ALGERIA, CIVIL CONFLICT AND THE RESOURCE CURSE:

A Causal Mechanism Analysis and Replication

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Abstract:

Well-cited regression analyses have discovered strong correlations between countries rich in natural resources and their propensity for civil conflict. Collier and Hoeffler (2004) utilized a large-N approach to explore this relationship, finding significance between a country's primary exports as a percentage of Gross Domestic Product and the onset of civil war. Rather than make causal inferences, Michael Ross (2004) subsequently undertook an ambitious study to understand the mechanisms and links underlying the association between the explanatory variable of natural resources and the outcome of civil conflict in terms of onset, duration and intensity. This paper seeks to replicate his study using Algeria and its civil conflict during the 1990's. An overview of Ross' research design is critically discussed followed by an analyses of the coding of found observables for the hypothesized mechanisms he identifies as purported to underlie the linkage between resource wealth and civil conflict. The hypothesized pathways themselves are further assessed in terms of the limits they pose on explaining the causal chains.

Keywords : resource curse, replication, natural resources, civil conflict, Algeria, causal mechanisms, research design, validity

I. Introduction:

There are various intuitive relationships that influence policymaking and in effect the realities experienced by a nation. One such relationship is that of resource wealth and development. If a country is dense with valuable natural resources, their income as Gross Domestic Product may very well appear high. It is simple then to assume that resource wealth translates positively for the future of a nation. However, a large income does not guarantee that the net asset wealth and position of that country will enlarge as well. This latter wealth is dependent on a variety of factors. According to the World Bank (2018), development refers to managing a broad portfolio of assets (produced, human and natural capital). The simple recovery of resource rents does not translate to the productivity of this asset management. Failure to re-invest in human and natural capital creates conditions that are not sustainable for long term wealth creation. In effect, there are a whole suite of variables at play that govern how the relationship between resources and development actually functions.

In an extraordinarily well cited study, Collier and Hoeffler (2002) -- via a large N analysis of 161 countries during the time interval 1960-1995 -- observed a significant correlation between natural resources and civil conflict. Their proxy for natural resources is the ratio of primary commodity exports to GDP, and their logit regression found that "although their effect is non-linear, the risk of conflict peaks when [natural resources] constitute around 33% of GDP, which is a high level of dependence" (p. 547). They hypothesize greed and grievance as the channels through which this correlation exists. Their study stimulated a variety of further research that focus on identifying the average treatment effect of natural resource wealth on various outcomes of interest, such as women's rights, development and civil war. All of this research informs the theory of the "resource curse" which suggests the "adverse effects of a

country's natural resource wealth on its economic, social or political well-being" (Ross, 2015, p. 240).

More recent studies seek to explain the mechanisms that lead to these outcomes in order to help address the endogeneity of correlations. The likelihood of X is not in itself a strong argument for thinking that it explains Y, and probabilistic relationships prove much less helpful when it comes to real time policymaking in comparison to powerful deep causal mechanisms that possess warranted reasons to believe in them. Uncovering the causal order of relevant variables thus proves critical in order to create effective solutions that are grounded in these chains. Political scientist Michael Ross (2004), in a breakthrough study that has been cited over 800 times on Google Scholar, seeks to explore the causal pathways linking civil war as the outcome of interest to resource dependence. In recognition that the correlation has been established by large N studies, Ross set out to determine the causal processes that link the variables together. This was the first investigation of its kind.

The question of *how* the independent variable causes the dependent variable in these types of pathway analyses falls from the assumption that X does cause Y. In the qualitative sphere, the discovery and existence of observables of each causal chain improves the likelihood of that correlation. In his research design, Ross outlines thirteen hypothesized pathways that link resources to civil conflict, looks for evidence, and from the existence (or lack thereof) of observables, he makes conclusions about the legitimacy of each mechanism. The theoretical construct at the foundation of his study is that more natural resources leads to more civil conflict. Like Collier and Hoeffler (2004), Ross co-varies the construct of resource wealth dependence (the independent variable) with primary commodity exports as a percentage of GDP. This measure is scaled so that one can see how much of a portion of the country's economy is made

up by natural resources. He seeks to see the linkage between resources and the onset, duration and intensity of civil war. Onset refers to the incidence of the war, duration refers to the lengthening or shortening of the conflict and intensity is described as the number of conflict-related deaths. The construct validity of the dependent variable is assessed in *"Data Access and Transparency."*

Constraints on his research design arise from the lack of high quality data for a large number of civil wars. To circumvent this problem, Ross uses a small-N approach and chooses thirteen cases to probe the structure of the X1/Y relationship and determine whether evidence for pathways exist. His case selection was rooted on a 'most likely' basis. This refers to cases in which a civil war took place and in which secondary source material suggested primary exports played a role in the origin of the conflict. Ross chose cases that vary 'by conflict type' in the sense that some were separatist, others non-separatist and still others were successive wars. He details that using these cases, he is able to deem mechanisms "plausible" or unlikely to be valid more generally, infer the validity of a pathway's existence in the sub-category of conflicts and also generate new hypotheses about causal mechanisms. Ross specifies why the cases he chose would be wrongly chosen *if* another type of analysis were being done. However, it proves much more insightful to specify why the cases chosen *are* a fair and representative sample. Unfortunately, this insight is not clarified in his paper.

In the same way, Ross details his research design setup as a 'most likely' small-N approach but does not thoroughly specify why his design choices were the best ones he could have made. It is stated that other design choices could not have been made given limits of quality data, but reasoning for the choices he did make are not accessible. Ross rests on the logic of a 'most likely' approach and assumes a linear treatment effect where this may not reflect reality.

Weller and Barnes (2014, p. 441) highlight that the negative coefficient on the squared level of primary commodities is associated with an inverted U-shaped relationship between primary exports and probability of civil war. This indicates that countries with hefty amounts of resources actually have lower likelihoods of civil conflict, and therefore this relationship will be missed if all cases are chosen that have copious sums of resources. In other words, the resource curse is an example of a correlation featuring a non-linear relationship and multiple causal mechanisms. Especially in mixed method research, the selection of cases to study causal mechanisms must be well thought out in order for the conclusions to be useful. Therefore, Weller and Barnes (2014, p. 432) highlight the need to employ case-control strategies to maximize analytic leverage. They provide a thorough step by step process of how to choose the best cases using overall patterns in the data collected by Collier and Hoeffler (2004). Ross, on the other hand, simply selected thirteen "most likely" cases — cases in which a civil war occurred between 1990 and 2000 and where secondary source material provided by scholars, NGO's or UN agencies suggested primary exports played a role in the origin of the conflict. Not only this, but he chooses cases that lie at low and high values of conflict, cases where "the inclusion of the primary exports variable barely increased the predicted probability of a civil conflict" (p. 450). Weller and Barnes showcase how at these extremes, there is essentially no expected effect of resources. They state that "it would not be surprising if causal mechanisms are not apparent in these cases, and it may not be informative about whether the mechanisms appear at other values of primary exports" (p.449). The risk of false negatives is high considering the patterns within Collier and Hoeffler's data. Not surprisingly, Ross finds very limited support for the mechanisms in his analyses. He is aware and honest that "the findings cannot be generalized to some larger set of unexamined

cases" (Ross, 2004, p. 37). Regardless, his paper could have made more general claims if the cases he chose did not have weak links and would have varied on important dimensions.

The thirteen cases Ross selects are Afghanistan, Angola, Cambodia, Colombia, Republic of Congo, Liberia, Peru, Sierra Leone, two successive wars in the Democratic Republic of Congo, Sudan, Indonesia, and Burma.

The pathways and opportunities through which resources may contribute to the onset, duration and intensity of civil conflict that Ross synthesizes from existing literature are summarized below :

H1) Rebels extracting and selling primary commodities or extorting money from those who do allows them to raise money which contributes to the ***onset*** of civil war. Ross specifies that evidence of resources being stolen, looting and extortion prior to the starting year of the conflict suggests resource dependence positively contributed to its onset. The insurgents may feel the need to become strong enough to challenge the regime. Therefore, resources may serve as an avenue to develop this strength and fund the startup costs necessary prior to fighting. Collier and Hoeffler (2004) state that if the resource the country has high dependency on is exportable, it makes this hypothesized mechanism more likely. It should be noted that literature often disagrees on the origin of war and therefore clarity must be developed in case study analyses.

H2) Resource exploitation stimulates grievances due to land expropriation, environmental hazards/degradation, insufficient jobs and pressure by labor migration which contributes to the ***onset*** of a civil war. Ross specifies that propaganda against resource firms along with any critique of the resource firms or targeting of violence at the resource sector serve as observables for the existence of this causal pathway. Ross does not give specifics, but some

of this violence targeting may appear in the form of activist type actions or the kidnapping of people within the industry.

H3) Resource extraction and wealth create incentives to separate and simply become one's own state which contributes to the ***onset*** of civil war. Ross defines three criteria for this mechanism to exist. The 1) conflict must be a separatist war, 2) it must have begun after exploitable resource wealth was discovered in the separatist region and 3) rebels discuss the unfair distribution of resource wealth in its propaganda.

H4) A state depending on resource revenues, specifically oil, causes state weakness and diminishes bureaucratic capacity by causing a failure to develop a bureaucratic apparatus or a relieving of the need to levy taxes which decreases responsiveness to citizens which contributes to the ***onset*** of civil war. Ross describes that it is difficult to know what the observable implications are for this hypothesis and does not investigate it within his thirteen cases. In this replication, evidence of the link between resources and bureaucratic weakness is discovered.

H5) Resource wealth provides funds for either the stronger or weaker side during the war and therefore contributes to the ***duration*** of civil conflict. Looting, extortion and other means of raising money from the resource after the start of the war reveals evidence that this mechanism exists.

H6) Resource dependency and wealth creates financial incentives either for or against peace/negotiation which contributes to the ***duration*** of the civil war. Resources contribute to lengthening civil conflict if actors are better off fighting and wartime profits prove greater than peacetime profits. Ross specifically distinguishes between high level officers and rank and file soldiers when he discusses observable evidence. Officers looting to generate

personal profits, officers choosing not to sign or adhere to an unprofitable peace accord and/or data that indicates officers would not be compensated comparably under the peace treaty serve as evidence for this theoretical mechanism. This applies in the reverse if it is observed that officers who support an agreement subsequently profit or attempt to profit from the resource industry. Further evidence regarding poor discipline among soldiers on either side or soldiers benefitting from looting serves to validate this mechanism as well.

H7) Specifically in separatist regions, resource wealth creates a commitment problem where rebels do not trust or believe that the government will credibly adhere to its promises which contributes to the maintenance of arms and ***duration*** of civil war. Ross states that it proves difficult to observe this mechanism without knowing the motivations of rebel leaders. As a result, he chooses to not test it in his thirteen cases. In this replication, however, evidence was discovered that suggests the existence of this mechanism. Examples of observables include noted mistrust, failing peace accords and refusal to disarm linked to resource wealth.

H8) The greater the value of the territory, the more battles will be fought which contributes to the ***intensity*** of civil war. Evidence of resource related battles over sites with little or no intrinsic strategic value suggests this mechanism exists. This mechanism distinguishes value derived from resources from value derived from strategic benefit.

H9) With resource wealth, the two sides will engage in cooperative plunder which contributes to decreasing the ***intensity*** of civil war. Ross states that evidence of cooperation in resource exploitation between the two sides of the conflict suggests that the casualty rate will decrease.

The following three pathways were discovered during his research process . . .

H10) Resource wealth increases the likelihood of foreign intervention which contributes to the *onset* of civil war. Ross discovered this mechanism within his investigations of the Sierra Leone and the DRC II war in which foreign forces and neighboring powers supported rebel groups against the incumbent governments to gain access to natural resource wealth. In essence, participation of foreign actors is born of profiting from the country's resource richness.

H11) Resource wealth causes rebels to sell booty futures (future exploitation rights) to minerals they hope to capture so as to obtain wealth immediately and fund startup costs which contributes to the *onset* of civil war. Booty futures refer to the rights to exploit resources that the seller has not yet captured or, in other words, rights to purchase in the future at a cheaper price. Another actor will be able to buy these resources in the future if they help the group win. Essentially, there is an investment being made in a side for the future. In H11, Ross specifies booty futures to minerals due to the fact that this was the resource at stake in the cases in which he saw this. However, it should be specified that this proves limiting as there may be cases where minerals are not the primary resources where rebels engage in selling booty futures.

H12) Resource wealth causes the selling of booty futures from either side in order to obtain wealth which contributes to the *duration* of civil war. Depending on the actors that are selling these exploitative rights, civil wars may increase or decrease in duration.

H13) During a separatist war, resource wealth incentivizes the government to preemptively repress and use overwhelming violent force to react to small challenges which contributes to *intensity* of civil war. Extreme incentive to hold onto territory and violence against civilians

validate this mechanism. Ross once again links this pathway to separatist conflicts but clarifies that this may be so "at least within this sample."

Considerations about these mechanisms regarding their paradoxical specificity and vague nature are discussed in "*Analysis and Implications."* To reiterate, Ross searches for evidence that reveals the causal chain starting with the explanatory variable and leading to the outcomes of onset, duration and intensity. In other words, observables that indicate X (resource dependence) is the cause of the mechanism (H1-H13) and that mechanism is the cause of the outcome (onset, duration, intensity).

Based on his analysis of existing literature, Ross finds limited support for the existing alleged causal mechanisms. He concludes that out of his thirteen cases, five revealed resource wealth made conflict more likely, eight showcased resource wealth made the conflict last longer and two reveal resource wealth increased the causality rate. He found no evidence of the looting mechanism (H1) and little evidence of the grievance mechanism (H2) which are suggested by Collier and Hoeffler (2004). He stated that grievance may exist but they never quite contributed to the outbreak. However, Ross neither explicitly details how he coded his evidence as 'yes' or 'no' nor thoroughly cites the evidence that he analyzes. The transparency of these realities are expanded in *"Data Access and Transparency."*

Summary of hypothesized mechanisms/pathways from Ross (2004):

H1	Looting by potential rebels → startup costs funded → onset of civil war
H2	Resource extraction → grievances among locals → onset of civil war
H3	Resource extraction → incentive for separatism → onset of civil war
H4	State depends on resource revenues → state weakness → onset of civil war
H5	Looting by weaker/stronger party → more arms → war lengthened/shortened
H6	War/peace appears financially profitable → less/ore incentive for peace → war lengthened/shortened
H7	Resource wealth in separatist region → commitment problem → war lengthened
H8	Two sides engage in resource battles → more casualties (increased intensity)
H9	Two sides engage in cooperative plunder → fewer casualties (decreased intensity)
H10	Resource wealth → foreign intervention → onset of civil war
H11	Futures contracts for resource booty → startup costs funded → onset of civil war
H12	Weaker/stronger side sells futures contracts for resource booty → war lengthened/shortened
H13	Preemptive repression by government to protect resources → more casualties (increased intensity)

II. Data Access and Research Transparency

As detailed above, in order to understand Ross' conclusions, it should be possible to understand not only how he came to them but also what specific evidence he collected and utilized to rationalize all of his choices. However, Ross does not specify where to obtain the evidence he located for each mechanism, failing to provide readers with thorough citations, page numbers, search terms or a data appendix. This denies others the ability to check his results for false findings -- if there is actually evidence, but he coded that the mechanism does not exist or if there is actually no evidence but he coded that the mechanism does exist.

Not only does his study lack transparency in terms of data access and the production process, it also does not provide a clear description of how the evidence was coded. Therefore, there is a lack of inter-coder reliability that can serve to validate his conclusions. Due to the fact that he does not detail his coding process, those who wish to replicate his study are left in the dark. For example, how true to his specified mechanisms must the evidence be to be suitable for coding 'yes' or 'no'? In this replication, evidence is coded as positive only if it directly fits the mechanism's description. However, if there is contradictory evidence, that is noted. Further, the same evidence is coded without the restrictions of Ross' mechanisms to more accurately reveal the impact of resources on the civil conflict.

Furthermore, Ross is not transparent about his choice of co-variates, specifically the dependent variable. It is well understood that the strength of any test rests upon the validity of its measures. Why have the co-variates been chosen the way they have been? When it comes to the independent variable, Ross does not clarify why primary commodity exports as a percentage of GDP serves as the best measure for resource wealth dependence. Since a country may not be exporting but rather using its own resources, this measure perhaps does not reflect resource wealth dependence holistically. The value of oil exports as a percentage of GDP may underestimate the true amount of profit generated within the petrostate. In addition, Ross fails to thoroughly operationalize all of his variables. When it comes to the outcomes of onset, duration and intensity, there is minimal clarification as to what qualifies something as affecting each of these variables. They are not explicitly proxied, and this is critical for both replication purposes and the validity of his conclusions. Without this, the consistency of his own and future analysis cannot be assessed. Without valid indicators, the tests lose significant validity. Specifying the different metrics and detailing reasoning behind coding decisions via a codebook proves critical,

especially in a qualitative analysis such as this. In short, there is a lack of explanation in terms of what all of the data analyzed looks like and where specifically all of that data is located; there is a lack of explanation in terms of what duration and intensity mean, and there is no codebook to detail the rationalization of coding decisions.

These flaws aside, Ross took on an ambitious and unprecedented endeavor to determine whether the resource-wealth- civil war link is internally valid in a substantial number of cases so as to improve the understanding of the correlation. In his words, he hoped to "ease or heightened suspicions the correlation is spurious or reversed" (Ross, 2004, p. 49)

III. ALGERIA

Ross (2004) lists the duration of the Algerian civil war as '1991 -- ___.' For the purposes of this case study, the war is viewed as having ended with the surrender of the Armed Islamic Group (GIA) in 2002, despite the reality that at present, low-level violence persists. The causes of the war are multi-faceted, but prior to an analysis of the causal mechanisms at play, a brief description of the conflict follows . . .

Algeria obtained independence in 1962 after 132 years of French colonial rule and an eight year protracted war. From 1962 to 1990, Algeria was governed by a one party military dictatorship under the secular National Liberation Front party (FLN) until a bloody civil war erupted in the 1990's in opposition to the regime. Algeria possesses the world's fifth largest proven natural gas reserves, and substantial reserves of crude oil. The development of these resources has been key to economic planning of the nation post-independence. In fact, the hydrocarbons industry earned nearly $11 billion in 1996, amounting to 97% of its foreign exchange revenue. Following riots that undermined the confidence of the President in 1988 (known as the 'Black October' riots), the political system was opened and "democratized." It is

important to note that in 1986 there was a 46% drop in petroleum prices which resulted in a decline in Algeria's hydrocarbon exports (-39 percent). This began to generate an external current account balance of payments deficit that same year which severely eroded the country's foreign exchange reserves (US$0.72 billion at the of end of 1990, as compared with US$2.5 billion at the end of1985). This caused external debt to reach the excessive level of US$ 26.1 billion at the end of 1989 compared to approximately US$17 billion at the end of 1985 (Laksaci, 2010, p. 3). As a result, the external debt service/export ratio shot up to 80 percent in 1988 as compared with 35 percent in 1985. The means by which hydrocarbons played a role in impacting the onset, duration and intensity of the civil war is explored within the case analysis that follows.

Furthermore, in February of 1989, a constitution was drawn up and the FLN's monopoly on power was revoked with the authorization of free political parties, free speech and free press. President Benjedid promised elections -- first municipal and then parliamentary. In the last weeks of 1991, a coalition of Islamist groups known as the Islamic Salvation Front (FIS) dominated the first two rounds of voting for legislative elections with 54% of the total vote. The army cancelled elections in early January, stimulating a general strike that resulted in soldiers firing into crowds and killing several hundred. Leaders of the FIS Madani and Behhadj, along with around 700 militants, were arrested, but President Bendjedid agreed to schedule parliamentary elections for December of 1991 (Viorst, 1997, p. 91). The fall campaign was marked by peaceful rallies and debating before orderly crowds. Results indicated the FIS disproving all the polls; it appeared likely to win two-thirds of the seats. In January 1992, Bendjedid resigned and the army seized control in a coup in order to keep power in the hands of the FLN. They named a five member junta -- the High Council of State -- which assumed presidential functions and dismissed the election results. The army then began to brutally repress

the Islamists, throwing them in jails and concentration camps in the Sahara. They detained anyone wearing the loose-fitting white tunics that identified FIS members, moved to regain control of the mosques, replaced fundamentalist imams, banned street gatherings, cut off loudspeakers, closed FIS offices, curbed party press outlets and removed the municipal officials elected in 1990. A campaign of demonstrations was launched by the FIS, and the army killed 40 protestors outside a mosque in Algiers. Following this, the FIS party leadership proclaimed a march to bring down the state.

Empirical Replication:

How did natural resources play a role in this conflict? Algeria is rich in hydrocarbons, although other valuable resources include gold, uranium, iron, lead and zinc. Algeria is both a petrostate and experienced civil conflict, and thus literature about the war can provide valuable understandings of the purported pathways in which resources lead to civil conflict. This investigation unearths observable evidence to discuss hypothesized channels through which resources may be an explanatory variable for the onset, duration and intensity of civil war. Forty pieces of literature were consulted, and the Clinton Presidential Library was contacted for further sources. It is important to ascertain that although we are trying to more acutely explain the unfolding of the civil war, Landers (2013) makes it clear that Algeria's history especially throughout the 1990's is described as a "spectacle of bloody corpses without explanation" (p. 1), portrayed even in academic contexts as a "murky period of whispered conspiracies, obscure events and unknown causes" (p. 7). He continues and makes it clear that "the absence of a stable narrative of the present is indicative of a more general perception that Algerian history is distorted, occulted or unwritten" (p. 7). Specific accounts demonstrate this reality. For example, a member of the Algerian Catholic clergy declared in 1995 in an open letter that "nobody,

apparently, is any longer certain of anything or anyone . . . And it is in this fog that people kill and are killed" (p. 1). Further, Algerian journalist Salima Ghezali stated that "During the electoral campaign, we were simply prohibited from publishing at all . . . week after week, gun-toting men came and took away the copy . . . [Once] [w]hen [the printing press manager] queried the three armed men who came to take away the pages, one of the men raised up his Kalashnikov and said 'Is this a good enough argument?' [The press manager] answered, 'Yes, that's a good enough argument'" (p. 55). With this in mind, the evidence collected suggests whether these mechanisms are/are not present, but this is not to say that all evidence was uncovered or exists.

Common search terms/words included: *loot, financ, pipeline, sabotage, corruption, embez, offshore, Blinda Atlas (*in reference to the southern region with the greatest amount of oil fields), *rebel, resource, civil war, fund, media, hydrocarbon, peace, trust, resolution, negotiation, commit, distribution, terrorism.*

Hypothesis 1:

This pathway suggests that natural resources provide rebels with a means of financing the start up costs of war. Evidence indicates that 'exclusion zones' created in the four Southern provinces of Ouargla, El-Oued, Laghouat and Ain-Salah where much of the hydrocarbon industry is located significantly protected resource facilities. Travel is restricted and accessible only to oil company employees and residents possessing special passes. Former Secretary-General of Amnesty International, Pierre Sane, (1997) even noted that this project has been remarkably successful at warding off external threats: 'When Algerian authorities claim that the security situation is "under control" they mean it. Oil and gas flow, in absolute security.' (Azarvan, 2010, p. 244). However, this cannot be taken to suggest that rebels were unable to loot

hydrocarbons prior to the start of the war. This is due to the fact that these exclusion zones were not created until April of 1995, well into the start of the conflict (BHP, 2010, p. 7).

Explicitly cited pre-war activities included commentary provided by the brother of Mustafa Bouyali, the leader of the Algerian Islamic Armed Movement (MIA), one of Algeria's guerilla groups. He shared that when police forced his brother underground in 1981, he started making contacts for military action -- "He found his old maquis friends in the mountains, hundreds of them, and formed armed groups. He contacted the youth of Bab el-Qued and started making bombs . . ." (Landers, 2013, p. 94). There is no observable evidence that suggests how they funded these endeavors and whether resources played a role in this regard. Evidence moreso hovers around the formation of contacts and growth in numbers of the insurgency. For example, Schulhofer (2007) details the large numbers of people eager to participate in the insurgency and how the AIS "benefited substantially from the release of prisoners from prison camps in the south in 1993 and 1994" (p. 107).

This hypothesis, at its essence, refers to the buildup of an insurgency being assisted by resource wealth. According to Ross, the direct extortion and selling of primary commodities is evidence for this pathway's existence. Therefore, this pathway would be invalidated by existing evidence. Testas (2001, p. 141) states that the cost of recruitment for the rebels was significantly reduced following the social discontent and social impact of the economic collapse. Fearon (2006) indicates that in the 1980's prior to the war, the FIS "mobilized the Algerian urban populations through performing many normal state welfare functions" (p. 26). Following the 1989 earthquake, it "capitalized on its organizational strengths by taking on state-like welfare and education functions." In essence, instead of utilizing primary commodities to fund startup costs, the alternative party filled the gap that the government was not filling, strategically

providing the services the state was not providing. However, there is not a lot of evidence that suggests the use of resources for arms which is what creates the linkage that Ross clarifies between resources and the mechanism. Lowi (2005, p. 232) details that the initial means of financing the insurgency was via raids and armed robberies, especially of military outposts and financial or commercial institutions. Over time, this gave way to extortion and looting which Lowi details to have been related to pillaging commercial traffic, "taxing" local populations and seizing property (land, livestock, etc.). Once again, no explicit mention of raids, robberies or pillaging of the hydrocarbon sector is found. Shabrafrouz (2010) clarifies that "the hydrocarbon resources are located in remote areas and as their extraction requires very sophisticated technical equipment, the resources can be considered 'not lootable' in the sense of Ross (2004) and thus difficult for the rebels to seize . . . Most oil and gas pipelines, though unguarded, are deeply buried and well-protected against sabotage" (p. 16). All of this considered, resources do not provide the startup funds for the rebel groups in Algeria, causing this mechanism to be negated.

This hypothesis assumes that rebels need to feel strong enough to counter the regime for onset of civil war to take place and therefore resources provide a source of funding for arms.

In this regard, resource wealth did contribute to reducing the startup costs of war in a more indirect way. Schulhofer (2007) clarifies that "the dire financial situation of the government" along with "potential financial resources through informal trade, extortion, and external sources, combined with refuge in the mountains close to areas in which they might wish to operate . . . may have convinced the armed groups of the possibility of their survival – and perhaps even succeed – against the government" (p. 112). In other words, now was the time when the government was weakest. Oil may not have contributed to the onset of civil war by directly providing funds to the rebels to increase their strength, but instead oil contributed to the

weakening of the state which contributed to minimizing the anticipated or projected startup costs, thus contributing to the onset of the civil war. This alternative mechanism deserves attention. Not only this, but oil is detailed as relevant to the time period prior to the war and contributing to its onset by Schulhofer (2007) when he states that "the opportunity to profit from conflict, as well as the ability to redistribute economic wealth to their supports, may also have motivated by the insurgents and the governments to take steps that led to conflict, particularly in the context of an economy that was on the decline" (p. 112). The prospects of that resource wealth, though out of reach at the outset, still proves a driver to engage in conflict.

According to Ross' specification of this mechanism, Algeria did not use resource wealth to raise money. The linkage between resources and startup financing is not found in literature. However, there is no room to consider the dynamics of startup costs and how they can be reduced by other factors that resources contributed to. Therefore, without Ross' restrictions, resources very well could have contributed to the onset of the civil conflict by influencing perceived startup costs.

Hypothesis 2:

Ross specifies attacks targeting the resource industry as validation of grievances linked to resource exploitation. Shabrafrouz (2010) points out that "sometimes the oil and gas infrastructure was also damaged, for instance, as a result of the bombings of the Trans-Med gas pipeline by armed Islamists in 1997 and other incidents affecting oil and gas pipelines and personnel working in the sector" (p. 11). Since it is clarified that this hostile behavior occurred well after the war's inception, it cannot serve to validate this hypothesis because Ross restricts this grievance mechanism to contribute to the conflict's *onset* rather than duration or intensity. Further in his paper, Shabrafrouz (2010) states that "later, Islamist forces tried to sabotage this

life vein of the Algerian regime and committed several attacks on pipelines and on Algerian and foreign employees in the hydrocarbon sector" (p. 16). However, there is no specification as to the timing of this. Hafez (2017) also details that the "GIA sought to undermine the economic foundations of the state and disrupt the day-to-day functioning of the government. Between 1995 and 1998, there were approximately 5,400 sabotage operations. The gas and electric company reported 722 acts of sabotage . . ." (p. 14). Natural gas serves are one of Algeria's primary resources. Lowi (2005) discusses how oil and gas pipelines further north were obstructed intentionally on at least one occasion as the civil war dragged on, specifying an attack on a Trans-Maghreb pipeline in February 1998. He goes on to state that "until then, there had been no attacks on the hydrocarbon sector, despite the fact that pipelines, even those underground, are well marked. Further, given the infrequency of such obstructions, and despite the remarkable capacity of insurgents to disrupt, there may be collusion between insurgents and incumbents in the form of an understanding that the resource endowment is 'off limits.' The effective safeguarding of the hydrocarbon sector suggests that this conflict is about control over oil revenues" (p. 238). In effect, although some attacks against facilities are visible, they are few and far between.

In addition, few explicit examples of critique against the hydrocarbon industry, specifically, have been uncovered. Attacks are primarily directed at politicians. One could argue that although evidence of propaganda against the hydrocarbon firms are not documented, the extraordinary ties between the government and Sonatrach, the nationalized oil company, suggest that visible grievances against politicians imply grievances towards resource exploitation. Landers (2013) specifies how "the rioters targeted the symbols of authority and wealth with relentless determination, . . . along with government offices and FLN property . . . Local

authority figures, such as police chiefs, were "ritualistically humiliated,". . ." (p. 68). Local officials along with senior officers in the military were prime targets for the Islamist attacks. The mayor of Djelida, a town west of Algiers, was reportedly found on a roadside with his heart and liver torn from his dismembered body (EIU, 1996, p.12). In addition, the killing on November 27 of General Mohamed Boutighane, second in command of the navy and a personal friend of General Zeroual, was followed by the murder of Colonel Boumezrague in central Algiers on December 1. Both killings were blamed on Islamist radicals. These observables indicate grievances against the government, not the resource firms specifically. However, due to the significant intertwining of the resource industry and government, these grievances can be seen to be rooted in oil wealth. Arshad (2017) describes the relationship of oil and gas production with the state as direct, intimate and long-standing. Mostly military background persons were in charge of the hydrocarbon sector, and they have remained early actors in the management and direction of Sonatrach. He details how . . .

> “the entrenched control of Le Pouvior over the resources of Sonatrach shows an important requisite for transactions between elites and their clients taking place in processes of “social exchange,” which builds up the main structure of the Algerian economy. The rentier economy facilitated, fueled, and reproduced such modes of transaction. A commonly found corollary is the political system in which the governing elites largely derive their legitimacy from the ability to distribute the rent from hydrocarbon and this materially satisfies the “clientele” on which their power rests. The natural wealth of Algeria produced a situation in which oil companies and military became mutually dependent” (p. 261-262).

From this, it can be noted that the government is the distributer of hydrocarbon rents, and thus grievances against the regime can be taken to correlate to grievances against resources. Specific accounts of societal grievances are found as well. Martinez (2000, p. 29) details the food shortages. Though not directed at an oil firm, grievances reflect the reality created by oil dependence and the decision by the regime to ignore non-hydrocarbon sectors such as agriculture. In fact, non-hydrocarbon exports disappeared while the government invested significantly in the development of the non-tradeable sector (resource extraction and services) (Shabrafrouz, 2010, p. 14-15). The economic crisis is heavily considered to be a major cause of the eruption of violence in 1988. Shabrafrouz (2010) details that the "shortages of food and pharmaceuticals on the official markets revealed the structural imbalances of the economy, which was—and is even more so today—heavily dependent on imports of all sorts of consumer goods" (p. 14-15). This once again was the result of the focus on hydrocarbons. Further, the price drop 1986 led to reductions in subsidies for staple foods, the lifting of price controls, the downsizing of welfare programs, and a cut in imports, worsening inflationary pressures and high unemployment – all conditions that had clear repercussions for the population and appear to have been crucial to the growing frustration, the central state's loss of legitimacy, and the growing popularity of opponent forces in the run-up to the war (Shabrafrouz, 2010, p. 20-21, 105; Viorst, 1997, p. 87; Landers, 2013, p. 95-97). Joffe (2002) specifies that "social stability was directly linked to the state's access to hydrocarbon rent" (p. 40). If these export revenues collapsed (as they did in 1986), official debt had to increase, or imports had to be reduced.

Shabrafrouz (2010) delves into the notion that "as the economic crisis is reckoned to be one of the structural causes of the outburst of violence, the one-sidedness of the economy—heavily dominated by hydro-carbon production—definitely contributed to subsequent events. In

particular, the heavy dependence of the state budget and of the whole economy on this sector—not so much the wealth in itself—made the system vulnerable." (p. 36) He argues that these fallouts could have been prevented if the oil wealth was not mismanaged. Laksaki (2010, p. 2) digs into this notion that it was the careless resource allocation and management, which was substantial until the mid-1980's, that promoted the emergence of latent domestic imbalances. Rather than look to the fall in oil prices and its nascent dependence as an intuitive explanatory variable, Laksaki suggests the causal chain does not begin with resource dependence but rather with weak management. Weak management caused dependence. Dependence did not cause weak management. Regardless of the order within the causal chain, resource dependence was linked to the grievances experienced by Algerians.

Ross also is explicit with regards to labor migration serving as an observable for this hypothesis. Hill (2009) details how the "mass migration of people from the countryside to the industrial towns and cities in search of jobs put ever greater pressure on the creaking urban infrastructure" (p. 48). In addition, "rebellion came shortly after France cut off the immigration spigot. Instead of inciting even further the anti-immigration program of M. Le Pen and his Front National in France, these young Algerians were being recruited into the FIS" (Fearon, 2006, p. 30-31). Joffe (2002, p. 32) echoes these sentiments.

From this, grievances very well had the hypothesized effect of onset. However, critique and grievances against the resource sector, specifically, is not found prior to the war's inception. This causes this pathway to code as 'no' even though grievances do play a role in both inciting the conflict and increasing the conflict's duration that are very much linked to the resource sector. It should be noted that his causal mechanism ignores the ability of grievances to contribute to the duration of civil conflict. Considering the fact that insufficient jobs and

unemployment spiked during the war following the implementation of austerity measures, this proves likely. While some cases of sabotage are found directly against the resource firms during the war (specifically in its latter years), more evidence indicates hostility directed at resources more indirectly, towards officials who have direct ties with the industry and whose mismanagement of the oil supplies created the conditions they complain about. Therefore, without Ross' specifications, resource wealth does create grievances that contribute to both the onset and duration of Algeria's civil conflict.

Hypothesis 3:

Since the Algerian civil war was not separatist, this causal mechanism does not apply.

Hypothesis 4:

Despite the fact that Ross does not consider this mechanism to have observable implications, various pieces of evidence suggest this mechanism (oil linked to bureaucratic weakness) is very much present in Algeria. For the sake of this research, evidence that demonstrates this linkage is shared. There is considerable evidence regarding the bureaucratic weakness of the nation. However, direct ties to oil being the cause of the weakness is critical for this mechanism to hold. This does not mean that corruption must rest on the existence of resource wealth. Rather, evidence suggests that it strengthens and allows for corruption to be maintained. Entelis (1999) states that patronage "operates at the highest level of authority in a continuous, albeit opaque way" (p. 12). This applies in particular to the revenue rich hydrocarbons sector, from which flows valuable state patronage. This does not necessarily imply that oil directly causes state weakness. However, it noticeably contributes to it. According to Lowi (2007), a considerable amount of the resource revenues were "channeled into oversized, massively inefficient state-controlled industrial complexes, and barely anything was saved" (p.

9). By the same token, without oil, the inefficiencies within the government could not have been financed, thus contributing directly to state weakness. Easy flows of funds spares the government the need to thoroughly think long term. Fearon (2006) expands on the gross inefficiencies of Boumediene's policies -- political allocation of free housing and lack of investment in new housing, free services in the cities that lead to mass urbanization, the collectivization of agricultural properties with below market sale prices that made for regular food shortages – that "were subsidized by oil, and there was no apparent need for taxation" (p. 17). Ross (2004) indicates that this lack of need for taxation creates a regime that is less responsive to its citizens which contributes to the onset of civil conflict. The assumption that underlies this pathway deserves to be called into question, however. Entelis (1999, p. 18) clarifies the suggestion that having higher taxes does not necessarily imply wider representation when they can also be used to finance repression. In fact, Algeria imposed high taxes in the 1960's and 1970's, and the regimes during that period never embodied in concrete institutions (Henry, 2004, p. 75).

Despite low taxes perhaps not serving as the strongest evidence for oil's contribution to state weakness, there is further evidence of oil directly stimulating corruption. Lowi (2005), for example, further explores the corrosive effects of oil wealth on governance in authoritarian environments, specifying how "oil-rich regimes are resistant to reform and Algeria is no exception" (p. 226-227).

Ross' mechanism simplifies bureaucratic weakness as flowing from resource dependence. However, oftentimes this bureaucratic weakness exists prior to the emergence of the nation's resource wealth. The corruption of the regime existed well before oil production was at its highest levels. Henry (2004) states that the FLN never restructured year after year "either before or after oil revenues flooded the Algerian treasury. . . it was not expectations of oil

revenues that undermined Algeria's institutional capacity. Algeria's institutional weaknesses were born in 1962, before the oil from Hassi Messsaoud started to flow in significant quantities" (p. 75). In effect, Henry argues that bureaucratic weakness in Algeria's case is not due to oil revenues -- "with or without petroleum, the Algerian state always spun in a vacuum of populist discourse. It was not so much oil as history that hindered democracy in Algeria" (p. 76). Even if that bureaucratic weakness existed prior to oil revenues, this resource wealth did not help state capacity but rather further weakened it by giving it more channels for that corruption to exist. Lowi (2004) showcases how "commercial monopolies linked to state-owned enterprises created inefficiencies and shortages that encouraged corruption and contraband" (p. 94) In essence, while resources may not be the sole variable responsible for corruption, it most definitely encourages it. As a result, resource wealth contributes to bureaucratic weakness not necessarily solely by causing it but by accentuating it.

Hypothesis 5:

This hypothesis entails the utility of resources in funding one side of the war thus contributing to impacting its duration. As mentioned previously, Azarvan (2010, p. 244) emphasizes the formation of exclusion zones that have high security. As a result, the use of hydrocarbons for the war effort is channeled to the regime and not the rebels. Entelis (1999) describes how the "narrowly based army supported regime depends almost exclusively on the rents that the oil and gas production provide in order to remain in power – these along with corruption, coercion and cooptation" (p. 12). The hypothesis is supported by the evidence, as resources provided funds to the regime which directly contributed to its strength and thus its advantage over the rebels. In fact, during the years 1994 – 2006, the revenue base of the Algerian government had increased by 48%, enabling it to purchase hundreds of millions of dollars in

arms imports (Azarvan, 2010, p. 245). This would imply that resources contributed to shortening the war by providing funds to the stronger side.

Rebel funding via hydrocarbons is not detailed in literature. Rather, insurgents financed themselves through other means such as import-export companies, extortion of individuals and businesses, illegal automobile imports, diaspora and sympathizers (Schulhofer, 2007, p. 106). Collecting bribes from operators in the transit center in return for allowing them to continue to operate was another means. Evidence indicates the rebels obtained funds not from the main resource that the country was dependent on but rather looting related to the control of main roads and finding a place within trade and business activities. The informal economy became integral to GIA's financing of its activities, and the parallel economy eventually turned into political and social networks that provided a new mechanism through which collective life could be organized in the absence of the authority of the state (Hill, 2009, p. 51-52; Joffe, 2002, p. 43-44) Martinez (2000) states that "the combination of the Islamist guerillas' war economy and the business activities of the Emirs is one of the factors underlying the consolidation of violence" (146). Therefore, although the use of resources contributed to the purchase of arms on the side of the government and thus the hypothesized impact should be to shorten the war, the means that the weaker party financed their operations should not be ignored as it may very well serve as counter to the 'shortening' force that resources have.

Not only this, but the insurgents likely focused on actions in which they could succeed given the fact they were aware that they were numerically far fewer than the government's security forces and without the heavy weaponry and air support (Schulhofer, 2007, p. 111). Resource constraints may have grounded the tactical choices of insurgents, and thus the funds that resources provided for the regime may not have shortened the war, but rather stimulated

bursts of violence that may have actually dragged out the war. In fact, civilians often "questioned why the violence seemed always to be that of a war of attrition played out at the local level rather than a direct confrontation with the power center of the government" (Schulhofer, 2007, p. 111).

According to Ross' pathway, there is clear evidence that reveals resources contributing to the funding on the side of the regime. Therefore, according to his logic, resources impacted the duration of the civil war by shortening it. However, other dynamics should be considered which may effectively counter this force and prolong the war.

Hypothesis 6 :

Evidence exists that indicates financial incentives created by resource wealth contributed to the duration of the civil conflict. Whether or not these financial incentives were the motives behind the stalling of various attempted peace accords is not so clear. Schulhofer (2007) states that there were various "local groups acting in the context of civil war whose principal purpose was to take advantage of the economic opportunities created by the war" (p. 107). He makes the claim that the "profitability during conflict is crucial in explaining conflict duration," which aligns with Ross' mechanism directly. Schulhofer mentions that accounts of the conflict in Algeria seem to fit the possibility that the rebels benefit from the conflict and that there are interests in continued conflict whether on the part of the insurgents or the government which end up undermining efforts at a negotiated settlement. For example, insurgents "derived income by playing off of the structure of the economy using both licit and illicit trade and extorting rents from civilians. Rather than simply providing a source of income to insurgents, contraband may very well involve the government in profitable activities possible only under the conditions of conflict." (Schulhofer, 2007, p. 118) When observing the reality that the government refused to negotiate on the Sant'Egidio platform in 1995 for reasons unstated, it proves more likely that

there was financial gain on the end of the regime as well. Layachi (2001) even states that "some individuals in high public offices and the state bureaucracy have major vested stakes in them and have no interest in repressing them or integrating them in the open economy through adequate economic reforms and legislation" (p. 46). Lowi (2005) reiterates that "the financial interests in the war economy favored the status quo. For these reasons, the violence persisted as long as it did" (p. 237). It should be noted, however, that little evidence suggests these financial incentives existed from hydrocarbon revenues. In effect, evidence suggests that there were financial interests to remain at war. However, whether these financial interests existed within the hydrocarbon sector is questionable. Therefore, this linkage cannot be made certain. Resource wealth did create the conditions that caused for a parallel economy to flourish. This parallel economy more directly is what provided the financial incentives to remain at war, and so in this regard, resource wealth contributed to these financial incentives. Ross' pathway, however, stresses a more direct linkage between resource wealth and hydrocarbons specifically creating the incentives to continue fighting. There is no evidence that reveals this. However, this is not to say that resource wealth did not indirectly create financial incentives to remain at war and increase the duration of the conflict.

Hypothesis 7:

Ross links the commitment problem as an intermediate variable solely in cases that are separatist conflicts. Therefore, according to his conditions, this mechanism does not exist in the case of Algeria. However, feelings of mistrust between actors is rampant across non-separatist conflicts as well. Algeria is no exception. In 2000, for example, the die-hard rebels refused all offers to re-integrate society in a peaceful manner when the president offered general amnesty. This indicates a refusal to disarm, but the reasoning behind this refusal is not specified. Perhaps

it is a matter of fear that the regime would not commit, but it also could simply be a matter of having demands not met within the settlement. Prime Minister Zeroual announced preparation to converse with all factions if they would renounce the use of violence in early 1994 . . . [but] the extremists on both sides closed down this first attempt at negotiation" and greater violence ensued (John, 1996) Later on in the conflict, a Roman Catholic group in Rome, called Sant'Egidio, convened a meeting of Algerian opposition leaders and created a platform that called for an immediate cessation of violence on all fronts. It set conditions for the opening of talks, respect for constitutional liberties, the rule of law, universal suffrage, and a multiparty democratic political system and was signed by a broad range of groups including the FIS, FLN, FFS and figures such as Ben Bella, Louisa Hanoune of the Trotskyist party. John (1996) specifies how it was the first time the GIA expressed an interest in negotiating. However, it was rejected by the regime. Landers (2013, p.85) details how the regime turned its back on Sant'Egidio without ever providing a convincing explanation, despite the fact that the signatory parties represented over 82% of the Algerian electorate. The literature does not create linkages between resource dependence and commitment as a problem. While Ross' mechanism does not suggest a commitment problem in terms of government mistrust of rebels, there is more clear evidence that showcases this dynamic over the reverse. Mortimer (1996) states that "on paper, the FIS made significant concessions to democratic practices. Whether these commitments could be trusted was a matter of considerable debate. . . The editor of Al-Watan, for example, wrote that "the FIS's pledges to respect democracy and alternation are not taken seriously by public opinion, which believes that the Islamists have not broken fundamentally with jihad [holy war] and the application of shari'a [Islamiclaw]" (p. 36-37). In response to the regime's refusal to negotiate, Mortimer further states that "what was most clear was that the ruling authorities were

hostile to any initiative that they did not control" (p. 37). This mechanism codes negatively because the war was not separatist. However, evidence does indicate a visible government mistrust of the rebels. However, there is no evidence that suggests this mistrust was rooted in the nation's resource wealth.

Hypothesis 8:

Ross specifies that resource related battles over sites with little or no intrinsic strategic value suggests this mechanism exists. Substantial evidence invalidates this pathway in the case of Algeria. A study led by the Innovations for Peace and Development Department of Defense Minerva Initiative at the University of Texas at Austin (2015) mapped the location of hydrocarbons (and value) against the number of fatalities due to political violence by province. Although violence has spread from population centers in the north to the less densely populated south, they conclude that there is still little conflict in hydrocarbon-producing provinces. More than half of all hydrocarbons can be found in the provinces of Ouargla and Illizi. These two provinces alone accounted for upwards of $40 billion in natural resources in 2012. Yet, the two provinces have rarely been the location of conflict (p. 6). Hydrocarbon regions were very well protected. Given that more than 90% of Algeria's export revenues are derived from hydrocarbons, the military allocated a force of 45,000 men to secure these facilities from insurgent attacks (Hafez, 2017, p. 19). Algeria's main hydrocarbon fields are located in the thinly populated eastern and southern regions of the country, well out of the rebels' reach at the height of the insurgency. Lowi (2005) details that in the "desert conditions of the south, the opportunity to rebel is constrained, given the flat, treeless topography and the sparse population base from which to draw recruits and sustenance" (p. 226). The main theatre of the civil war was in the hydrocarbon-poor and population dense northern parts of the country (Shabafrouz, 2010, p. 16).

Battles were fought in territory purely for its strategic value, which directs negates the existence of this causal pathway. Schulhofer (2007) describes that "the absence of an urban plan privileged local knowledge of the layout of the neighborhood in battles with the security forces" worked to the insurgents' advantage (p. 110). Battles took place on land that was of strategic value not due to resource wealth. Therefore, resources did not contribute to the intensity of civil war in this regard.

Hypothesis 9:

No substantial observables were discovered that would suggest there was substantial cooperation between the regime and the rebels during the wartime. The only piece of evidence discovered was found in Lowi (2005, p. 233) when he states that "Mokhtar ben Mokhtar, a rebel leader linked to the GSPC, is known to cooperate with the military." There is no reference as to in what manner this cooperation takes place, and thus one cannot conclude this cooperation involves natural resources. Further, Martinez (2000) provides insight that "before the arrest of Ali Benhadj and Abassi Madani on 30 June 1991, some of the funds paid into the FIS treasury came from rich military entrepreneurs, not necessarily supporters of the Islamic cause. [The FIS] had financial independence derived from special relationships with the military due to their service in the war of independence" (p. 26). These nebulous relationships do not provide enough observable evidence that the regime and rebels cooperated to extract and benefit from the nation's resource wealth.

Hypothesis 10:

Evidence for foreign assistance *prior* to the start of the war is sparse. Therefore, this hypothesized pathway would code negatively in the sense that little evidence reveals foreign assistance contributed to the conflict's onset. However, there was substantial foreign assistance

during the war that contributed to its duration and potentially intensity.

Through debt rescheduling and economic liberalization, additional foreign aid, and investment, the Algerian government was able to obtain funds for its security operations against the insurgents and was able to tie in supporters economically to its success against the insurgents (Schulhofer, 2007, p. 116). In fact, the government was able to obtain some 40 billion francs (roughly at least US $8.3 billion, taking the lowest exchange rate for the period) in the form of loans, credits, gifts and other financial arrangements from the international community under the IMF's Structural Adjustment Program. Not only this, but FDI flows to Algeria soared throughout the mid- to late-1990s (Azarvan, 2010, p. 235). France also played a large role in supporting the Algerian government during the conflict, providing extensive financial backing (Schulhofer, 2007, p. 117). Its aid to Algeria nearly doubled between 1990 and 1994, and because of the leading role it took in shaping European Union (EU) Algerian policy, Algeria received US $40 million in EU development aid in 1994, a fourfold increase from 1990. Particularly during the initial stages of the conflict, EU members stayed behind French support of the Algerian government (Martinez, 2000, p. 229–231). While there is substantial evidence of foreign aid for the regime, the link to resource wealth as an explanatory variable is not so clear. Shabafrouz (2010) does specify how "actors from outside the country . . . had an interest in keeping Algeria import dependent. Much of its oil wealth was transferred to companies in France, Russia, the US and other countries, which in turn provided goods, weapons, or "ready-for-use" facilities for industrial production" (p. 33). Further, negotiations with Sonatrach, the state-owned oil company, were routinely made with foreign companies (EIU, 1996, p. 21-22). By the end of 1996, 23 exploration and production-sharing contracts were in place with 18 international companies, involving investments worth $1.5 billion (Entelis, 1999, p. 16). These decisions were

aided by the fact that Algeria's hydrocarbons industry continued to operate unhindered throughout the current political crisis (EIU, 1996, p. 21). It can be observed that interests in Algeria's oil wealth were motivating decisions during this time.

It is important to note just how significant this foreign assistance proved in order to address its impact on the civil war. Prior to this assistance, "the military had clearly been caught off guard. They were not prepared to fight a guerrilla war against their own people. They were not trained for it, they did not have the equipment, and they did not have special units available" (Fearon, 2006, p. 27). Hill (2009) emphasizes this reality when he states that "the ability of the military to maintain control of the government structures and to wage war on the various Islamist insurgent groups was intimately bound to the SAPs agreed between the Ze'roual government and the IMF and World Bank" (p. 50-51). The "financial windfall" that came from the implementation of IMF and World Bank recommendations "might not have guaranteed the success of its twin-track approach to dealing with the insurgents, but it was vital in preventing the Islamists from overthrowing the state as they came very close to doing in 1994 and 1995" (p. 51). While increasing the strength of the already stronger side would seem to shorten the duration of war, observables indicate that it simultaneously maintained the conflict by giving the regime the ability to stand their ground and providing insurgents with revenue streams. Channels that brought money into government coffers were co-opted by the insurgents and provided financing for them as well. Martinez (2000) points out that "having found a place in Algeria's trade relations with foreign partners, they have made their organization secure against financial problems. . . the trade liberalization policy has favored both the agents of the policy in Algeria and the Islamist groups . . . trade globalization is proving a boost for all the parties fighting each other in the civil war. . . in 1994, the change to a market economy with economic reforms led to

consolidation of the Islamist armed group" (p. 146). This parallel economy seems to be the primary channel through which rebels maintained themselves. This reality is important to consider in terms of assessing the true impact that financial aid and trade liberalization policy had on the length of the civil war. The benefit from foreign assistance to the regime that the rebels indirectly pulled from may have diluted the regime's more visible power over the insurgents.

More evidence of foreign financing can be found within Azarvan's article on terror and repression (2010, p. 239-240). Foreign aid did not solely come in the form of financing, either. In fact, the French authorities, for example, were supplying the Algerian state with valuable intelligence and cracking down on GIA networks in France (Hafez, 2017, p. 18). In addition, all of the foreign assistance was not solely directed at the regime. For example, there were reports in the Algerian press claiming that elements of the German security services were favorable to the FIS and that German security officials had given their support to Islamist networks (EIU, 1996, p. 14) Further, financial support came from fundamentalist Islamic forces in Saudi Arabia, Pakistan, and Afghanistan, and moral/ideological support came from Iran and Egypt (Lowi, 2005, p. 231). Prince Sultan Ibn Abdulaziz, Saudi Arabia's Minister of Defenze, revealed that his country had financed the Islamist movements in Algeria and Tunisia (Martinez, 2000, p. 23). In addition, Clinton Administration officials point to Sudan as assisting the Algerian guerrillas by permitting Iran to use the Sudan as a transit point for weapons being smuggled to Algerian guerrillas (Hedges, 1994).

Schulhofer (2007) notes, however, that "the external support the Algerian government received likely dwarfs all possible support garnered by the insurgents from their supporters in the government or private sector" (p. 116). He later argues that financial support for the government

may have increased the duration of the war – "had the government been unable to finance its repressive activities against the insurgents, it may have been forced to come to some accommodation with them in the mid-1990s, rather than pursuing, as it did, an "eradicationist" approach throughout the period" (p. 116). One could say that this latter point has more direct impact on the outcome of intensity of the civil conflict. Therefore, considering the evidence, one can conclude that foreign assistance had mixed impact on the duration of the war but increased its intensity.

Hypothesis 11:

The only evidence of booty futures was found in Ross (2004) but in reference to Algeria's war for independence where "the Italian oil company ENI reportedly supplied money and arms to the National Liberation Front (FLN) in exchange for future "considerations" (p. 23) This was not before or during the civil war, however. While foreign companies continued to invest in Algeria because violence did not affect the hydrocarbon sector due to high security described previously, booty future deals are not explicit in literature.

Hypothesis 12:

This mechanism is not found to exist within the literature consulted (*see Hypothesis 11*).

Hypothesis 13:

There is significant evidence that indicates harsh violence was utilized by the government. Landers (2013) highlights how "the security forces adopted a strictly repressive policy, a pure theory of subtraction accomplished 'by eliminating all the Islamists.' Thus, according to the regime figure's logic, 'the problem is eliminated'" (p. 62). "Bleaching" of the political opposition and the terrorizing of its population base resulted in thousands of "disappeared" peoples, an institutionalization of torture, and the use of paramilitary terror

strategies to maintain control. In this respect, the 1990's Algerian regime joins a long list of "dirty war" campaigns waged by states against their dissident populations (Landers 2013, p. 75). The official slogan, according to Shabrafrouz (2010) was "terrorize the terrorists," something which led to massive violations of human rights, including mass executions (p. 30). However, the linkage of these atrocities to resources is non-existent.

There is no evidence that indicates that resources were the motivating factor of this repressive violence. Violence is never described as a preemptive measure to repress due to the knowledge of resource richness. There is no specification regarding whether the government is acting in the way it is due to resource richness. Various sources indicate, moreso, that these killings are strategic on the end of the military. The regime had a "consistent strategy . . . to create bloodbaths and maintain terror as a means to consolidate power" (Landers, 2013, p. 82). Not only this but, "by manipulating the GIA through Zitouni, the éradicateurs in the Algerian military leadership achieved their aims of discrediting the Islamists, consolidating support from Paris, and scuppering any prospect of political compromise in Algeria" (p. 82) Former prime minister Abdelhamid Brahimi echoed this conclusion: "The Algerian Junta is killing Islamists and blaming it on them. It's Machiavellian" (p. 82). There are common claims that in fact the regime was the primary agent of the civil war. An analysis of the political geography of the massacres shows that the victims of massacres "appear to be overwhelmingly the social base of the FIS and the armed insurgent movement" which supports this notion (p. 82). Evidence suggests the rampant violence is moreso motivated by developing support rather than by resource wealth.

A summary chart of these findings can be found in the *"Analysis and Implications"* section. To reiterate, no evidence being found does not mean that this mechanism was not present.

IV. Analysis and Implications

In the context of the Algerian civil war, many of Ross' hypotheses do not necessarily lead to the dependent variable that he details. This begs the question, why did he restrict certain mechanisms to certain hypothesized outcomes (onset, duration, intensity)? Ross does not explain why a certain pathway would only impact onset rather than intensity or duration, for example. During an investigation of a case, one may find evidence for a certain mechanism that impacted other outcomes. This would cause for the hypothesis to be negated despite the fact that the variable most definitely had an impact and contributed to the civil conflict.

In H9, for example, Ross narrows the impact of cooperative plunder to be time related, detailing its impact on duration. However, he does not specify why this pathway solely impacts duration over the other outcomes of interest. In addition, when it comes to H2, Ross details that grievances directed at the resource sector serve as evidence for the pathway's existence. However, in the case of Algeria, violence and criticism is directed moreso at government officials. There is substantial evidence that details the direct relationship between officials and the resource sector. While there is evidence of violence against the resource sector directly during the war, whether or not the violence directed at officials should be coded positively or negatively for this mechanism becomes ambiguous. Not only this, but restricting grievances to the outcome of onset ignores their ability to contribute to the duration of civil conflict.

In addition, Ross restricts H10 and the impact of foreign intervention to the onset of civil conflict as well. One may argue that foreign intervention may impact all three outcomes of

interest – onset, duration and intensity. Especially since foreign intervention may take place during rather than before the war, this hypothesis is prone to code negatively despite evidence that suggests foreign intervention contributed to impacting the civil war. Exploration of this mechanism unveiled an important and hidden theoretical prediction that may prolong civil conflict. In effect, trade liberalization policy, though meant to stabilize the economy and shorten the duration of civil war, actually worked to simultaneously benefit the Islamist groups. This was because the conditions it created benefited the parallel economy which was the primary channel through which rebels maintained themselves. Therefore, when policy to address civil conflict is created, it often solely focuses on economic recovery. Testas (2001) states that "both the government and the international community can help reduce such incentives by coordinating a policy that puts the economy at the center of the picture. As regards the central role of the government, one of the best policy choices to combat crime and terrorism is to reduce natural-resource dependence in the Algerian economy through economic diversification, since this dependence has been an important driver of the conflict" (p. 142). However, this simple solution fails to consider the fact that while policy may work to improve the economic situation, underlying structures may exist that direct this funding to the rebels and thus increase their strength against the regime. Foreign assistance and trade liberalization via IMF programs may serve to shorten the war by helping the government or prolong it because of its financial benefit to both parties.

In the same vein of foreign assistance, confounds exist that may explain foreign intervention better than the incentive for involvement in the hydrocarbon sector. Substantial evidence cites religion as the reason for foreign assistance of both the rebels and regime. Islamists were often strategically portrayed as extremists which garnered Western support for the

regime while insurgents gained support from sympathetic Islamic foreign actors.

The investigation of H1 unearthed an alternate mechanism in which oil and resource wealth contributes to the onset of civil war. As mentioned previously, although oil may not contribute to the onset of civil war by directly providing funds to the rebels to increase their strength, it is capable of increasing the perceived strength of insurgents. To clarify, oil contributes to the weakening of the state which contributes to minimizing the anticipated or projected startup costs of fighting the regime. This may make it more likely for rebels to engage in conflict. Not only this, but the prospects of obtaining that resource wealth in the future, though out of reach at the outset, also may prove to be a driver to engage in conflict

In addition, during the analysis, it was acutely noted that during the time of the civil war, Algeria was experiencing a youth bulge. The availability of recruits serves as another confound that may profoundly impact the onset of the civil war. The impact of population dynamics across countries may be interesting to observe in relation to the incidence of civil conflict.

Considering the fact that violence was not prominent in resource rich regions due to both the heavy protection of hydrocarbon facilities and the concentration of populations in non-resource rich regions, it may be of benefit for future research to select cases that align/differ along these lines. Comparing the demographics of the inhabitants in resource rich regions may provide interesting new hypotheses. Nigeria may be an interesting case to compare. This is because while Algeria has sparsely populated and nomadic oil rich provinces, Nigeria has the heavily populated oil-rich Niger Delta. The nomadic or partly-nomadic inhabitants of oil rich areas may reduce the potential for environmental grievances due to the fact that they are able to move away from degradation.

Further, the deductive validity behind some of his mechanisms can be interrogated. Ross

does not elaborate on the assumptions that ground each hypothesis. Each assumption should be explicitly stated and there should be honesty behind the superficially intuitive correlations that underlie mechanisms. H4, for example, specifically implies that places with resource richness and extraction will not develop strong property rights, incentive structures or institutions to successfully generate wealth. Further, bureaucratic weakness is linked directly to lead to civil war. This simplifying assumption that lies at the backbone of H4 is highly contested, and yet this is not clarified in his paper.

In addition, an underlying problem with these important qualitative analyses is the lack of clear data. A database that contains all of the resources linked to each civil war should receive funding and priority so as to address these questions of civil conflict more cohesively. The causal relationships must be understood very well in order to effectively address these grandiose issues. Refining these pathways would bring means of preventing and/or quickly resolving future conflict. In addition, policy should be more careful in terms of addressing not only the explanatory variables of causal chains but also the scope conditions that allow for this explanatory variable to be problematic. These causal mechanisms are operating in an ever-changing social reality, and thus new variables may dissipate and arise at any point in time. Factors such as digital media and shifting populations, for example, happen within short timelines and may have profound impacts on causal pathways. In effect, better understanding the causal relationships between natural resources and civil conflict is critical in order to develop and implement effective policy.

Summary of findings for the case of Algeria can be found on the following page.

ALGERIA: Summary of Findings

H	*Substantial evidence for pathway*	*Hypothesized Impact*	*Evidence for pathway without Ross' restrictions*	*Onset*	*Duration*	*Intensity*
H1	No	No (onset)	Yes	Yes	No	No
H2	No	No (onset)	Yes	Yes	Yes	No
H3	n/a	n/a	n/a	n/.a	n/a	n/a
H4	Not testable	n/a	Yes	Yes	No	No
H5	Yes	Yes (duration)	Yes	No	Yes	Yes
H6	No	No (duration)	Yes	No	Yes	No
H7	Not testable	n/a	No	No	No	No
H8	No	No (intensity)	No	No	No	No
H9	No	No (intensity)	No	No	No	No
H10	No	No (onset)	Yes	No	Mixed	Yes
H11	No	No (onset)	No	No	No	No
H12	No	No (duration)	No	No	No	No
H13	No	No (intensity)	No	No	No	No

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