Impact of the Economy on Government Behavior

ABSTRACT

The economy has proven to be a top priority for people and governments, who do believe it is key for stability. This research paper attempts to uncover to what extent is this true in regards to two tools, military spending and corruption, and how they change to various economic indicators. Moreover, this paper will measure the changes for different government types. The paper has found that military spending is impacted by the economy with differing impacts based on government types, and to a much lesser extent for corruption. Autocracies are most impacted and democracies the least, with the key finding being that autocracies spend more on the military when the economy is more strained.

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I.   Introduction

There are numerous examples of regimes losing their power as discontent grows from political players. Many reasons could point to this, be it poor living conditions, accusations of corruption, scandal, or possibly a coup. In most history classes, it is taught that the political landscape in Europe drastically shifted due to the Great Depression causing the people to suffer and escape to extremism. Not only in Europe but also in every continent, with the people pressuring the government. However, it is not discussed as much as how do the regimes that face the same issues not face any forced government change? Leaders like Robert Mugabe in Zimbabwe, living in riches while country's failing economy and currency continuously harms any chance of development for the people? This leads me to begin thinking about policy and decision making. Looking at the Middle East, the region has always been rife with violence and tension, especially with the 2011 Arab Spring following the Recession and economic hardships the masses faced. Regimes fell, others rose, but many stayed the same. This led me to think more about the power the economy has on decision making and crisis management. These states that were able to survive was able to ensure the military was well off and the status quo was in their best interest such as Syria, yet states that lost the support of the military such as in Tunisia and Libya faced a regime change. Even spending and treating the military well is not a certain protective measure, yet it does help, but unprecedent levels of dissent, foreign influence, and inspiration from other movements led to the regime change. This helps bring into the picture the strength the military has in times of stress.

The topic of this thesis would be about how governments react to changes in the economy. The question that will be examined is, looking at military spending and corruption, how do different regime types react to economic growth? Military spending would be defined as financial resources dedicated to the armed forces. Corruption is the abuse of entrusted

power for private gain. Regime types would include democracy, anocracy, and autocracy. Three economic indicators will be examined, growth, the natural logarithm of GDP per capita, and natural resource rents as a percentage of GDP.

This is an important study to examine as it can reveal significant information and insight into how governments plan out their policies. Moreover, predicting and analyzing their reactions to the economy will help understand each regime types' priorities in order to survive and stay in office. As a result, this can help game theorists better predict outcomes and decisions while understanding the policies regimes take as their most favorable outcome.

A core idea of this topic is that different regimes types have different incentives/priorities in terms of policy. The economy is one of the most significant issues that all governments must address and thus have a policy put in place. However, since different regime types have different threats and priorities, it is beneficial to examine how they all react to changes in the economy but specifically looking at military spending and corruption. These two indicators portray how much a government cares about domestic threats, especially from the military. For example, a democratic system puts voters as the ones in charge of deciding who stays in power so the government would tend to focus on their needs while a weak authoritarian leader may want to focus on keeping the military happy to avoid any coups or to crackdown on dissent. A basic assumption of politics when studying government behavior is that the main goal of a regime is to stay in power, so how does a government stay in power in relation to the economy? The economy has proven to change governments throughout history as well as make the people, and the military, rethink their needs from the government. Moreover, countries that have a more stable and developed economy tend to have a focus on post-materialist values such as social issues of green energy, but that conversation should only happen after getting the necessities for a stable state, with the economy the center for it.

There have not been many studies focusing on the relationship between regime type and how that can impact various indicators, mainly military spending and corruption, which can give insight into a government's main goals. This study would help add important information and data to that conversation and better understand policy and threats.

II.   Literature Review:

Influence of the Economy

One important theme of the consider is the level of influence the economy has on the public and the threat they face for a government if left unchecked. Throughout history, drastic recessions and depressions have been cause for wars, coups, and revolutions. A key cause of WWII and the rise of right-wing governments is the Great Depression that caused great amount of suffering allowed for radical changes. The power of economic crises on government change is also prevalent in *Economic Crisis and Political Regime Change: An Event History Analysis* by Mark J. Gasiorowski, where he analyzes the impact of recessions and inflation post 1950. He concluded that the crises did result in democratization in third world countries and any economic issues led to democratic breakdown, further proving the notion that the economy is an essential part of regime stability.[1]

Regime Type and Allocation of Funds

Furthermore, it is important to look at how different regime types allocate resources, which can indicate their priorities when funds are running low and in a recession. Jonathon Powell in *Regime Vulnerability and the Diversionary Threat of Force* explains the various threats that face democratic states differ to autocratic threats. Looking at his findings on autocrats, he concluded that autocrats use funds to the military as private incentives as a

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[1] Gasiorowski "Economic Crisis and Political Regime Change: An Event History Analysis."

means to buy the loyalty of the military, making them the strongest backer of the regime.[2]

Having the military on the regime's side gives them a significant advantage over other elites

and the masses as now they have an even stronger means of control and armed backing to

avoid being forced out of office.

Moreover, David Lake and Matthew Baum in *The Invisible Hand of Democracy:*

Political Control and the Provision of Public Services looks at democracies and how they

focus on public goods and services. They found that democracies do spend more on these

provisions especially looking at education and health care.[3] This can be used as proof that

democracies would more likely give back to constituents and allocate more resources to

voters as they are the ones who put people in office but can also easily vote them out.

Directly comparing both, Robert Deacon in *Public good provision under dictatorship*

and democracy further builds on the previous point. While comparing both regime types,

democracies would tend to invest more on a wider variety and more inclusive public goods.[4]

On the other hand, dictatorships would focus provisions that would help the powerful groups

to better centralize their power. Using all these sources, it is safe to assume that democracies

would focus on the masses to increase their public appeal while more autocratic regimes

would focus their attention on powerful groups as they are the main threat to their rule.

Coup Proofing

An essential topic to discuss is coup proofing. Coup proofing would be a means to

protect the status quo and maintain the head of state in office from a takeover by the elites or

military. Because of this, it is essential for governments to instill coup proofing measures to

avoid a takeover, especially autocrats. Tobias Bohmelt and Ulrich Pilster discuss ways to

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[2] Powell "Regime Vulnerability and the Diversionary Threat of Force."
[3] Lake and Baum "The Invisible Hand of Democracy."
[4] Deacon "Public Good Provision under Dictatorship and Democracy."

establish institutional coup proofing measures in *The Impact of Institutional Coup-Proofing on Coup Attempts and Coup Outcomes.* They discuss how typically a government would put in place rival military organizations to keep them both in check and compete while also being effective in reducing the risk of a coup. However, it can only reach a certain point where then having too many measures actually increases the risk of a coup from occurring, but does not change the success of a potential coup.[5]

Moreover, the idea of the Guardianship Dilemma is an important theory to mention. Jack Paine's *The Dictator's Power-Sharing Dilemma: Countering Dual Outsider Threats* discusses the threats autocrats face from elites and the military. Looking at the guardianship dilemma, Paine describes it as when elites are included in the military that then become strong enough due to continued support from the regime would eventually become a coup threat. Moreover, in general, when the regime shares benefits with elites, those elites would reduce their risk of being a threat but then this must be balanced with elites left outside the inner circle.[6] Autocrats must be able to find a balance between supporting their inner circle and military while also carefully limiting the strength of outside elites.

Natural Resources

Natural resources are a key indicator that should be looked at before starting the paper. Countries that have an abundance of these natural resources and are necessary for their growth operate differently than those without, such as comparing the Gulf countries with Singapore. States that operate by having most of their income coming from rents of their natural resources, like oil, are called rentier states. They mainly operate by using the rents from the resources and distributing across the economy and people, typically buying off the

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[5] Böhmelt and Pilster. "The Impact of Institutional Coup-Proofing on Coup Attempts and Coup Outcomes."
[6] Paine "The Dictators Power-Sharing Dilemma: Countering Dual Outsider Threats."

masses with benefits like education and healthcare while also using it to heavily build up a military to protect the resources and keep stability to encourage foreign investment. Michael Ross, among others, has looked extensively in this topic mainly about oil in *Does Oil Hinder Democracy?* Where he looks at how the "resource curse" has prevented democracy to grow in the Middle East. One of his key assumptions for the study, supported by Jeffrey Sachs, is that increasing income would increase the potential for a state to turn democratic, yet the oil rich countries contradict that. Ross found that old does greater damage to poorer countries in terms of prevented democracy with rising oil exports also hurting the chances of a democracy.[7] Moreover, Timothy Mitchell in *Carbon Democracy* follows suit and explains that a country starting with oil would be harder to turn democratic due to the nature of it and the institutions put in place for oil production is different than that of a country reliant on coal such as in Europe.[8]

Looking further on the topic, a study by Joseph Wright, Erica Frantz, and Barbara Geddes, *Oil and Autocratic Regime Survival,* discusses the link between oil and military spending. The authors find that wealth generated by oil rents lowers the risk of a coup or takeover by rivals within the state. Moreover, autocratic states with high oil revenue spends a considerable amount on the military,[9] which allows for more centralized control and greater stability to prevent a collapse while also protecting the regime and the resources.

III.   Assumptions/Theory:

After discussing the various literature, a key assumption to be made is that the main goal for any regime is to survive and stay in office. In game theory, this is a typical assumption and consistent with the notion of a "rational" player, meaning a player would

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[7] Ross, Michael L. "Does Oil Hinder Democracy?"
[8] Mitchell *Carbon Democracy: Political Power in the Age of Oil*
[9] Wright, et al. "Oil and Autocratic Regime Survival."

attempt to gain the most favorable outcome, which in this case being any action that would most likely maintain power. In order for a regime to understand this, they should recognize the various groups that can put that goal under threat.

Looking at domestic matters, the main threats would include a potential coup from the military/elites, elections, and the masses. Each of these represents a way for the regime to be toppled, which happen when the regime is under fire. For the paper, the economy represents the main environment for which these threats will either be minimized or given a chance to enact their pressure. The economy has two main phases by how it can impact the regime, a time of greater amount of resources such as during an economic boom, and times of less resources like in a recession.

Comparing the two extreme regime types of a full democracy and a strong autocracy, they would each react differently to the economic situation. During a time of greater resources, it is easier for both regimes to minimize the mentioned threats. With greater resources, each regime type can spread the wealth so the masses have jobs and have a more favorable view of the regime, giving the existing democratic regime a greater chance of reelection while also minimizing dissent in an autocracy. The elites would enjoy greater economic stimulus and a booming industry, while the military would also avoid cuts in their budget and keep their standards the same or improve. Better economic conditions means there is less pressure on the regime to perform or risk tensions with the main groups as they are enjoying the greater conditions.

Furthermore, each regime type face a different main threat to their rule. In a more autocratic state, the military and the elites have great power and wealth, giving them the ability to perform a coup. On the other hand, a more democratic state must face the wrath of elections and the masses' opinion on the regime.

Examining these threats, during a time of economic hardships, the regimes would

have to make cuts to the budgets and allocate the resources that would help keep them in power. To do so, they must cater to their more prominent threat for their survival. An autocracy would have to focus more in their military and powerful groups because they are the closest to the regime can have the necessary resources for a takeover. The military tends to be the strongest armed group in a country and looking at the studies previously mentioned, autocrats spend more on the military compared to democrats, and they have to find the balance of power they give to the military or risk them outmuscling the regime to then take over. If in a recession they see that the regime cuts their funding and stops the incentives for their loyalty, those coup proofing measures would collapse and allow for a takeover by the military. Moreover, alienating other powerful groups like the elites, who can then win the military over, would also increase the chances for a coup. The masses would not be able to protect the autocrat in this scenario as they do not have the resources to do so, and there are no elections so their voice is already silenced, where then the military can crackdown on any dissent to their takeover.

In a more democratic regime, their threat is the masses. This is because a democracy works with elections, and during a time of stress, not catering towards the voters would harm chances of reelection. Spending on military and cracking down on the people may not change their vote and in a more democratic country the vote would be protected and honored, meaning there is no other way to survive. The above readings show that democracies tend to spend more on public goods and offer more inclusive provisions so that they can be looked at more favorably by the people and increase chances of winning reelection, satisfying their goal of survival.

As a result, when the government is forced to make cuts to their budget during times of recession, each type will do it according to their main threat. Democratic states would try to win the masses over and restart the economy as fast as possible to avoid job cuts and going

out of favor with the people. To do so, they would cut military spending and clamp down on corruption. By cutting military spending, they would be able to reinvest the money into the economy via public goods, subsidies, or bailouts. Military spending can actually hurt the economy for growth as an amount of those funds do not get reinserted into the economy, thus being inefficient during a time where little bit of money matters. Moreover, corruption would be a focus as it is a substantial market error and inefficiency, with that money also not going back into the economy but into the pockets of the elites, who are not the main threat to a democracy. Restarting the economy quickly would help aid the chances of reelection and survive the recession.

In an autocracy, the recession would mean that total standards of living would decrease, so the regime would want to allocate it towards the elites and the military. Keeping the powerful groups on the side of the regime is important for protection. Moreover, the military and the funds in corruption for powerful groups and the police for example would help in silencing dissent and further consolidating the power until the economy can get back in shape, regardless of the time as the masses are not the ones who can change the government especially when heavily backed by the powerful groups.

Once looking at those, it is important to look at how autocratic rentier states compare to resource poor autocratic states. Since both states generate funds differently, they behave differently. Many rentier states tend to be more autocratic, especially with oil as discussed previously, and spend more on the military to protect these vital assets necessary for their economy and protection. Moreover, they would have a greater stockpile of funds that can easily generate funds from foreign corporations who would also want to protect the assets and maintain the status quo of the mutual relationships, meaning the regime would still spend more on the military and let corruption increase as a means of further centralizing their control. There is less worry on trying to maintain a stable economy and grow jobs for the

masses to stay working, because the source of wealth is not from people working and services, but rather investments and exports. Regardless of economic conditions, if the price of their exports are relatively high, they can still stay afloat and use the funds to support the military to enforce the public and discourage dissent.

Resource-poor countries are the opposite and have to funds from people working and taxing the people to have the resources required to pay the military or for public goods. During times of less funds, it is harder for the regime to grow funds from work if people are losing jobs, which makes it harder for the regime to pay the military and elites to maintain order if the people get frustrated with the regime, which would force the powerful groups to turn on the regime.

Based on the literature and the assumption, it is possible to predict the outcomes. During times of high growth, there would not be significant changes for all government types on military spending and corruption. Yet, during times recession and economic hardships, autocracies would spend more on the military while also have higher levels of corruption to maintain order and consolidate power, while democracies would want to decrease spending on the military but corruption will likely increase. Autocracies with higher levels of GDP per capita would still increase military spending during economic hardships but to a less degree while poorer autocracies would have a more dramatic increase of spending. Democracies for this indicator would see less significant changes. Finally, for natural resource rents, it can be predicted that an increase of resource rents would result in an increase of military spending to protect the resources, but mainly for autocracies.

IV.   Data:

Countries would first be divided up based on their regime types. The independent variables, x, would be economic indicators consisting of growth, ln GDP per capita, and resource rents as a percentage of GDP. The dependent variables, y, would be military spending and corruption. To separate the regime types, their Polity score. A score of -10 -- -6 will be labeled as an "autocracy", -5 – 5 is an "anocracy", and 6 – 10 will be a "democracy."

The data for the economic indicators are found from the World Bank (1960-2019). For corruption, the Corruption Perceptions Index would be used (CPI) (2012-2020). The CPI score ranges from 0 – 100, with 100 meaning no corruption and very transparent, and 0 being the most corrupt. Military spending as % of GDP can be found from the World Bank as well (1960-2019).

Figure 1: Histogram for MS per Type
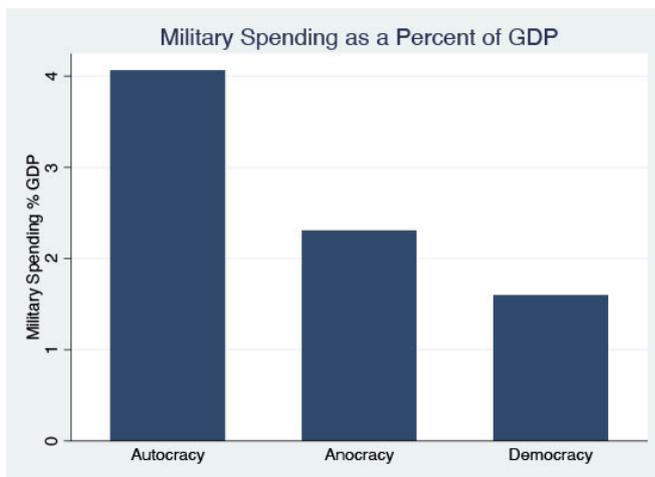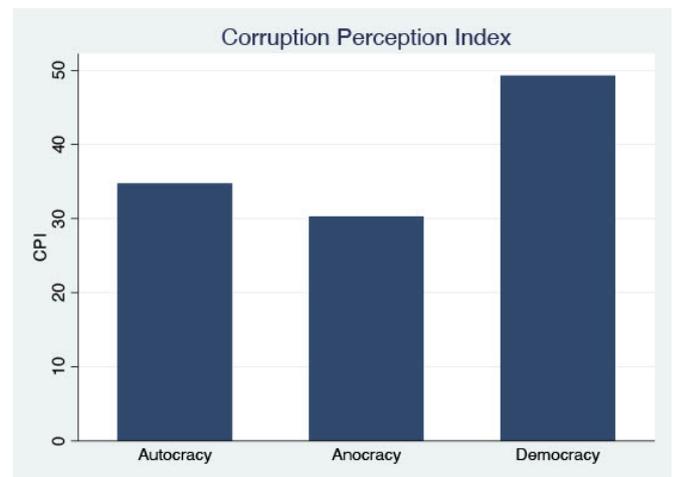

Figure 2: Histogram for CPI per Type
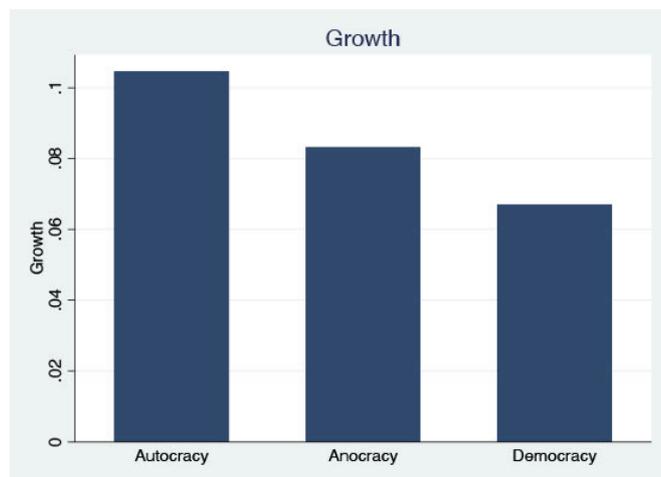
Figure 3: Histogram for Growth per Type

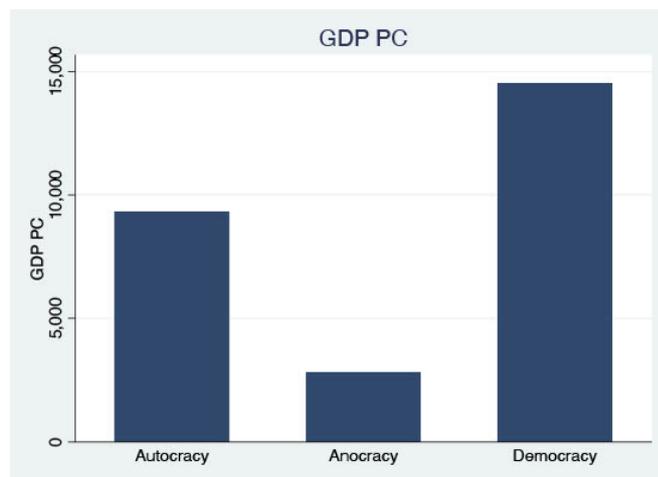

Figure 4: Histogram for GDP PC per Type
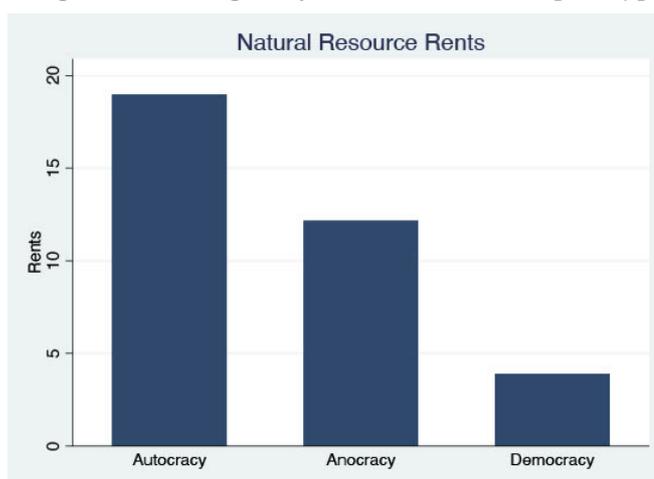

Figure 5: Histogram for Resource Rents per Type

Table 1. *Summary Statistics*

	All Mean/(SD)	Autocracy Mean/(SD)	Anocracy Mean/(SD)	Democracy Mean/(SD)
Military Spending % GDP	2.07	4.06	2.31	1.60
	(2.03)	(4.14)	(1.66)	(1.07)
CPIscore	43.12	34.72	30.27	49.28
	(19.38)	(15.65)	(13.39)	(19.27)
Growth	0.07	0.10	0.08	0.07
	(0.14)	(0.17)	(0.18)	(0.12)
GDP PC	13484.83	9329.85	2813.42	14523.59
	(21647.44)	(14373.61)	(6478.20)	(18926.26)
ln(GDP PC)	8.39	8.09	7.03	8.67
	(1.62)	(1.53)	(1.23)	(1.49)

To get an idea of the differences between government types, the figures and table depicted above gives context. Looking at figure 1, we can see that autocracies spend the most on the military, and the number decreases as it gets more democratic. This gives the idea that autocratic regimes rely more on the military to keep the peace and consolidate power, with autocracies spending more than double percentage points on average than democracies. Moreover, figure 2 and table 1 shows that democracies are the least corrupt government type, indicating a more stable society and better conditions. Figure 3 shows an interesting graph as autocracies have greater average growth with democracies the least, which could be that autocracies experience high levels of growth as they rely more on resource rents, as shown in figure 5, and selling petrochemicals like in the Gulf states can be the reason for high average growth. Finally, figure 4 portrays that, similarly to figure 2, that democracies have a better living condition indicator in GDP per capita as it is significantly higher than the other two types. As mentioned in the literature review, democracies tend to invest more in public goods and worry more about the masses than autocracies as their main threat comes from the people.

To test the hypotheses, the data will be used to create a regression model to find correlations between the changes in the economy and how military spending and/or corruption changes for the given regime type, with year and country fixed-effects in place. The specifications are seen below:

Military Spending

(1) $Military\ Spending_{it} = \beta_0 + \beta_1 Anocracy\ Dummy_{it} + \beta_2 Democracy\ Dummy_{it} + \beta_3 Autocracy * Growth_{it} + \beta_4 Anocracy * Growth_{it} + \beta_5 Democracy * Growth_{it} + \beta_3 Autocracy * \ln(GDP)_{it} + \beta_4 Anocracy * \ln(GDP)_{it} + \beta_5 Democracy * \ln(GDP)_{it} + \varepsilon_{it}$

(2) $Military\ Spending_{it} = \beta_0 + \beta_1 Anocracy\ Dummy_{it} + \beta_2 Democracy\ Dummy_{it} + \beta_3 Autocracy * Growth_{it} + \beta_4 Anocracy * Growth_{it} + \beta_5 Democracy * Growth_{it} + \beta_3 Autocracy * \ln(GDP)_{it} + \beta_4 Anocracy * \ln(GDP)_{it} + \beta_5 Democracy * \ln(GDP)_{it} + \gamma\ Year\ Dummies_t + \varepsilon_{it}$

(3) $Military\ Spending_{it} = \beta_0 + \beta_1 Anocracy\ Dummy_{it} + \beta_2 Democracy\ Dummy_{it} + \beta_3 Autocracy * Growth_{it} + \beta_4 Anocracy * Growth_{it} + \beta_5 Democracy * Growth_{it} + \beta_3 Autocracy * \ln(GDP)_{it} + \beta_4 Anocracy * \ln(GDP)_{it} + \beta_5 Democracy * \ln(GDP)_{it} + \delta Country\ Dummies + \varepsilon_{it}$

(4) $Military\ Spending_{it} = \beta_0 + \beta_1 Anocracy\ Dummy_{it} + \beta_2 Democracy\ Dummy_{it} + \beta_3 Autocracy * Growth_{it} + \beta_4 Anocracy * Growth_{it} + \beta_5 Democracy * Growth_{it} + \beta_3 Autocracy * \ln(GDP)_{it} + \beta_4 Anocracy * \ln(GDP)_{it} + \beta_5 Democracy * \ln(GDP)_{it} + \gamma\ Year\ Dummies_t + \delta Country\ Dummies + \varepsilon_{it}$

Corruption

(5) $Corruption\ Perception\ Index_{it} = \beta_0 + \beta_1 Anocracy\ Dummy_{it} + \beta_2 Democracy\ Dummy_{it} + \beta_3 Autocracy * Growth_{it} + \beta_4 Anocracy * Growth_{it} + \beta_5 Democracy * Growth_{it} + \beta_3 Autocracy * \ln(GDP)_{it} + \beta_4 Anocracy * \ln(GDP)_{it} + \beta_5 Democracy * \ln(GDP)_{it} + \varepsilon_{it}$

(6) $Corruption\ Perception\ Index_{it} = \beta_0 + \beta_1 Anocracy\ Dummy_{it} + \beta_2 Democracy\ Dummy_{it} + \beta_3 Autocracy * Growth_{it} + \beta_4 Anocracy * Growth_{it} + \beta_5 Democracy * Growth_{it} + \beta_3 Autocracy * \ln(GDP)_{it} + \beta_4 Anocracy * \ln(GDP)_{it} + \beta_5 Democracy * \ln(GDP)_{it} + \gamma\ Year\ Dummies_t + \varepsilon_{it}$

(7) $Corruption\ Perception\ Index_{it} = \beta_0 + \beta_1 Anocracy\ Dummy_{it} + \beta_2 Democracy\ Dummy_{it} + \beta_3 Autocracy * Growth_{it} + \beta_4 Anocracy * Growth_{it} + \beta_5 Democracy * Growth_{it} + \beta_3 Autocracy * \ln(GDP)_{it} + \beta_4 Anocracy * \ln(GDP)_{it} + \beta_5 Democracy * \ln(GDP)_{it} + \delta Country\ Dummies + \varepsilon_{it}$

(8) $Corruption\ Perception\ Index = \beta_0 + \beta_1 Anocracy\ Dummy_{it} + \beta_2 Democracy\ Dummy_{it} + \beta_3 Autocracy * Growth_{it} + \beta_4 Anocracy * Growth_{it} + \beta_5 Democracy * Growth_{it} + \beta_3 Autocracy * \ln(GDP)_{it} + \beta_4 Anocracy * \ln(GDP)_{it} + \beta_5 Democracy * \ln(GDP)_{it} + \gamma\ Year\ Dummies_t + \delta Country\ Dummies + \varepsilon_{it}$

Table 2. *Regressions (Military Spending)*

	(1) Military Spending % GDP	(2) Military Spending % GDP	(3) Military Spending % GDP	(4) Military Spending % GDP
Autocracy # Growth	-4.077*** (0.622)	-3.723*** (0.642)	-1.066*** (0.312)	-1.050** (0.321)
Anocracy # Growth	-1.280*** (0.351)	-1.141** (0.357)	-1.031*** (0.162)	-1.009*** (0.167)

Democracy # Growth	-0.0832	0.202	-0.0176	0.106
	(0.339)	(0.385)	(0.156)	(0.181)
Autocracy # ln(GDP PC)	-0.0531	0.0567	-0.335***	-0.115
	(0.0698)	(0.0710)	(0.0669)	(0.0830)
Anocracy # ln(GDP PC)	0.325***	0.419***	-0.133**	0.136
	(0.0504)	(0.0516)	(0.0433)	(0.0765)
Democracy # ln(GDP PC)	0.0175	0.0673*	-0.270***	0.0132
	(0.0306)	(0.0311)	(0.0398)	(0.0762)
Autocracy # Natural Resource Rents	0.0617***	0.0597***	-0.0302***	-0.0256***
	(0.00656)	(0.00653)	(0.00576)	(0.00585)
Anocracy # Natural Resource Rents	0.0210***	0.0246***	0.00735	0.00989*
	(0.00540)	(0.00540)	(0.00459)	(0.00472)
Democracy # Natural Resource Rents	-0.00601	0.00488	-0.0127*	-0.00999
	(0.00708)	(0.00718)	(0.00607)	(0.00613)
Constant	3.711***	2.747***	5.503***	3.516***
	(0.534)	(0.546)	(0.471)	(0.641)
Observations	3199	3199	3199	3199
R^2	0.200	0.217	0.846	0.848
Year Fixed-Effects		Yes		Yes
Country Fixed-Effects			Yes	Yes

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Growth

Looking at the first economic indicator, growth does appear to have an effect on military spending for autocracies and anocracies. Both have negative coefficients, meaning that when growth occurs, military spending decreases. However, this means the inverse is true and that when there is negative growth, then these governments spend more on the

military. This key finding aids in the argument that when more autocratic regimes have fewer resources, they will allocate more to the military, likely as a means to prevent a coup or to keep the military content to carry out force to avoid a popular movement. Looking at table 2, a -1% growth rate would result in a 1% increase in military spending, which is a significant finding given the strong relationship growth has on the policy of autocrats, implying they value the military during times of pressure. Yet, the relationship between growth and military spending for democracies is insignificant, meaning that growth does not impact the policy for democracies, especially while comparing with the other types, in respect to how they treat the military. Figure 6 is a depiction of the results for growth in relation to all the government types. Majority of countries are clustered around the same level of growth of while the high military spending points are mainly autocracies.

Figure 6: Scatter for MS in Relation to Growth
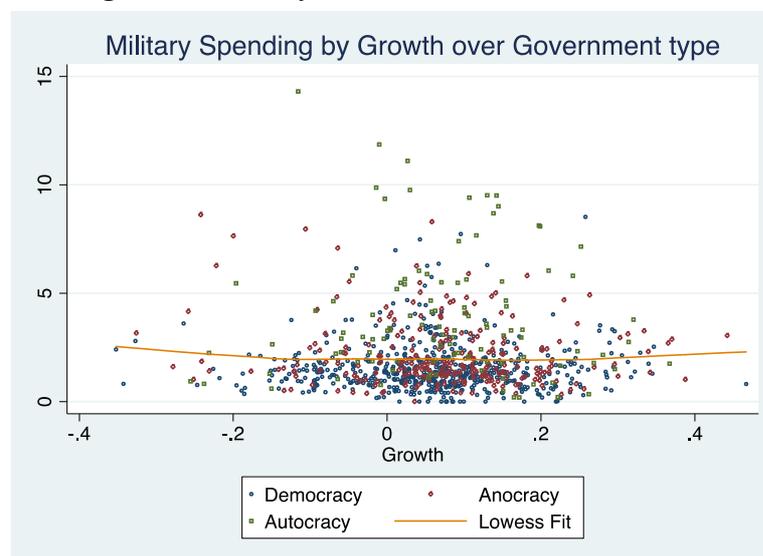
GDP per capita

Moving on to the logged GDP per capita, all the regressions with fixed-effects prove to be insignificant. Meaning there is not a great difference between countries of the same type with higher GDP per capita and lower. This could be because the GDP of countries does not

change significantly year to year that could yield to a change in the percentage allocation of

funds. Moreover, the GDP per capita is not a strong enough indicator to impact military

spending in any government type. However, the negative coefficient for autocracies would

mean that as an autocracy gets wealthier, they do not spend more on the military as a percent

of GDP. Figure 7 below displays the data on a scatter plot, indicating the high levels of GDP

per capita in predominantly democratic countries as well as how there is not a strong

correlation between it and military spending, while many poorer more autocratic states have

high proportions of their GDP dedicated towards the military.

Figure 7: Scatter for MS in Relation to GDP PC
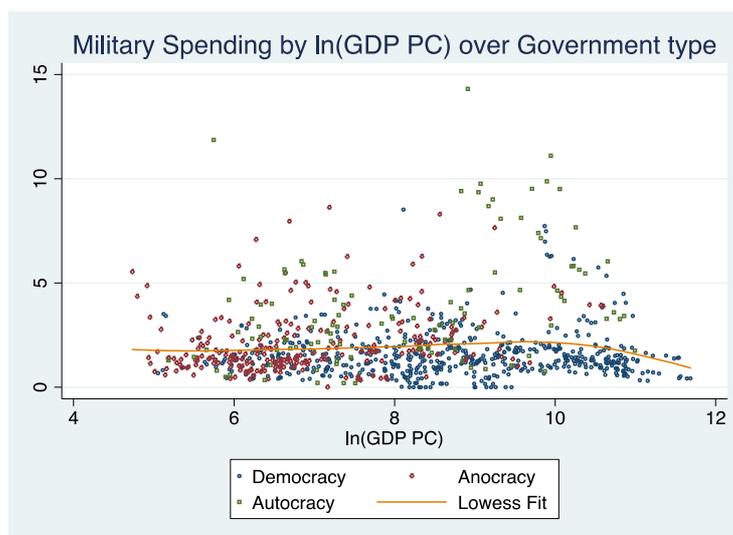
Natural Resource Rents

   Natural resource rents is a measure to highlight the differences between countries that

rely on natural resources such as oil for their funds and others. Autocracies show a strong

significance with a negative coefficient, meaning that as natural resource rents go up, then

military spending decreases but when compared to without the fixed-effects, it is the opposite

with military spending increasing as rents increase. What this would is that if a country has

higher natural resource rents, they would spend more on the military but as they get wealthier over time from the increased rents, they do not spend much more proportionally. Anocracies are all positive coefficient but very small, with fixed-effects being only 0.9%, but is still significant, meaning they increase military spending as rents increase. Yet again, democracies have no significance in regards to this economic indicator. Figure 8 highlights the correlation between rents and military spending, and it can be seen that a rise of natural resource rents does show higher levels of military spending for autocracies and anocracies.

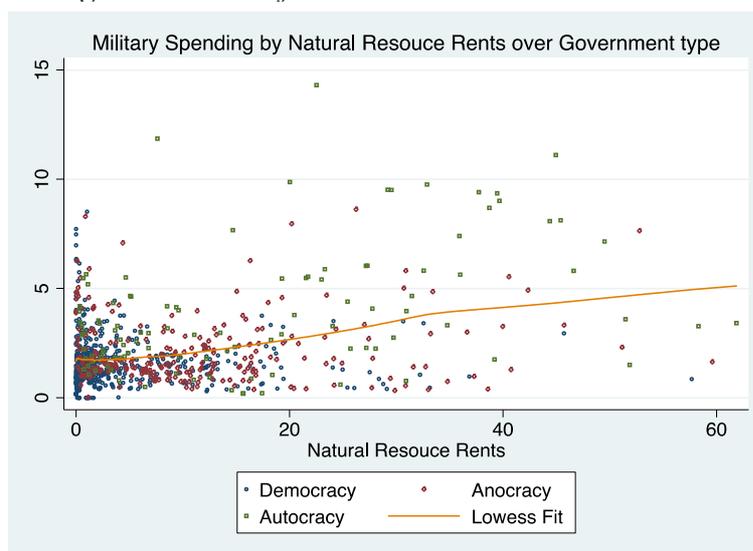*Figure 8: Scatter for MS in Relation to Nat. Res. Rents*

Table 3. *Regressions (Corruption)*

	(1) CPIscore	(2) CPIscore	(3) CPIscore	(4) CPIscore
Autocracy # Growth	1.370	1.544	-5.650[*]	-5.333[*]
	(8.863)	(9.105)	(2.195)	(2.238)
Anocracy # Growth	3.563	3.663	-0.0375	0.196
	(4.395)	(4.511)	(1.113)	(1.128)
Democracy # Growth	-7.480	-6.717	-1.808	-1.193
	(5.127)	(5.866)	(1.259)	(1.431)

|				
Autocracy # ln(GDP PC)	12.91***	12.90***	0.861	0.943
	(1.093)	(1.097)	(1.287)	(1.291)
Anocracy # ln(GDP PC)	5.826***	5.832***	1.332	1.328
	(0.564)	(0.565)	(0.757)	(0.786)
Democracy # ln(GDP PC)	11.12***	11.13***	1.931*	2.057*
	(0.334)	(0.336)	(0.771)	(0.804)
Autocracy # Natural Resource Rents	-0.393***	-0.391***	0.00976	0.0390
	(0.0802)	(0.0811)	(0.0387)	(0.0396)
Anocracy # Natural Resource Rents	-0.378***	-0.378***	0.0578*	0.0847**
	(0.0535)	(0.0540)	(0.0292)	(0.0304)
Democracy # Natural Resource Rents	0.0246	0.0249	0.0273	0.0483
	(0.0592)	(0.0594)	(0.0355)	(0.0362)
Constant	-73.46***	-73.43***	34.29**	33.27**
	(9.438)	(9.464)	(10.78)	(10.82)
Observations	1075	1075	1075	1075
R^2	0.685	0.685	0.987	0.987
Year Fixed-Effects		Yes		Yes
Country Fixed-Effects			Yes	Yes

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Growth

Table 3 indicates the values for corruption for the various indicators. Looking at

growth, only autocracies are statistically significant being a high negative coefficient of -5,

meaning that as growth increases, then the CPI decreases significantly, resulting in a higher

perceived level of corruption. This could mean that as there is more growth over time, there

is more money for to go into the pockets of corrupt politicians and political players. Yet, there are no significant results for the other two government types, portraying a possible lack of correlation between corruption and economic growth. Figure 9 below depicts the relationship on a scatter plot.

Figure 9: Scatter for CPI in Relation to Growth
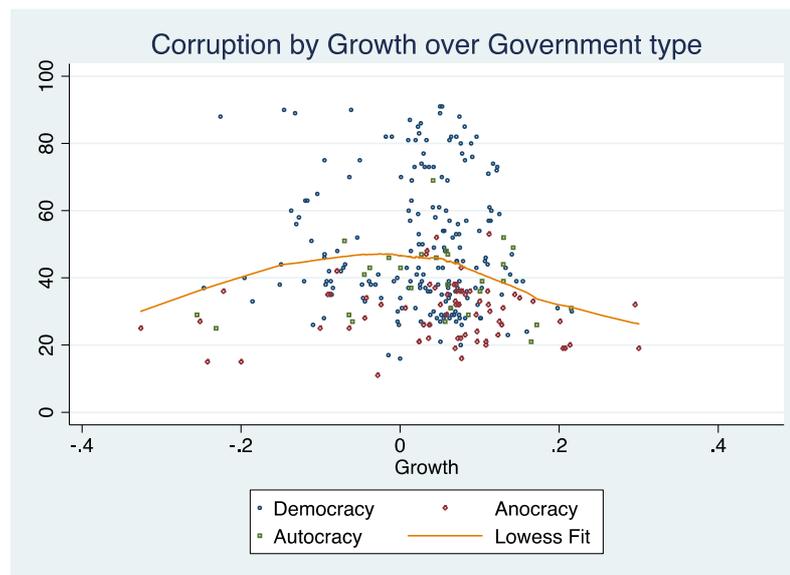
GDP per capita

The next indicator shows a similar story, with a lack of many significant results, with the only significance being without country fixed-effects for anocracies and autocracies, both being positive coefficients and high, meaning that higher GDP per capita, so richer countries, have less perceived corruption while poorer countries within these government types have much higher levels of perceived corruption. Democracies have more significant results, and all point towards that wealthier countries are less corrupt even with the fixed-effects as a trend over time supports this idea. Furthermore, Figure 10 depicts the results in a scatter plot.

Figure 10: Scatter for CPI in Relation to GDP PC
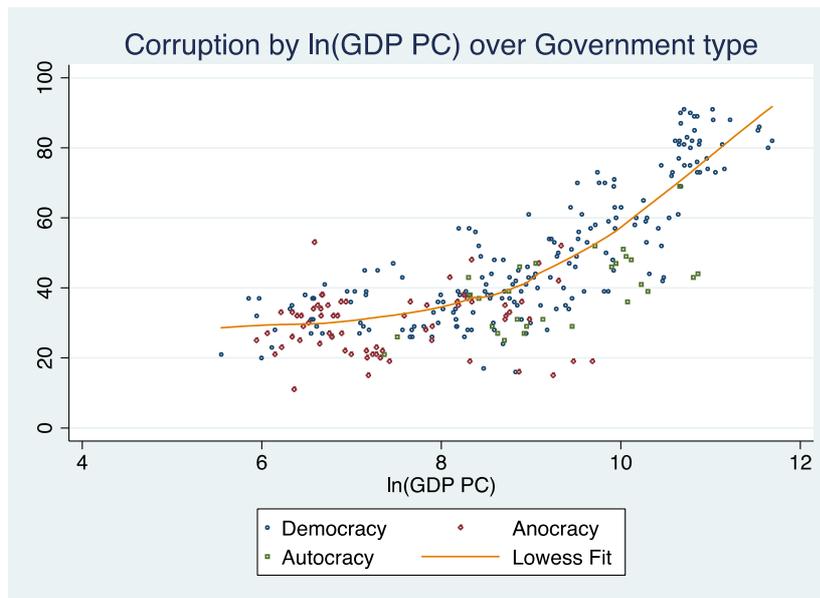
Natural Resource Rents

For an autocracy, looking at without country fixed-effects, higher resource rents increases corruption and is insignificant with country fixed-effects. For anocracies it is the same to a slightly lesser extent without country fixed-effects, but adding it would result in less corruption to a very small extent with the coefficient being low. Meaning as they get more resource rents, they become cleaner. Moreover, democracies are insignificant at every control level.

Figure 11: Scatter for CPI in Relation to Nat. Res. Rents
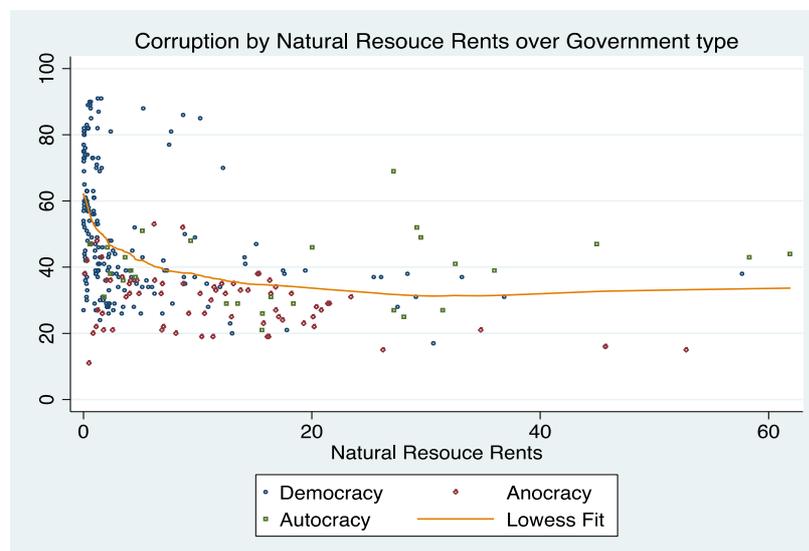
V.   **Analysis**

The above results yielded some surprising and some expected results. Military spending appears to have more significant results, indicating a stronger relationship between the economic indicators and military spending. As per the intuitions, autocracies spend the most on the military while also increasing military spending when growth decreases. This is a key point in the research as it supports the literature in that autocracies see the military as a greater political player than the masses and would deem it is a the most prominent threat towards the regime. As a way to coup proof, more autocratic regimes would support the military and give it enough funding to keep the group content with the status quo. When there are limited resources, the military will still get their cut, to ensure that times of economic pressure would not risk a coup, and instead utilize the group to prevent any tension with the people.

Moreover, wealthier states regardless of government type would not allocate more towards the military as growth increases but regardless the coefficients are very low where there is no great change in the spending or are statistically insignificant, meaning GDP PC alone is not a very effective measure for military spending, but actually goes against the general growth relationship.

The literature for natural resource rents discusses that states that rely more on these resources such as oil would invest more in the military to protect the resources to ensure revenue is not blocked. Without fixed effects, this remains true for non-democracies, which are the countries that rely much more on natural resources meaning they already have higher military spending on average. Including the fixed-effects, autocracies would then spend less on the military as rents increase possibly pointing to that fact as rents increase, growth does as well as it is a prominent source of revenue, meaning there is less tension within the country and would not to increase spending on the military. Anocracies have a very low

coefficient despite it being positive, but the low number means there is not much change in their allocation of fund as the rents increase over time.

The CPI scores paint a less significant relationship. One reason for this is that the score from Transparency International is limited from 2012-2020 available for measuring. The data does go back further than that, however the methodology and results changed in 2012, meaning there would be no consistency for the results and make it unable to fairly test the relationship. As a result, the tests conducted here are the closest to measuring corruption for the study. Looking at growth, only autocracies have significant results with a large negative relationship meaning corruption increases with growth. As the economy is doing better, the levels of bribes would increase as the political players would try to increase their wealth quickly. This would go against the initial intuition as I predicted that corruption would decrease as growth increases as there would be less pressure from within and no need to buy off officials and enforcement groups. Moreover, this means that the inverse is negative growth means less corruption which also goes against the intuitions. This could mean that as the economy is strained, there is relatively less wealth to use for corruption and the funds are moving elsewhere such as towards the military or to protect key industries for revenue.

For GDP per capita, wealthier countries for all types have less perceived corruption. This could be explained by wealthier states being more developed, meaning better standards of living. As per the literature, more corrupt countries have greater economic stress and more developed states have less corruption/economic issues. As a result, wealthier states are more stable so the government would be willing to combat corruption as the wealth is more spread out rather then centralized for the main players.

Finally, the higher corruption for autocracies could be with high rents, there is more wealth around the country with it likely leading to growth, and having a similar reaction as with the growth indicator. When added for fixed-effects and looking at the change of rents

for non-democracies, the coefficients are positive but very low, pointing to a very weak relationship or none at all with minimal impact. Rents seem to have no significant impact for democracies as they do not, on average, have high resource rents as well as being rigid to changes in them anyways.

A trend that is seen here is that democracies are significantly more rigid to changes in the economy than more autocratic regimes. This could be that democracies are more economically stable with already higher standards of living and a more moderate level of average growth, so big swings in the economy would not affect policy as much. Autocracies appear to have more changes and usually to a greater extent than anocracies as they have less diverse economies with more reliance on the resource rents. Moreover, there are differences of policy between wealthy and less wealthy states as well as more rentier states and not.

Another regression could have been made in regards to growth by using a two-stage least square regression analysis by creating a predicted growth variable using rainfall for sub-Saharan African countries and oil price for rentier states. This would aid in portraying the impact that rents and nature has on growth to solidify the causal relationship of growth/economy on military spending and corruption. However, I was unable to complete this analysis as there was not sufficient data to get an accurate depiction of the real world and to have significant results.

VI.   Conclusion

The economy is a strong indicator for understanding the conditions of a country and a weaker economy can bring pressure to a regime. This paper sets out to add to the conversation of the impact the economy has on behavior. While many focus on the economic impact of corruption and spending on the military in the long term, the research tries to explain the inverse. By splitting countries to their democratic level, it helps point to what

different government types prioritize in times of limited resources as well as the conditions of the people and source of revenue.

The data shows that democracies are more resilient to changes in their economy likely due to better average living conditions and a more diverse economy while the fragility of more autocratic states makes them more reliant on a stable economy. Yet, more autocratic regimes would turn towards the military in times of stress to maintain their power as the number one goal of any regime is to survive. The military helps ensure this and keep other players at bay. Wealthier states have less perceived corruption as well as do not change a great amount to the allocation of funds to the military. Countries that rely more on natural resource rents on average are more corrupt and spend more on the military, with adding controls and fixed-effects limiting the impact of the rents on the dependent variables.

There are many limitations in the research, mainly the lack of data points for corruption as well as not being able to do a two stage least squares regression analysis. Future research can be done to aid this paper and support many of the key points with many more variables in place and more controls, while also going more in depth into why changes in the economy exist for each type.

Real world examples can help illustrate these similar ideas. In Libya post-Qaddafi, the former, Tripoli-based, Government of National Accord was under fire from the masses due to the government prioritizing paying militias and their military while the people were missing out on salaries and living in worse conditions.[10] However, the GNA responded by mobilizing troops to quell the unrest and bring in more mercenaries.[11] In Syria, the regime continues to offer bonuses and incentives to troops, rather than attempt to spread the wealth around as Bashar AlAssad understands the value of the military and his elites to maintain power and he

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[10] "Libya: Heavy Weaponry Used to Disperse Peaceful Protesters Demanding Economic Rights."
[11] Fahim, Kareem, and Zakaria Zakaria. "These Syrian Militiamen Were Foes in Their Civil War. Now They Are Battling Each Other in Libya."

succeeded.[12] Furthermore, in Bahrain, after the unrest in 2011, the state was able to regain stability domestically by increasing their military spending especially during a time of economic instability due to the Recession and foreign interference. The strengthening of the Armed Forces allowed for long term control and for the government to consolidate their power to prevent a repeat. The military spending increased from 3.2% in 2010 to 4.6% by 2016 with constant increases every year.[13]

As a result, I believe that the economy does have an impact on military spending for more autocratic regimes, and less so on democratic regimes. Corruption is also impacted for non-democracies but with a weaker relationship than for military spending. The conclusions drawn here would help get a better picture for policy decision for various government types, and explain the threats that each face in times of pressure.

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[12] "Syria to Hike Pay of Frontline Soldiers with Bonus: PM."
[13] As per the Data Set using the World Bank

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