outflows. This method allows scholars to determine if a state is a net creditor or a net debtor.[49] Data was collected from reports filed by foreign investors. Descriptive statistics for the variable Foreign Direct Investment can be found in Table 4.13. Data was available for 5,046 of the 6,728 total cases. This accounts for 75.0% of the total available cases. SPSS was able to create the moving average of this variable for all 190 states.

Table 4.13 Foreign Direct Investment

	Frequencies	Percent
Foreign Direct Investment	5046	75.0
Data Missing	1682	25.0
Total	6728	100.0

Source: World Development Indicators, World Bank

[46] Foreign Direct Investment Data for the Federated States of Micronesia, Iraq, Marshall Islands, Palau, Qatar, Timor Leste, and the United Arab Emirates was downloaded from the United Nations Conference on Trade and Development (UNCTAD).
[47] Management interest is defined as 10% or more of the voting stock in the enterprise being purchased. FDI is calculated by adding equity capital, reinvestment of earnings, and other assorted long-term and short-term capital included in the balance of payments.
[48] The balance of payments method reflects account transactions only.
[49] Under this measurement methodology, States with a negative FDI are net debtors, while states with a positive FDI are net creditors.

OVERVIEW

Chapter four introduced the three hypotheses and two ARIMA regime-estimation models that will be used to test my claim that states with sovereign wealth funds have higher levels of occupational specialization and political transparency that produce less authoritarian regimes than counterpart states that lack these funds. The first hypothesis (H_1) is: *Resource-reliant states with sovereign wealth funds create more occupational specialization than resource-reliant states without those funds.* The second hypothesis (H_2) is: *Greater levels of occupational specialization result in less authoritarian regimes in resource-reliant states with sovereign wealth funds versus counterpart states.* The third hypothesis (H3) is: *Sovereign wealth fund states have lower corruption index scores compared to counterpart states.*

The base model includes the control variables *Oil* and *Minerals* that measure the presence of the resource curse in each state. *Islam* and *Log Income* are included to control for known authoritarian and democratic effects that Islam and income exert on governments. The variable *Sovereign Wealth Fund* was added to control for the presence of sovereign wealth funds in each state. The four variables for occupational specialization and the variable *Political Transparency* were added to test my claims that the presence of sovereign wealth funds lead to less authoritarian regimes. And finally, the variables *Political Stability* and *Foreign Direct Investment* were added to ensure that a more transparent government is really the explanatory variable for less authoritarian governments.

CHAPTER V

INFERENTIAL STATISTICS

The purpose of this chapter is to present the inferential statistics, difference in means tests, and auto-regressive integrated moving average (ARIMA) model I use to test the claim that resource-reliant states with sovereign wealth funds are less authoritarian than counterpart states that do not utilize sovereign wealth funds. My theory is based on two central claims. The first claim is that states with sovereign wealth funds invest more capital in its own economy over time. That is, sovereign wealth funds offer a second source of capital separate from oil and mineral tariffs that states use to advance its domestic economy leading to greater levels of occupational specialization. The second claim is that increased levels of occupational specialization associated with sovereign wealth funds states equate to less-authoritarian rule. And the third claim is that despite the opaque nature of sovereign wealth funds, states that operate these funds are forced to conduct government activities more transparently than resource-reliant states that do not have sovereign wealth funds.

METHODOLOGY

I use a pooled time-series cross-sectional dataset composed of repeated observations on states over a thirty-eight year period from 1970 to 2008 to construct the multivariate model used to test my hypotheses that sovereign wealth funds mitigate the

antidemocratic effects of the resource curse. The major advantage of using a time-series cross-national dataset lies in the dramatic increase in the size of N (sample size) and T (time points) (Beck and Katz, 1995; Beck and Katz, 1996; Beck et. al, 1993; and Sayers, 1989). The disadvantages of using time-series cross-sectional are the methodological challenges associated with the various types of regression analysis.

Using ordinary least squares (OLS) regression analysis is problematic due to the unique temporal and spatial properties inherent to time-series cross-national datasets that lead to time-correlated errors and heteroskedasticity (Beck and Katz, 1995). To overcome this problem, Richard Parks suggested using the optimal characteristics of generalized least squares (GLS) regression analysis; however, this method has its own problems for time-series cross-sectional datasets (Parks, 1967). The problem with Park's GLS method of regression analysis is the model's reliance on information about the error process that we do not have in real life. Thus, GLS regression analysis will tend to severely underestimate parameter variability by anywhere from 50% to 300% (Beck and Katz, 1995).

Since I do not have the error process information available for the ARIMA model that allows the use of GLS, it appears that the only other option is the vastly more complicated feasible generalized least squares (FGLS) regression analysis. According to Nathaniel Beck and Jonathon Katz, FGLS is: "...'feasible' because it uses an estimate of the error process, avoiding the GLS assumption that the error process is known" (Beck and Katz, 1995: 634). However, Beck and Katz have provided a pathway to return to OLS regression analysis. First, the temporal issues associated with pooled time-series cross-sectional data can be handled by lagging the dependent variable. This method

eliminates serial correlation of the errors allowing the use of OLS regression analysis to estimate the parameters of the model. Standard errors should be calculated using panel-corrected standard errors (PCSE). The OLS residuals can then be checked to ensure that the model is free of the more severe cases of heteroskedasticity or contemporaneous correlation of the errors (Beck and Katz, 1995).

In order to analyze how sovereign wealth funds affect occupational specialization and political transparency, I created two auto-regressive integrated moving average (ARIMA) models. The first two model measures how sovereign wealth funds and occupational specialization affect regime type, while the third and fourth models test the transparency claim. Model 1 (M1) includes the five control variables from the base model along with the four variables that measure occupational specialization: *Men in Industry*, *Women in Industry*, *Men in Services*, *Women in Services*. This model tests the claim that sovereign wealth funds increase occupational specialization, which then cultivates less authoritarian regimes. Model 2 (M2) tests the political transparency claim. Model 2 includes the five control variables from the base model as well as the control variables *Political Stability* and *Foreign Direct Investment*. This model tests the claim that sovereign wealth funds increase political transparency, thus mitigating the antidemocratic effects of the resource curse. The test variable for Model 2 is *Political Transparency*.

OCCUPATIONAL SPECIALIZATION

My first hypothesis (H_1) is: *Resource-reliant states with sovereign wealth funds create more occupational specialization than resource-reliant states without those funds.*

To test this claim, I ran an independent samples t-test for the level of occupational specialization between resource-reliant states with sovereign wealth funds and resource-reliant states without sovereign wealth funds. I defined resource-reliant states for this test as any state that where oil or mineral exports account for an average of 5% of GDP for the time period 1992 to 2008. Of the 190 states with known regime type, 15 states do not have any information about oil or mineral exports from the time period 1992 to 2008. That leaves 175 states with at least one year of oil or mineral export data available.

Since this study is focused on democratization, I deleted any state that had already democratized by 1992. Any state that was democratic in 1992, but autocratic or authoritarian in 2008 was left in the study.[50] This method produced a total of 31 oil-reliant states and 14 mineral-reliant states. There were five states that were both oil-reliant and mineral-reliant during that period, which yields a total of 40 resource-reliant states from 1992 to 2008.[51] See Appendix E and Appendix F for a full list of the 40 resource-reliant states.

Running a difference in means test for the occupational specialization variables is difficult, because occupational specialization data is not available for every state. Even when data is available for a state, the date might not be available for every year. Given the limited access to data for occupational specialization, I created new variables for all four measures of occupational specialization by finding the means of each state for every year available from 1992 to 2008.[52] The problem is further compounded by the fact that

[50] This methodology is consistent throughout Chapter 5.
[51] Iraq is excluded for the time period 1992 to 2008, because the regime data indicates an incoherent government for much of this time period.
[52] I separate the occupational specialization variables throughout this study to control for the disparate effects of male and female labor in Muslim states.

stabilization and public pension funds do not transform into sovereign wealth funds immediately. I started the test with states that had established stabilization or public pension funds by 1987. By choosing 1987, the states had five years during the bull market of the late 1980s and the oil price spike associated with the Gulf War to grow its fund.[53] This method provides the greatest confidence that these funds were acting as sovereign wealth funds from the period 1992 to 2008. That left five states with sovereign wealth funds: Brunei Darussalam, Kuwait, Libya, Oman, and the United Arab Emirates.

Data for the occupational specialization difference in means test can be found in Table 5.1 on the next page. The results were mixed for industrial sector participation. The tests indicate that sovereign wealth funds increase male participation and decrease female participation in the industrial sector; however, neither of these variables was statistically significant. The p-value for *Men in Industry* was 0.457, while the p-value for *Women in Industr*y was 0.393. The service sector tests revealed that a statistically significant relationship exists between sovereign wealth funds and participation in the service sector. Sovereign wealth funds are associated with an increase of 15.95 percentage points for the *Men in Services*. This relationship was significant at the 95% confidence interval with a p-value of 0.025. For Women in Services, the increase in service sector participation was 32.99 percentage points. This relationship was statistically significant at the 98% confidence level with a p-value of 0.010.

Extant literature on the resource curse and Dutch Disease assume that deindustrialization prevents democratization. The existing literature does not discuss how service sector jobs affect democratization. The large and statistically significant

[53] Shifting the cut-off point to 1990 does not add any additional states to the sample. Norway officially chartered its fund in 1990.

difference in means for service sector participation associated with sovereign wealth funds imply that these funds might bypass the industrialization stage and move directly to service oriented economies. I am not sure at this time how this particular pathway to economic modernization will affect regime outcomes.

Table 5.1 Comparison of Means Test for Occupational Specialization 1992-2008

n=40	Sovereign Wealth Fund	Valid Cases	No Sovereign Wealth Fund	Valid Cases	Sig.
Men in Industry	27.88	5	24.42	35	0.457
Women in Industry	9.05	5	13.37	35	0.393
Men in Services	63.16	5	47.21	35	0.025
Women in Services	88.46	5	55.47	35	0.010

Source: Independent samples t-test performed in SPSS

MODEL 1: OCCUPATIONAL SPECIALIZATION

Hypothesis two (H_2) states: *Greater levels of occupational specialization result in less authoritarian regimes in resource-reliant states with sovereign wealth funds compared to counterpart states without sovereign wealth funds.* To test this claim, I added the occupational specialization variables to the base model described in Chapter 4. The model uses the pooled time-series cross-sectional dataset of states that I constructed. To control for multicollinearity between sovereign wealth funds and natural resources, I centered the variables by subtracting the means. The regression model is:

$$\text{Regime}_{i,t} = a_1 + b_1(\text{Oil}_{i,t-5}) + b_2(\text{Minerals}_{i,t-5}) + b_3(\text{LogIncome}_{i,t-5}) + b_4(\text{Islam}_i) + b_5(\text{Regime}_{i,t-5}) + b_6(\text{SWF}_{i,t-5}) + b_7(\text{Men in Industry}_{i,t-5}) + b_8(\text{Women in Industry}_{i,t-5}) + b_9(\text{Men in Services}_{i,t-5}) + b_{10}(\text{Women in Services}_{i,t-5}).$$

I first ran the ARIMA model with the following independent variables: *Oil*, *Minerals*, *Log Income*, *Islam*, *Regime*, *Men in Industry*, *Women in Industry*, *Men in Services*, and *Women in Services*. After controlling for states that were already

democratic, there were 32 oil-reliant and 18 mineral-reliant states for the time period 1970 to 2008. Five states were both oil-reliant and mineral-reliant. There were 45 resource-reliant states. SPSS was able to use data on all but six of those states. See Appendix G and Appendix H for a break down of resource-reliant states from 1970 to 2008. The results for the first occupational specialization regression can be found in Table 5.2. The industrial sector variables indicate that industrialization hinders democratization, while the service sector variables indicate that service sector participation promotes democratization. None of the four occupational variables remained statistically significant after adding the control variables to the equation. These findings bring into question the claim that occupational specialization remains necessary before democratization efforts can occur.[54]

Table 5.2 Occupational Specialization Regression I

n=39	Coefficient	Standard Error	Sig.
Oil	-0.087	0.039	0.036
Minerals	0.020	0.051	0.694
Islam	-2.248	1.395	0.119
Log Income	1.797	1.657	0.288
Lag Regime	0.670	0.116	0.000
Men in Industry	-0.061	0.062	0.340
Women in Industry	0.009	0.064	0.887
Men in Services	-0.006	0.044	0.886
Women in Services	0.011	0.035	0.745

Source: SPSS Multivariate Regression Analysis

The intent was to add the variable *Sovereign Wealth Fund* to the ARIMA model to see if the occupational specialization effect diminished in statistical significance after controlling for the presence of a sovereign wealth fund. Since occupational

[54] Another interesting finding that emerged from this regression is the positive and insignificant relationship between mineral exports and regime type. This suggests that the resource curse might apply to minerals beyond the Third Wave of Democratization.

specialization does not appear to influence regime type anymore, I included the variable *Sovereign Wealth Fund* to see if the occupational specialization variables increased in statistical significance. The results for this regression can be found in Table 5.3 on the next page. The new variable did not change the results, nor did adding the additional regional effect dummy variables. The results for the third regression can be found in Table 5.4 on the next page. The variable *Sovereign Wealth Fund* was not significant and the coefficient was still negative. There are two ways to interpret these results. The first is that sovereign wealth funds exert two counter effects on regime type. The first effect promotes authoritarian rule, as evidenced in the significant and negative correlation between sovereign wealth funds and regime type seen in the bivariate relationship. The second effect promotes democratization through occupational specialization.

Table 5.3 Occupational Specialization Regression II

n=39	Coefficient	Standard Error	Sig.
Oil	-0.086	0.042	0.049
Minerals	0.020	0.052	0.706
Islam	-2.233	1.462	0.139
Log Income	1.781	1.726	0.312
Lag Regime	0.670	0.118	0.000
Sovereign Wealth Fund	-0.065	1.416	0.964
Men in Industry	-0.061	0.064	0.351
Women in Industry	0.010	0.067	0.883
Men in Services	-0.006	0.045	0.890
Women in Services	0.012	0.036	0.749

Source: SPSS Multivariate Regression Analysis

The comparison of means test suggests that sovereign wealth funds increase the labor participation in the service sector of the economy in resource-reliant states. The bivariate relationship also suggests that this should lead to less authoritarian rule. However, this scenario remains unlikely as both sovereign wealth funds and occupational

specialization lack statistical significance after controlling for oil and mineral exports. Therefore the second, more likely interpretation is that sovereign wealth funds do not affect regime type. Sovereign wealth funds are negatively correlated with regime type; however, the large drop in statistical significance that occurs after controlling for oil exports implies that resource exports are the real explanatory factor.

Controlling for the regional variables *Latin America*, *Middle East*, *Sub-Saharan Africa*, and the *Arabian Peninsula* as well as the variable *Small States* does not change the outcome.[55] The full results can be found in Table 5.4. The presence of sovereign wealth funds and occupational specialization remain insignificant determinants of regime type after controlling for regional effects. In fact, the only significant factor that affected regime type in this model was *Lag Regime*. *Islam* drops in statistical significance after controlling for the Middle East and Sub-Saharan Africa because of its high correlation with these regions. Even the variable *Oil* drops from significance. These results suggest that the entire resource curse premise should be reexamined. Perhaps an agent-based formal model might offer a better understanding of the unique regional characteristics of the resource curse than traditional regression models.

[55] The Latin America variable was added at the last minute. It was suggested by a professor on my committee. Thad Dunning (2008) published an article recently that suggests resources aid democratization efforts in Latin American states.

Table 5.4 Occupational Specialization Regression III

n=39	Coefficient	Standard Error	Sig.
Oil	-0.084	0.049	0.103
Minerals	0.007	0.058	0.900
Islam	-1.004	2.008	0.622
Log Income	1.399	2.117	0.516
Lag Regime	0.656	0.146	0.000
Sovereign Wealth Fund	-0.010	1.665	0.995
Men in Industry	-0.054	0.086	0.539
Women in Industry	0.027	0.080	0.735
Men in Services	-0.005	0.051	0.918
Women in Services	0.011	0.039	0.777
Latin America	-0.427	2.476	0.865
Middle East	-2.393	2.252	0.300
Sub-Saharan	-0.140	2.171	0.949
Arabian Peninsula	1.054	2.534	0.682
Small States	-1.342	1.924	0.493

Source: SPSS Multivariate Regression Analysis

POLITICAL TRANSPARENCY

To test the claim that resource-reliant states with sovereign wealth funds are more transparent than counterpart states without these funds, I first ran a separation of means test to see if the basic premise of this claim was true. The same definition for resource-reliant states that I used to test occupational specialization was applied for this test. A full list of those states can be found in Appendix E and Appendix F. A resource-reliant state is any state where oil or mineral exports account for an average of 5% of the state's GDP over the time period 1992 and 2008. Oil and mineral export data was not available for 15 of the 190 UN member states, leaving a total of 175 states with at least one year of data. Consistent with the previous methodology, I deleted any state that was democratic in both 1992 and 2008. Of the remaining states, 31 states were oil-reliant and 14 were

mineral-reliant. After taking into account the five states that were both oil-reliant and mineral-reliant during this time period, this method left 40 resource-reliant states.

I applied the same methodology that was utilized in the occupational specialization difference in means tests. I ran the test by comparing states that had established stabilization or public pension funds by 1987 against states that had not created funds by 1987. By choosing 1987, the states had five years during the bull market of the late 1980s and the oil price spike associated with the Gulf War to grow its fund capital above the levels needed for stabilization or pension obligations. This method provides the greatest confidence that these funds were truly acting as sovereign wealth funds from the period 1992 onward. That left five states with sovereign wealth funds: Brunei Darussalam, Kuwait, Libya, Oman, and the United Arab Emirates. I calculated a new variable called *Mean Political Transparency* by finding the mean transparency score of every state available from 1995 to 2008. The results for the comparison of means test suggest that resource-reliant states with sovereign wealth funds have a Corruption Perception Index score 1.3072 points higher than counterpart states. This relationship was statistically significant at the 95% confidence level with a p-value of 0.024. In other words, I am 95% certain that we can reject the null hypothesis that sovereign wealth funds do not affect a state's transparency.

Table 5.5 Comparison of Means Test for Political Transparency 1992-2008

n=40	Sovereign Wealth Fund	Valid Cases	No Sovereign Wealth Fund	Valid Cases	Sig.
Political Transparency	3.8292	5	2.5220	35	0.024

Source: Independent samples t-test performed in SPSS

MODEL 2: POLITICAL TRANSPARENCY

My third hypothesis (H3) is: *Resource-reliant states with sovereign wealth funds have lower corruption index scores compared to counterpart states without sovereign wealth funds.* To test this claim, I employed the same base model with five control variables used to construct Model 1. The variable *Political Transparency* was added to measure the antidemocratic effects associated with sovereign wealth funds. I also added the variables *Political Stability* and *Foreign Direct Investment* to control for any effect these factors may have on regime type. Data is available from 1995 to 2008. The regression model is:

$$\text{Regime}_{i,t} = a_1 + b_1(\text{Oil}_{i,t-5}) + b_2(\text{Minerals}_{i,t-5}) + b_3(\text{LogIncome}_{i,t-5}) + b_4(\text{Islam}_i) + b_5(\text{Regime}_{i,t-5}) + b_6(\text{SWF}_{i,t-5}) + b_7(\text{Political Transparency}_{i,t-5}) + B_8(\text{Political Stability}_{i,t-5}) + b_9(\text{Foreign Direct Investment}_{,t-5})$$

I first ran the model with the following independent variables: *Oil*, *Minerals*, *Log Income*, *Islam*, *Regime*, *Political Transparency*, *Political Stability*, and *Foreign Direct Investment*. SPSS was able to use data on all 40 resource-reliant states for the years 1995 to 2008. The results can be found in Table 5.6 on the next page. The regression offered several interesting results. Notably, the only three variables that were statistically significant were *Islam* and *Lag Regime*. Even the variable *Oil* drops its statistical significance after controlling for *Political Transparency*. This suggests that at least some of the antidemocratic effects of the oil resource curse occur as a result of decreased government transparency. I would argue that these results confirm the claim that sovereign wealth funds promote democratization by elevating political transparency; however, the *Political Transparency* variable was not statistically significant. Therefore, it appears that the central claim of this study has yet to be confirmed. The initial

regression model does not indicate that sovereign wealth funds produce less authoritarian regimes.

Table 5.6 Political Transparency Regression I

n=40	Coefficient	Standard Error	Sig.
Oil	0.026	0.027	0.351
Minerals	0.020	0.041	0.624
Islam	-3.100	0.994	0.004
Log Income	-0.749	1.008	0.463
Lag Regime	0.902	0.086	0.000
Political Transparency	0.306	0.349	0.389
Political Stability	0.641	0.352	0.079
Foreign Direct Investment	0.077	0.056	0.179

Source: SPSS Multivariate Regression Analysis

I reran the model including the variable *Sovereign Wealth Fund.* The results can be found in Table 5.7 on the next page. The findings produce by the second political transparency regression did not change the results of the previous model. *Islam* and *Lag Regime* remained the only statistically significant variables. The *Oil* and *Minerals* variables both decrease in statistical significance, suggesting that sovereign wealth funds mitigate the antidemocratic effects of the resource curse. Since both variables were not statistically significant in either regression model, we still cannot reject the null hypothesis that sovereign wealth funds have no effect on regime type.

An interesting observation is that the variables *Political Transparency* and *Political Stability* both decrease in coefficient size and statistical significance after controlling for the presence of sovereign wealth funds. This implies that sovereign wealth funds are correlated with both, while the *Political Transparency* finding confirms

the difference in means test results.[56] Since neither *Political Transparency* nor *Political Stability* were statistically significant, though, these results still disprove the central premise of the study that sovereign wealth funds produce less authoritarian regimes.

Table 5.7 Political Transparency Regression II

n=40	Coefficient	Standard Error	Sig.
Oil	0.022	0.029	0.465
Minerals	0.024	0.042	0.581
Islam	-3.228	1.067	0.005
Log Income	-0.686	1.038	0.514
Lag Regime	0.897	0.088	0.000
Sovereign Wealth Fund	0.393	1.076	0.717
Political Transparency	0.279	0.362	0.448
Political Stability	0.625	0.358	0.082
Foreign Direct Investment	0.077	0.057	0.191

Source: SPSS Multivariate Regression Analysis

To confirm these results, I reran the test one more time adding the regional effect variables. The results can be found in Table 5.8 on the next page.[57] *Islam* and *Lag Regime* remained the only two statistically significant variables. The p-value for the *Sovereign Wealth Fund* variable declines after controlling for the regional effects, probably due to its high correlation with the Middle East. The third regression analysis fails to reject the null hypothesis that sovereign wealth funds affect regime type through either occupational specialization or by increasing political transparency.

[56] Further research needs to be done to determine the causality between sovereign wealth and political stability. The results only confirmed the assumption that the two were related.

[57] The variable Latin America was not included in this regression, because the sample did not contain any Latin American states.

Table 5.8 Political Transparency Regression III

n=40	Coefficient	Standard Error	Sig.
Oil	0.031	0.035	0.382
Minerals	0.028	0.045	0.537
Islam	-3.120	1.442	0.040
Log Income	-1.061	1.184	0.378
Lag Regime	0.897	0.094	0.000
Sovereign Wealth Fund	0.117	1.185	0.922
Political Transparency	0.399	0.488	0.422
Political Stability	0.630	0.393	0.122
Foreign Direct Investment	0.078	0.064	0.231
Middle East	0.910	1.584	0.570
Sub-Saharan	-0.030	1.066	0.977
Arabian Peninsula	-1.696	1.779	0.349
Small States	-1.308	1.369	0.349

Source: SPSS Multivariate Regression Analysis

OVERVIEW

This study did not confirm all of my original hypotheses; however, it did produce several substantive results. First, my analysis suggests that sovereign wealth funds promote occupational specialization, but only within the service sector. I also discovered that occupational specialization no longer affects regime type. Thus, increased occupational specialization beget by sovereign wealth funds cannot mitigate the antidemocratic effects of the resource curse. On a side-note, the models also call into question the mineral resource curse. The coefficient on the variable *Minerals* was positive and lacked statistical significance in all six regression models. Concerning the second claim, it appears that sovereign wealth funds increase political transparency, but political transparency does not affect regime type for resource-reliant states.

CHAPTER VI

CONCLUSION

This study surveyed the affects sovereign wealth funds exert on the state's domestic economy and political formation. Chapter two introduced the resource curse literature that laid the theoretical foundation for my claim that sovereign wealth funds mitigate the antidemocratic effects of the resource curse. In chapter three, I defined the term sovereign wealth fund and proffered the argument that these funds promote occupational specialization and political transparency necessary for democratization. As a result, I hypothesized that resource-reliant states with these funds would have less authoritarian regimes than counterpart states. Using data available from the Polity IV project, Freedom House Index, World Bank, UNESCO, International Labour Organization, International Monetary Fund, and World Christian Encyclopedia presented in chapter four, I explored the validity of the premises central to my argument and the resource curse literature in general.

In chapter five, I further tested these hypotheses using difference in means tests and a regime-estimation ARIMA model. The central premise of the study was not confirmed. Sovereign wealth funds do not produce less authoritarian regimes. The comparison of means test lent credence to the claim that these funds generate occupational specialization within the state's service sector; however, the regime-estimation model contradicts previous claims that elevating occupational specialization

encourages democratization.[58] I must therefore conclude that sovereign wealth funds cannot foster democratization by increasing occupational specialization.

Tentative support exists for the second claim that sovereign wealth funds abet political transparency. The difference in means test suggests that sovereign wealth funds encourage political transparency. The regime-estimation model failed to reject the null hypothesis that elevated levels of political transparency affect regime type in resource-reliant states. These results mirror those of the occupational specialization claim: sovereign wealth funds promote political transparency, but a more open government does not yield democratization in resource-reliant states. I must also caution that the data available merely allowed me to test the affect the presence of sovereign wealth funds had on political transparency. The exact nature of this relationship provided in the theory section was not confirmed and remains a theoretical speculation about the relationship between political transparency and sovereign wealth funds.

METHODOLOGICAL SHORTFALLS

Missing data was the major problem that plagued my research. The lack of annual data for occupational specialization and absent information about the internal structures and operations of sovereign wealth funds were an issue that hindered the

[58] Ross recently reached the same conclusion in a soon to be released article titled *Oil and Democracy Revisited.* In the paper, Ross concludes that the rentier effect is the only causal mechanism of the resource curse. The article has not been published yet; however, advance copies of it are available from several recent conferences and presentations. The paper was presented at the following conferences: the Rand Institute's International Development Speakers Series, University of California's International Relations Speaker Series, Georgetown University Government Department's speaker series, the University of Pennsylvania's Political Science speaker series, and Yale University's Leitner Seminar.

results of this study. The World Bank and International Labour Organization compile occupational specialization data from information found in state census forms and national educational surveys. Since censuses are not typically performed annually, these organizations consult educational surveys to provide annual data points for the years in between census. The problem with this method is that annual education surveys are not typically available for developing states prior to the 1990s and for many less developed states until the last decade. That creates a problem for resource curse research. Using pooled time series cross-sectional data help alleviate this problem; however, an ideal study would still include more annual data points to better measure the effect of sovereign wealth funds over time.

Another general problem inherently associated with studying sovereign wealth funds is the opaque nature of fund operations. Without knowing the exact amount of capital available, investment strategies, and fund structure, researchers can only make general observations of sovereign wealth funds and the effect these funds expend on global financial markets and domestic economies. More precisely, this study could only focus on how the presence of sovereign wealth funds affected occupational specialization and political transparency. The missing data thus became a limiting factor in my statistical analysis in that the true size of the democratizing effect of sovereign wealth funds cannot be determined.

Finally, using the OLS linear regression analysis with panel-corrected standard errors and lagged variables created by Nathaniel Beck and Jonathan Katz may appear parsimonious to more established political methodologists; however, my belief is that this methodology should adequately serve the statistical needs of this thesis and produce

efficient and reliable estimates. The Beck and Katz method has gained wide-spread acceptance among econometricians over the past decade. Although, I will admit that a more sophisticated approaches such as the feasible generalized least squares regression used by Michael Ross or Kmenta's "cross-sectionally heteroskedastic and timewise autocorrelated" (CHTA) model remain more widely accepted than OLS regression analysis with panel-corrected standard errors among political methodologists (Kmenta, 1986; Beck and Katz, 1996; Ross, 2001).[59]

SUGGESTIONS FOR FUTURE STUDIES

I plan to revisit this study in several years, because missing information on the operations and size of sovereign wealth funds will be made available in the near future. Park Alpha, the creator of the Sovereign Wealth Fund Institute, recently announced the upcoming release of the Sovereign Wealth Fund Transaction Database that includes a complete list of financial transactions conducted by every sovereign wealth fund from 1986 to 2010. Access to that data will allow future researchers to estimate the annual growth rate of capital appreciation experienced by individual sovereign wealth fund over a twenty-five year time period. That data can be used to determine how much capital actually flows out of these funds into the domestic economy of the states that create them,

[59] Kmenta's CHTA model uses generalized least squares to correct for panel heteroskedasticity and serially correlated errors (Kmenta, 1986; Beck and Katz, 1996). This method has remained popular among political scientists; however, it does not appear to produce more accurate results than then the Beck and Katz method and requires a much greater level of mathematical sophistication (Beck and Katz, 1996). CHTA also proves less effective when contemporaneous correlation of errors is present in the model (Beck and Katz, 1996).

which will allow me to measure the true effect of sovereign wealth fund reinvestments on occupational specialization.

As I stated earlier, the lack of available data complicated my investigation of the occupational specialization claim. Currently information only exists for years when census or survey data is available. Surveys to collect this data have routinely been conducted in developed states since the 1960s; however, routine surveys collecting this data only emerged in the past decade for developing states. The limited information available for these states in the pooled time-series cross-sectional dataset means definitive claims about occupational specialization and sovereign wealth funds are more difficult to make. Significantly more data will become available over the next decade as nascent sovereign wealth funds mature and survey usage increases. Enough data should be available in the next decade to include most of the state excluded in this study. Thus future statistical analysis of these claims will be inherently more valid than this study.

Also, the political transparency argument will need to be revisited in the future to account for any new laws and regulations that are likely to emerge. The European Central Bank, International Monetary Fund (IMF), United States Treasury Department, and World Bank have all issued press releases calling for the creation of generally accepted principles and practices (GAPP) for sovereign wealth funds in order to improve the transparency of fund investment objectives and operations (Truman, 2007; IWG, 2008; Kalter and Holt, 2010; Truman, 2010). These actions lead to the formation of the International Working Group (IWG) of Sovereign Wealth Funds at a meeting in Washington D.C. that took place on April 30 to May 1, 2008 (IWG 2008; Kalter and Holt, 2010).

It was determined at this meeting that Hamad Al Hurr Al Suwaidi, the Undersecretary of the Abu Dhabi Finance Department, and Jaime Caruana, the Director of Monetary and Capital Markets Department at the IMF would co-chair a panel of twenty-eight representatives charged with drafting a set of GAPP for sovereign wealth funds (IWG, 2008; Kalter and Holt, 2010; Truman, 2010).[60] The IWG has met three times since then. The first meetings in Singapore and Oslo, Norway set the agenda for the third meeting in Santiago, Chile where a rough draft of the group's GAPP plan was finalized (IWG, 2008; Truman, 2010).

Currently the Santiago Principles, as the GAPP has been named, are circulating among member states for comments and revisions (Truman, 2010). No deadline has been set for the completion of this process; however, several comments from member states have been publicly released. The Peterson Institute for International Economics recently released an index that measures the level of adherence to the Santiago Principles exhibited by various sovereign wealth funds (Truman, 2010). This scorecard showed widespread adherence to the principles by nearly all member states, which suggests that the Santiago Principles may officially enter the global financial structure in the near future. Full scale implementation of the Santiago Principles by sovereign wealth fund managers might promote greater levels of political transparency in the future than these funds encouraged in the past.

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[60] The panel of twenty-eight members includes one representative each from twenty-three different states with sovereign wealth funds and five permanent observers. The states with sovereign wealth funds on the board are: Australia, Azerbaijan, Bahrain, Botswana, Canada, Chile, China, Equatorial Guinea, the Islamic Republic of Iran, Ireland, Korea, Kuwait, Libya, Mexico, New Zealand, Norway, Qatar, Russia, Singapore, Timor-Leste, Trinidad and Tobago, the United Arab Emirates, and the United States. The permanent observers are: Oman, Saudi Arabia, Vietnam, the OECD, and the World Bank. Oman, Saudi Arabia, and Vietnam all possess sovereign wealth funds.

OVERVIEW OF THE STUDY

My thesis remained true to the form established by previous resource curse scholars by raising nearly as many questions as it answered. Despite the unexpected results of this study, it still contributed important insights into the micro level effects of sovereign wealth funds. We learned that sovereign wealth funds foster occupational specialization, albeit only in the service sector of the economy. The findings also suggest that occupational specialization no longer appears to be a causal mechanism for the resource curse, so any attempts to boost labor force participation should not be expected to encourage democratization. Unrelated to the central purpose of this study, we also discovered that the resource curse does not appear to exist for mineral wealth anymore. The findings also offer tentative support for the claim that sovereign wealth funds induce political transparency for resource-reliant states relative to counterpart states, but only if the government was authoritarian when the fund was created.

Currently the limited sample size of sovereign wealth fund states before 1990 inhibits the creation of valid generalizable theory about sovereign wealth funds and political transparency. In other words, my analysis can only confirm what happened in the past and should not be used to speculate what will happen in the future. Release of Park Alpha's Sovereign Wealth Fund Transaction Database will soon bring public the data necessary to determine the true relationship between sovereign wealth funds and political transparency. Gaining a fuller understanding of this relationship would allow researchers to determine if there is something unique about the way certain sovereign wealth funds are managed that leads to political transparency. This data may also

provide key insights that will allow me to generalize between states, which the current method does not.

Following the tradition established by Ross, I plan to revisit this study in another decade. I believe this is necessary because three events will occur over the next decade that could challenge these conclusions. First, recently created stabilization and public pension plans should have enough time to mature by the year 2020 to test this claim for a wider variety of stats. Of course, these funds might also disprove the generalizability of my theory by proving that the promotion of political transparency was limited to the original states. Second, the passage of time will also allow me to test what affect the original sovereign wealth funds have over two full oil price cycles. Finally, widespread implementation of the Santiago Principles could promote political transparency via sovereign wealth funds in a way that this thesis could not predict.

REFERENCES

Anderson, Lisa. 1995. "Peace and Democracy in the Middle East: The Constraints of Soft Budgets." *Journal of International Affairs* 49(1): Pg. 25-45.

Arrau, Patricio and Stijn Claessens. 1992. "Commodity Stabilization Funds." *World Bank Policy Research Working Paper* 835.

Auty, Richard M. 1990. *Resource-Based Industrialization: Sowing the Oil in Eight Developing Countries*. Oxford: Claredon Press.

Auty, Richard M. 1993. *Sustaining Development in Mineral Economies*: The Resource Curse Thesis. London: Routledge.

Auty, Richard M. 1994. "Industrial policy reform in six large newly industrialized countries: The resource curse thesis." *World Development* 22(1): pp. 11–26.

Auty, Richard M. and David Evans. 1994. "Trade and industrial policy for sustainable resource-based development: Policy issues, achievements and prospects." *UNCTAD Report* GE94-50979.

Auty, Richard. 2001. *Resource Abundance and Economic Development*. New York: Oxford University Press.

Ayoob, Mohammed. 2005. "The Muslim World's Poor Record of Modernization and Democratization: The Interplay of External and Internal Factors." In *Modernization, Democracy, and Islam*, edited by Shireen T. Hunter and Huma Malik. 2005. Westport, CT: Praeger Publishing.

Baldwin, Robert E. 1966. *Economic Development and Export Growth*. Berkley: University of California Press.

Barrett, David B., George Thomas Kurian and Todd M. Johnson. 2001. *World Christian Encyclopedia: A Comparative Survey of Churches and Religions in the Modern World*. 2nd Ed. New York: Oxford University Press.

Barro, Robert J. 1997. *Determinants of Economic Growth: A Cross-Country Empirical Study*. Cambridge, MA: MIT Press.

Barro, Robert J. 1999. "Determinants of Democracy." *The Journal of Political Economy* 107(S6): Pg. S158-S183.

Beblawi, Hazem and Giacomo Luciani eds. 1987. *Nation, State and Integration in the Arab World, Volume II: The Rentier State*. London: Croom Helm.

Beblawi, Hazem. 1990. "The Rentier State in the Arab World." In *The Arab State*, edited by Giacomo Luciani. 1990. Pg. 85-98. Los Angeles, CA: University of California Press.

Beck, Nathaniel, Jonathan N. Katz, R. Michael Alvarez, Geoffrey Garrett, and Peter Lange. 1993. "Government Partisanship, Labor Organizations, and Macroeconomic Performance: A Corrigendum." *American Political Journal Review* 67 (4): Pg. 945 – 948.

Beck, Nathaniel and Jonathan N. Katz. 1995. "What to do (and not do) with Time-Series Cross-Section Data." *American Political Science Review* 89(3): Pg. 634-647.

Beck, Nathaniel and Jonathan N. Katz. 1996. "Nuisance versus Substance: Specifying and Estimating Time Series Cross Section Models." Political Analysis 4: Pg. 1-37.

Bollen, Kenneth A. 1983. "World System Position, Dependency, and Democracy: The Cross-National Evidence." *American Sociological Review* 48 (4): Pg. 468-479.

Bruno, Michael and Jeffrey Sachs. 1982. "Energy and Resource Allocation: A Dynamic Model of the 'Dutch Disease.'" *The Review of Economic Studies* 49(5): Pg. 845-859.

Burkhart, Ross E. and Michael S. Lewis-Beck. 1994. "Comparative Democracy: The Economic Development Thesis." *American Political Science Review* 88(4): Pg. 902-910.

Chichilnsky, Graciela. 1994. "North-South Trade and the Global Environment." *American Economic Review* 84(4): 851-874.

Clapham, Christopher. 1985. *Third World Politics*. Madison, WI: University of Wisconsin Press.

Corden W.M. and J.P. Neary. 1982. "Booming Sector and De-industrialisation in a Small Open Economy." *The Economic Journal* 92 (12): 825–848.

Corden, W.M. 1984. "Boom Sector and Dutch Disease Economics: Survey and Consolidation". *Oxford Economic Papers* 36: 362.

Cornwell, Rupert. 2006. "Abu Dhabi Named as Home City of Gehry's New Guggenheim." *The Independent*, July 10.

Cuddington, John T. 1992. "Long Run Trends in 26 Primary Commodity Prices: A disaggregated look at the Prebisch-Singer hypothesis." *Journal of Development Economics* 39(2): Pg. 207-227.

Dahl, Robert A. 1971. *Polyarchy: Participation and Opposition*. New Haven: Yale University Press.

Davis, Graham A. 1995. "Learning to Love the Dutch Disease: Evidence from the Mineral Economies." *World Development* 23(10): Pg. 1765-1779.

Deutsch, Karl W. 1961. "Social Mobilization and Political Development."*American Political Science Review* 55(1): 493-514.

Entelis, John P. 1976. "Oil Wealth and the Prospects for Democratization in the Arabian Peninsula: The Case of Saudi Arabia," In *Arab Oil: Impact on the Arab Countries and Global Implications*, edited by Naiem A. Shirbeny and Mark A. Tessler. 1976. Pg. 77-111. New York: Praeger Publishing.

First, Ruth. 1980. "Libya: Class and State in an Oil Economy," In *Oil and Class Struggle*, edited by Petter Nore and Terisa Turner. Pg. 119-142. 1979. London: Zed Press.

Freedom House Inc. "Freedom in the World Comparative and Historical Data." *Freedom House Inc.* http://www.freedomhouse.org/template.cfm?page=439 (September 12, 2010).

Fox, John. 1991. *Regression Diagnostics: Quantitative Applications in the Social Sciences*. Newbury Park, California: Sage Publication.

Goldenberg, Suzanne. 2006. "Guggenheim To Build Museum in Abu Dhabi." *The Guardian*, July 10.

Guggenheim Press Release. 2006. "Abu Dhabi to Build Gehry-Designed Guggenheim Museum." *Guggenheim Press Release*, July 8.

Gurr, Ted Robert, Monty G. Marshall and Keith Jaggers. 2010. "Polity IV Project: Political Regime Characteristics and Transitions, 1800-2009." *Political Instability Task Force*. http://www.systemicpeace.org/polity/polity4.htm (September 12, 2010).

Hirschman, Albert O. 1958. *The Strategy of Economic Development*. New Haven, CT: Yale University Press.
Hoffman, Phillip T. and Kathryn Norberg, eds. 1994. *Fiscal Crises, Liberty, and Representative Government, 1450–1789*. Stanford, CA.: Stanford University Press.

Hudson, Michael. 1995. "The Political Culture Approach to Arab Democratization: The Case for Bringing It Back In, Carefully." In *Political Liberalization and Democratization in the Arab World*, edited by Rex Brynen, Baghat Kornay, and Paul Noble. 1995. Pg. 61-76. Boulder, CO: Lynne Rienner Publishers Inc.

Hunter, Shireen T. 2005. "Islam, Modernization, and Democratization: The Case of Iran." In *Modernization, Democracy, and Islam*, edited by Shireen T. Hunter and Huma Malik. 2005. Westport, CT: Praeger Publishing.

Huntington, Samuel. 1991. *The Third Wave: Democratization in the Late Twentieth Century*. Norman, OK: University of Oklahoma Press.

Inglehart, Ronald. 1997. *Modernization and Postmodernization*. Princeton: Princeton University Press.

International Labour Organisation. 2010. "Laborsta Database Table 1C: Economically Active Population, by Occupation and Status in Employment." *International Labour Organisation*. http://laborsta.ilo.org/STP/guest (October 15, 2010).

IWG of Sovereign Wealth Funds. 2008. "Sovereign Wealth Funds: Generally Accepted Principles and Practices, the 'Santiago Principles.'" Washington D.C.: IMF Press.

Jen, Stephen. 2007. "Sovereign Wealth Funds: What They Are and What's Happening." *World Economics* 8(4): Pg. 1-7.

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

Kalter, Eliot and Thomas F. Holt. 2010. "Key International Issues for Sovereign Wealth Funds." *The Fletcher School and Center for Emerging Market Enterprises Working Paper* Spring, 2010.

Karl, Terry. 1997. *The Paradox of Plenty: Oil Booms and Petro-States*. Berkeley: University of California Press.

Kimmitt, Robert. 2008. "Public Footprints in Private Markets." *Foreign Affairs* 87(1): Pg. 119-130.

Kmenta, Jan. 1986. *Elements of Econometrics*. Second Ed. New York: Macmillan Press.

Kornai, János. 1986. "The Soft Budget Constraint." *Kyklos: International Review for Social Sciences* 39(1): Pg. 3-30.

Krugman, Paul. 1987. "The Narrow Moving Band, the Dutch Disease, and the Competitive Consequences of Mrs. Thatcher." *Journal of Development Economics* 27(50): Pg. 41-55.

Lam, Ricky and Leonard Wantchekon. 1999. "Dictatorships as a Political Dutch Disease." *Yale University Economic Growth Center Working Papers* 795.

Leite, Carlos and Jens Weidmann. 1999. "Does Mother Nature Corrupt? Natural Resources, Corruption, and Economic Growth." *IMF Working Paper* WP/99/85.

Lerner, Daniel. 1958. *The Passing of Traditional Society*. New York: Free Press.

Levin, Jonathan V. 1960. *The Export Economies: Their Pattern of Development in Historical Perspective*. Cambridge, MA: Harvard University Press.

Lewis, Arthur. 1955. *The Theory of Economic Growth*. Homewood, IL: R.D. Irwin.

Lewis, Kathryn. 2009. "NYU Opens its Abu Dhabi Campus." *The National*, Dec. 8.

Lewis, Steven W. 2007. "Chinese NOCs and World Energy Markets: CNPC, Sinopec and CNOOC." *James A. Baker III Institute for Public Policy* Policy Report.

Lipset, Seymour Martin. 1959. "Some Social Requisites of Democracy: Economic Development and Political Legitimacy." *American Political Science Review* 53(1): Pg. 69-105.

Lipset, Seymour Martin. 1994. "The Social Requisites of Democracy Revisited." *American Sociological Review* 59(2): Pg. 1-22.

Londregan, John B. and Keith T. Poole. 1996. "Does High Income Promote Democracy?" *World Politics* 49(1): Pg. 1-30.

Luciani, Giacomo. 1990. "Allocation vs. Production States: A Theoretical Framework." In *The Arab State*, edited by Giacomo Luciani. 1990. Pg. 65-84. Los Angeles, CA: University of California Press.

Mahdavy, Hussein. 1970. "The Patterns and Problems of Economic Development in Rentier States: The Case of Iran," In *Studies in Economic History of the Middle East*, edited by M. A. Cook. 1970. Pg. 428-467. London: Oxford University Press.

Manibo, Medilyn. 2008. "French Culture Minister Heads Delegation to UAE Capital to Seal Louvre Abu Dhabi Operating Framework." *AME Info*, Jan. 7.

Marshall, Monty G., Ted Robert Gurr, and Barbara Harff. 2009. *PITF Problem Set Codebook*. Political Instability Taskforce.

Midlarsky, Manus. 1998. "Democracy and Islam: Implications for Civilizational Conflict and the Democratic Peace." *International Studies Quarterly* 42(December 1998): Pg. 485-511.

Monroe, Elizabeth. 1963. *Britain's Moment in the Middle East*. Baltimore, MD: Johns Hopkins University Press.

Moore, Clement Henry. 1976. "Petroleum and Political Development in the Maghreb," In *Arab Oil: Impact on the Arab Countries and Global Implications*, edited by Naiem A. Shirbeny and Mark A. Tessler. 1976. Pg. 112-129. New York: Praeger Publishing.

O'Neill, Jim et al. 2001. "Building Better Global Economic BRICs." *Global Economics Paper* No. 66.

O, Neill, Jim et al. 2007. *Beyond the BRICs*. New York: Goldman Sachs Group.

Parks, Richard. 1967. "Efficient Estimation of a System of Regression Equations When Disturbances Are Both Serially and Contemporaneously Correlated." *Journal of the American Statistical Association* 62: Pg. 500-509.

Prebisch, Raul. 1950. *The Economic Development of Latin America and its Principle Problems*. Lake Success, New York: United Nations Department of Economic Affairs.

Przeworski, Adam and Fernando Limongi. 1997. "Modernization: Theories and Facts." *World Politics* 49(2): Pg. 155-183.

Putnam, Robert. 1993. *Making Democracy Work: Civic Traditions in Modern Italy*. Princeton: Princeton University Press.

Ragnar, Nursky. 1958. "Trade Fluctuations and Buffer Policies of Low-Income Countries." *Kyklos: International Review for Social Sciences* 11(2): Pg. 141-154.

Ramazani, Rouhallah. 1966. *The Foreign Policy of Iran: A Developing Nation in World Affairs 1500-1941*. Charlottesville, VA: University of Virginia Press.

Ricardo, David. 1821. *The Principles of Economy and Taxation*. London: Everyman's Library.

Ross, Michael. 1999. "The Political Economy of the Resource Curse." World Politics 51(1): Pg. 297-332.

Ross, Michael. 2001. "Does Oil Hinder Democracy?" *World Politics* 53(3): Pg. 325-361.

Roy, Sudip. 2006. "Money and Mystery: ADIA unveils its secrets." *Euromoney*, April.

Sachs, Jeffrey D. and Andrew M. Warner. 1999. "The Big Push, Natural Resource Booms and Growth." *Elsevier* 59(1): Pg. 43-76.

Sachs, Jeffrey D. and Andrew M. Warner. 1995. "Natural Resource Abundance and Economic Growth." *Development Discussion Paper* 517a. Cambridge: Harvard Institute for International Development.

Sachs, Jeffrey D. and Andrew M. Warner. 1999. "The Big Push, Natural Resource Booms and Growth." *Journal of Development Economics* 59(1): Pg. 43-76.

Salamé, Ghassan. 1994. "Small is Pluralistic: Democracy as an Instrument of Civil Peace." In *Democracy without Democrats? The Renewal of Politics in the Muslim World*, edited by Ghassan Salamé. 1994. Pg. 84-111. New York: I.B. Tauris.

Sayers, Lois W. 1989. *Pooled Time Series Analysis*. Newbury Park, California: Sage Publication.

Shafer, Michael. 1983. "Capturing the Mineral Multinationals: Advantage or Disadvantage?" *International Organizations* 37(1): Pg. 93-119.

Shambayati, Hooten. 1994. "The Rentier State, Interest Groups, and the Paradox of Autonomy: State and Business in Turkey and Iran." *Comparative Politics* 26(3): Pg. 307-331.

Sharabi, Hisham. 1988. *Neopatriarchy: A Theory of Distorted Change in Arab Society*. New York: Oxford University Press.

Singer, Hans. 1950. "The Distributions of Gains Between Investing and Borrowing Countries." *American Economic Review: Papers and Proceedings* 40: Pg. 473-485.

Skocpol, Theda. 1982. "Rentier State and Shi'a Islam in the Iranian Revolution." *Theory and Society* 11(3): Pg. 265-283.

Sovereign Wealth Fund Institute. "List of Sovereign Wealth Funds." *Park Alpha*. http://www.swfinstitute.org/fund-rankings (September 10, 2010).

Spengler, Joseph J. 1960. *Natural Resources and Economic Growth*. Washington D.C.: Resources for the future.

Stack, Megan. 2005. "In Dubai, the Sky's No Limit." *Los Angeles Times*, Oct. 13.

Stensgaard, Anne-Birte. 2004. "50 per cent of Nakheel and IFA 'Golden Mile' project sold in less than 24 hours." *AME Info*, May 5.

The Economist. 1977. "The Dutch Disease." 26 November.

The Economist. 2008. "Asset Backed Insecurity." 17 January.

Thornton, Emily and Stanley Reed. 2008. "Inside the Abu Dhabi Investment Authority." *Business Week*, June 6.

Tilly, Charles, ed. 1975. *The Formation of National States in Western Europe*. Princeton: Princeton University Press.

Transparency International. "Corruption Perception Index 2010 Results." *Transparency International.* http://www.transparency.org/policy_research/surveys_indices/cpi/2010 (October 12, 2010).

Transparency International. "Corruption Perception Index 2009 Results." *Transparency International.* http://www.transparency.org/policy_research/surveys_indices/cpi/2009 (October 12, 2010).

Transparency International. "Corruption Perception Index 2008 Results." *Transparency International.* http://www.transparency.org/policy_research/surveys_indices/cpi/2008 (October 12, 2010).

Transparency International. "Corruption Perception Index 2007 Results." *Transparency International.* http://www.transparency.org/policy_research/surveys_indices/cpi/2007 (October 12, 2010).

Transparency International. "Corruption Perception Index 2006 Results." *Transparency International.* http://www.transparency.org/policy_research/surveys_indices/cpi/2006 (October 12, 2010).

Transparency International. "Corruption Perception Index 2005 Results." *Transparency International.* http://www.transparency.org/policy_research/surveys_indices/cpi/2005 (October 12, 2010).

Transparency International. "Corruption Perception Index 2004 Results." *Transparency International.* http://www.transparency.org/policy_research/surveys_indices/cpi/2004 (October 12, 2010).

Transparency International. "Corruption Perception Index 2003 Results." *Transparency International.* http://www.transparency.org/policy_research/surveys_indices/cpi/2003 (October 12, 2010).

Transparency International. "Corruption Perception Index 2002 Results." *Transparency International.* http://www.transparency.org/policy_research/surveys_indices/cpi/2002 (October 12, 2010).

Transparency International. "Corruption Perception Index 2001 Results." *Transparency International.* http://www.transparency.org/policy_research/surveys_indices/cpi/2001 (October 12, 2010).

Transparency International. "Corruption Perception Index 2000 Results." *Transparency International.* http://www.transparency.org/policy_research/surveys_indices/cpi/previous_cpi/2000 (October 12, 2010).

Transparency International. "Corruption Perception Index 1999 Results." *Transparency International.* http://www.transparency.org/policy_research/surveys_indices/cpi/previous_cpi/1999 (October 12, 2010).

Transparency International. "Corruption Perception Index 1998 Results." *Transparency International.* http://www.transparency.org/policy_research/surveys_indices/cpi/previous_cpi/1998 (October 12, 2010).

Truman, Ewin M. 2007. "Sovereign Wealth Funds: The Need for Greater Transparency and Accountability." *Peterson Institute for International Economics Policy Brief* PB07-6.

Truman, Ewin M. 2010. *Sovereign Wealth Funds: Threat or Salvation?* Washington, D.C.: Peterson Institute for International Economics.

UN Department of Economic and Social Affairs. 2009. *Population and Vital Statistics Report, Statistical Papers, Series A Vol. LXI, No. 1.* New York: United Nations Statistics Division.

UNESCO. 2006. *International Standard Classification of Education: ISCED 1997.* May 2006 Revision. New York: UNESCO Institute for Statistics.

U.S. State Dept. 2002. *U.S. Religious Freedom Report 2002.* Washington D.C.: U.S. State Department Press.

U.S. State Dept. 2006. *U.S. Religious Freedom Report 2006.* Washington D.C.: U.S. State Department Press.

U.S. State Dept. 2009. *International Religious Freedom Report 2009.* Washington D.C.: U.S. State Department Press.

Vandewalle, Dirk. 1998. *Libya Since Independence: Oil and State-Building.* Ithaca, NY: Cornell University Press.

Van Wijnbergen, Sweder. 1984. "The 'Dutch Disease': A Disease After All?" *The Economic Journal* 94(373): Pg. 41-55.

Viner, Jacob. 1952. *International Trade and Economic Development.* Glencoe, IL: Free Press.

Wallerstein, Immanuel. 1974. *The Modern World-System.* New York: Academic Press.

Waterbury, John. 1994. "Democracy without Democrats? The Potential for Political Liberalization in the Middle East." In *Democracy without Democrats? The Renewal of*

Politics in the Muslim World, edited by Ghassan Salamé. 1994. Pg. 23-47. New York: I.B. Tauris.

World Bank. "World Economic Indicators Database." *World Bank*. http://data.worldbank.org/indicator (September 12, 2010).

Young, Crawford. 1988. "The African Colonial State and Its Political Legacy." In *The Precarious Balance: State and Society in Africa*, edited by Donald Rothchild and Naomi Chazan. 1988. Boulder, CO: Westview Press.

Appendix A

List of Sovereign Wealth Funds A-S

Country	Sovereign Wealth Fund Name
Algeria	Revenue Regulation Fund
Australia	Australian Future Fund
Azerbaijan	State Oil Fund
Bahrain	Mumtalakat Holding Company
Botswana	Pula Fund
Brazil	Sovereign Fund of Brazil
Brunei	Brunei Investment Agency
Chile	Social and Economic Stabilization Fund
China	SAFE Investment Company
China	National Social Security Fund
China	China Investment Corporation
China	China-Africa Development Fund
China (Hong Kong)	Hong Kong Monetary Authority Investment Portfolio
East Timor	Timor-Leste Petroleum Fund
France	Strategic Investment Fund
Indonesia	Government Investment Unit
Iran	Oil Stabilisation Fund
Ireland	National Pensions Reserve Fund
Kazakhstan	Kazakhstan National Fund
Kiribati	Revenue Equalization Reserve Fund
Kuwait	Kuwait Investment Authority
Libya	Libyan Investment Authority
Malaysia	Khazanah Nasional
Mauritania	National Fund for Hydrocarbon Reserves
New Zealand	New Zealand Superannuation Fund
Nigeria	Excess Crude Account
Norway	Government Pension Fund – Global
Oman	State General Reserve Fund
Oman	Oman Investment Fund
Qatar	Qatar Investment Authority
Russia	National Welfare Fund
Saudi Arabia	Public Investment Fund
Saudi Arabia	SAMA Foreign Holdings
Singapore	Temasek Holdings
Singapore	Government of Singapore Investment Corporation
South Korea	Korea Investment Corporation

Appendix A

List of Sovereign Wealth Funds T-V

Country	Sovereign Wealth Fund Name
Trinidad & Tobago	Heritage and Stabilization Fund
UAE (Abu Dhabi)	Abu Dhabi Investment Authority
UAE (Abu Dhabi)	International Petroleum Investment Company
UAE (Abu Dhabi)	Mubadala Development Company
UAE (Abu Dhabi)	Abu Dhabi Investment Council
UAE (Dubai)	Investment Corporation of Dubai
UAE (Federal)	Emirates Investment Authority
UAE (Ras Al Khaimah)	RAK Investment Authority
Venezuela	FEM
Vietnam	State Capital Investment Corporation

Source: Sovereign Wealth Institute

Appendix B

Data for Sovereign Wealth Fund Dummy Variable

Country	Sovereign Wealth Fund Name	Inception
Algeria	Revenue Regulation Fund	2000
Australia	Australian Future Fund	2004
Azerbaijan	State Oil Fund	1999
Bahrain	Mumtalakat Holding Company	2006
Botswana	Pula Fund	1994
Brazil	Sovereign Fund of Brazil	2009
Brunei	Brunei Investment Agency	1983
Chile	Social and Economic Stabilization Fund	1985
China	SAFE Investment Company	1997
East Timor	Timor-Leste Petroleum Fund	2005
France	Strategic Investment Fund	2008
Indonesia	Government Investment Unit	2006
Iran	Oil Stabilisation Fund	1999
Ireland	National Pensions Reserve Fund	2001
Kazakhstan	Kazakhstan National Fund	2000
Kiribati	Revenue Equalization Reserve Fund	1956
Kuwait	Kuwait Investment Authority	1953
Libya	Libyan Investment Authority	2006
Malaysia	Khazanah Nasional	1993
Mauritania	National Fund for Hydrocarbon Reserves	2006
New Zealand	New Zealand Superannuation Fund	2003
Nigeria	Excess Crude Account	2004
Norway	Government Pension Fund – Global	1990
Oman	State General Reserve Fund	1980
Qatar	Qatar Investment Authority	2005
Russia	National Welfare Fund	2008
Saudi Arabia	Public Investment Fund	2008
Singapore	Govt. of Singapore Investment Corporation	1981
South Korea	Korea Investment Corporation	2005
Trinidad & Tobago	Heritage and Stabilization Fund	2000
UAE	Abu Dhabi Investment Authority	1976
Venezuela	FEM	1998
Vietnam	State Capital Investment Corporation	2006

Source: Sovereign Wealth Institute

Appendix C

Industrial Activity Used to Create Men in Industry and Women in Industry Variables

Industrial Activity	ISIC, revision 4	ISCE 1958	ISCE 1993
Mining and Quarrying	Category B	Catgeory 2	Category C
Manufacturing	Category C	Catgeory 3	Category D
Electricity, gas, steam, and air conditioning	Category D	Catgeory 4	Category E
Water supply including sewerage, waste management, and remediation services	Category E	Catgeory 4	Category E
Construction	Category F	Catgeory 5	Category F

Source: International Labour Organization and World Bank

Appendix D

Service Sector Activity Used to Create Men in Services and Women in Services Variables

Service Sector Activity	ISIC, rev 4
Wholesale and retail trade including repair of motor vehicles	Category G
Transportation and storage	Category H
Accommodation and food service activities	Category I
Information and communication	Category J
Financial and insurance activities	Category K
Real estate activities	Category L
Professional, scientific, and technical activities	Category M
Administrative and support service activities	Category N
Public admin. and defense including compulsory social security	Category O
Education	Category P
Human health and social work activities	Category Q
Arts, entertainment, and recreation and other service activities	Category R
Other service activities	Category S
Household act. and production of undifferentiated goods/services	Category T

Service Sector Activity	ISCE 1993
Wholesale and retail trade; repair of motor vehicles, motor sales	Category G
Hotels and restaurants	Category H
Transport, storage and communications	Category I
Financial intermediation	Category J
Real estate, renting and business activities	Category K
Public administration and defence; compulsory social security	Category L
Education	Category M
Health and social work	Category N
Other community, social and personal service activities	Category O
Households with employed persons	Category P

Service Sector Activity	ISCE 1958
Commerce	Category 6
Transport, storage, and communication	Category 7
Services	Category 8

Source: International Labour Organization and World Bank

Appendix E

Oil-Reliant States: 1992 to 2008

State	Notes
Algeria	
Angola	
Azerbaijan	
Bahrain	Oil and Mineral Reliant
Belarus	
Bhutan	
Brunei Darussalam	
Cameroon	
Congo, Republic of	
Cote d'Ivoire	
Gabon	
Indonesia	
Iraq	
Islamic Republic of Iran	
Kazakhstan	Oil and Mineral Reliant
Kuwait	
Krygyz Republic	
Libya	
Malaysia	
Nigeria	
Oman	
Papua New Guinea	Oil and Mineral Reliant
Qatar	
Russian Federation	
Saudi Arabia	
Syrian Arab Republic	
Tajikistan	Oil and Mineral Reliant
Turkmenistan	
United Arab Emirates	Oil and Mineral Reliant
Vietnam	
Yemen, Republic of	

Appendix F

Mineral-Reliant States: 1992 to 2008

State	Notes
Bahrain	Oil and Mineral Reliant
Guinea	
Guyana	
Jordan	
Kazakhstan	Oil and Mineral Reliant
Mauritania	
Mongolia	
Niger	
Papua New Guinea	Oil and Mineral Reliant
Suriname	
Tajikistan	Oil and Mineral Reliant
Togo	
United Arab Emirates	Oil and Mineral Reliant
Zambia	

Appendix G

Oil-Reliant States: 1970 to 2008

State	Notes
Algeria	
Angola	Data Missing
Azerbaijan	
Bahrain	Oil and Mineral Reliant
Belarus	Data Missing
Bhutan	
Brunei Darussalam	
Cameroon	
Congo, Republic of	
Ecuador	
Gabon	Oil and Mineral Reliant
Indonesia	
Iraq	
Islamic Republic of Iran	
Kazakhstan	Oil and Mineral Reliant
Kuwait	
Krygyz Republic	
Libya	
Malaysia	
Nigeria	
Oman	
Qatar	
Russian Federation	
Saudi Arabia	
Syrian Arab Republic	
Tajikistan	Oil and Mineral Reliant
Tunisia	
Turkmenistan	Data Missing
United Arab Emirates	Oil and Mineral Reliant
Venezuela, Bolivarian Republic of	
Vietnam	
Yemen, Republic of	

Appendix H

Mineral-Reliant States: 1970 to 2008

State	Notes
Bahrain	Oil and Mineral Reliant
Bolivia	
Chile	
Congo, Democratic Republic of	
Gabon	Oil and Mineral Reliant
Guinea	
Guyana	
Kazakhstan	Oil and Mineral Reliant
Liberia	
Mauritania	Data Missing
Mongolia	
Niger	
Papua New Guinea	Data Missing
Peru	
Tajikistan	Oil and Mineral Reliant
Togo	Data Missing
United Arab Emirates	Oil and Mineral Reliant
Zambia	

CIRRICULUM VITAE

G. Jason Smith
530 Virginia Ave. Louisville, KY 40222
gjason.smith@louisville.edu

Education and Training:

- University of Louisville, Louisville, KY
  M.A. Political Science, 2010
  Master's Thesis: "Do Sovereign Wealth Funds Mitigate Authoritarian Rule?: A statistical analysis of sovereign wealth funds and the resource curse"
- University of Louisville, Louisville, KY
  B.S. Business Economics, 2003
  Minors in Political Science and Marketing
- Inter-University Consortium for Political and Social Research (ICPSR)
  Summer Program in Quantitative Methods of Social Research
  Linear Regression II: Linear Models and Matrix Algebra Lecture, Summer 2010
- University of Edinburgh, Edinburgh, U.K.
  Cooperative Center for Study Abroad
  Adam Smith and the Scottish Enlightenment, Summer 2009

Research Interests:

Formal Modeling – International Political Economy – International Relations – Methods

Awards and Honors:

- Nominated for the Graduate Dean's Citation, 2010
- Political Science Graduate Assistantship, University of Louisville, 2009-2010
- International Center Study Abroad Scholarship, University of Louisville, 2009
- Center for Asian Democracy Graduate Assistantship, University of Louisville, 2008-2009
- Dean's Scholar Award, Summer 2002
- Deans List Award, Fall2003, Summer 2003, Spring 2003, Fall 2000, Summer 2000, Spring 1998
- Trustees Eagle Scout Scholarship, University of Louisville, 1997-2003
- Trustees Governor's Scholar Scholarship, University of Louisville, 1997-2003

Research Conferences:

- (Submitted) "Do Sovereign Wealth Funds Mitigate Authoritarian Rule? A statistical analysis of sovereign wealth funds and the resource curse." Kentucky Political Science Association Meeting, Bowling Green, Kentucky, March 2011
- "China and Russia in the 21st Century: Can The Dragon and The Bear Remain Friends?" Association for Asian Studies Southeast Conference, Louisville, Kentucky, January, 2010
- "The Effects of Oil Institution Structures on Democratization: A Comparative Case Study of Indonesia and Libya." Kentucky Political Science Association Meeting, Louisville, Kentucky, March 2009

Employment:

Graduate Teaching Assistant, University of Louisville, Louisville, KY (2009-2010)

- Dr. Jason Gainous, Fall 2009 and Spring 2010: Served as Dr. Gainous's teaching assistant for the undergraduate methods course. Responsibilities included grading homework and tests and holding office hours for statistics and SPSS tutoring.

Graduate Research Assistant, University of Louisville, Louisville, KY (2008-2010)

- Dr. Charles Ziegler, Spring 2010: Assisted Dr. Charles Ziegler by locating and summarizing academic publications and other research that dealt with resource-encouraged political cooperation, particularly trans-national oil pipelines. Compiled a bibliography of this information for an upcoming paper.
- Dr. Melissa Merry, Fall 2009: Conducted content analysis for Dr. Merry on environmental non-government organization blogs. Compiled a database in Microsoft Excel and SPSS with this information that measures why these organizations create its blog and how the blog is used to communicate with the organization members and the public that will be used in several future articles.
- Center for Asian Democracy, Spring 2009: Assisted Dr. Shiping Hua with preparations for the Center for Asian Democracy's international symposium "China's Rise and Its Impact on Asia." Preparation included: collecting and reviewing conference papers, organizing panels, creating the conference schedule of events, assisting with logistics, and aiding Chinese citizens with visa applications. Facilitated the interview process for a permanent Aung San Suu Kyi Endowed Chair in Asian Studies and three new Visiting Scholars in Asian Studies.
- Center for Asian Democracy, Fall 2008: Facilitated advanced efforts for the arrival of three Visiting Scholars in Asian Studies for the Center for Asian Democracy and the Visiting Aung San Suu Kyi Endowed Chair in Asian Studies. Also served as the research assistant for the four scholars after their arrival.

Editor's Assistant, Journal of Totalitarian Movements and Political Religions, 2009-2010

- Compiled a database that included: previous authors, types of articles submitted, and potential future contributors. Researched and invited future board members and reviewed submitted articles. Assisted with the compilation of quarterly and an annual special issue.

Teaching Experience:
University of Louisville, Louisville, KY, Fall 2009 and Spring 2010

- Assisted Dr. Jason Gainous as the graduate teaching assistant for POLS 390: Political Research for the 2009-10 academic year. The course concentrates on research methods and statistics. Conducted office hours for statistics and SPSS tutoring and graded homework
- Guest speaker for Dr. Charles Ziegler's POLS 363: Politics of Oil class during the Spring 2009 and Spring 2010. Lectured on oil politics in Libya and Algeria.
- Guest speaker for Dr. Rodger Payne's POLS 335: Global Ecopolitics class in Fall 2009. Introduced about 30 undergraduate students to the Tragedy of the Commons. Lectured on the concept with respect to international negotiations and institutions, specifically the Vienna Convention for the Protection of the Ozone Layer and subsequent Montreal Protocol on Substances that Deplete the Ozone Layer.

Extracurricular Activities:

- Graduate Student Council, University of Louisville, 2009-2010
- Arts and Sciences Graduate Student Council, University of Louisville, 2009-2010
- Graduate Research Symposium Committee, University of Louisville, 2010
- Economics Club, University of Louisville, 2002-2003 and 2008-2010
- Students for Liberty, University of Louisville, 2010

International Travel:

- Guatemala City and Pacux, Guatemala, Summer 2010
- Sydney, Hobart, Port Arthur, Alice Springs, and Uluru Australia, Summer 2009
- Edinburgh, Scottish Highlands and border regions and London, United Kingdom, Summer 2009

Community Service:

- Guatemala Mission Trip, Summer 2010
- Highview Homeless Outreach, 2010

Math Courses Completed:

- Matrix Algebra, ICPSR Summer Program in Quantitative Methods of Social Research, Summer 2010
- Real Analysis, University of Louisville Department of Mathematics, Spring 2010
- Introduction to Higher Math, University of Louisville Department of Mathematics, Fall 2009
- Linear Algebra, University of Louisville Department of Mathematics, Fall 2009
- Mathematical Economics, University of Louisville College of Business, Spring 2003
- Calculus III, University of Louisville Speed Scientific School, Spring 1999
- Calculus II, University of Louisville Speed Scientific School, Summer 1998
- Calculus I, University of Louisville Speed Scientific School, Spring 1998

Statistics Courses Completed:

- Seminar in Statistics I, University of Louisville Department of Sociology, Fall 2010 (expected)
- Regression Analysis II: Linear Models, ICPSR Summer Program in Quantitative Methods of Social Research, Summer 2010
- Methods of Political Research, University of Louisville Department of Political Science, Spring 2009
- Econometrics, University of Louisville College of Business, Spring 2009
- Probability and Statistics, University of Louisville Speed Scientific School, Fall 1999

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