

**AN ANALYSIS ON UNMANNED COMBAT AERIAL VEHICLES
(UCAVs) FROM THE PERSPECTIVE OF
DOMESTIC AUDIENCE COSTS**

by
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ABSTRACT

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The accelerating fame of armed drones has been changing the landscape of warfare for the last century. Although the gradual technological improvement of these tools has significantly altered the policy-making processes of actors in the international system, little attention has been paid to examination of what kind of a pattern in ownership has merged, so far. This paper tries to unveil whether there exists a relationship between the characteristics of states and the amount of ownership of unmanned combat aerial vehicles. Building on the propositions of domestic audience costs theory, the theoretical expectation took the shape of observing higher numbers of UCAVs in countries with leaders who are more likely to be held accountable for their decisions to be involved or not to be involved in an international armed conflict. Audience costs literature puts forward a comparative perspective for conflicting leaders' instinct for the minimization of human and material costs. By the use of armed drones brings the promises of easier militaristic involvement decisions by leaders and promotion of those successes for political capital. By using the data that is provided on import and export numbers of UCAVs and previous academic work that categorized regime types and democracy levels of states, this research finds out that although there is no such statistically significant relationship among different authoritarian regime types, there is a piece of empirical evidence for the expected interaction across various democratic levels.

ÖZET

İNSANSIZ HAVA ARAÇLARININ YURTIÇİ KİTLE MALİYETLERİ PERSPEKTİFİ İLE ANALİZİ

BEGÜM BÜYÜKSAVAŞ

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Anahtar Kelimeler: Yurtiçi Kitle Maliyet Teorisi, İnsansız Hava Araçları, Savaş,
Güvenlik, Teknoloji

İnsansız silahlı pilotsuz hava araçlarının giderek artan ünü, savaşların tabiatını son yüzyıldır değiştiriyor. Bu araçların, kademeli teknolojik gelişmeleri uluslararası sistemdeki aktörlerin karar alma süreçlerini önemli ölçüde değiştirmesine rağmen şimdiye kadar ne tür bir sahiplik örüntüsünün gözlemlendiğine dair çok az ölçüde ilgi gösterilmiştir. Bu rapor, devletlerin karakteristikleri ve bu devletlerin sahip oldukları silahlı insansız hava araçlarının rakamları arasında bir ilişki olup olmadığını ortaya koymaya çalışmaktadır. Yurtiçi kitle maliyetleri teorilerinin önerileri üzerine inşa ederek, teorik beklenti, uluslararası silahlı çatışmalara dahil olma ya da olmama kararları için sorumlu tutulma olasılığı daha yüksek olan liderlere sahip ülkelerde, daha yüksek SİHA sayılarının gözlenmesi üzerine şekillenmiştir. Çatışma içerisinde olan liderlerin iç güdülerinin insan ve materyalistik maliyetleri düşürmeye yönelik olduğu kitle maliyet teorileri tarafından ileri sürülmüştür. Silahlı pilotsuz hava araçlarının kullanımı, liderlerin daha kolay askeri dahiliyet kararı almalarını ve bu araçlar ile gelen başarıların siyasi sermayelerinin keyfini sürmelerini vaat etmektedir. SİHAların ithalat ve ihracat rakamlarını içeren veri ile birlikte daha önceki akademik çalışmalarda oluşturulmuş yönetim şekilleri ve demokrasi türleri kategorilerini kullanarak, bu araştırma farklı otoriter yönetim şekilleri arasında bir istatistiksel olarak kayda değer bir ilişki bulamasa dahi, kısmi ampirik bir destek beklenen ilgileşim farklı demokrasi seviyeleri için bulunmaktadır.

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*To my renunciative mum and
To my forever life partner Ergun*

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LIST OF ABBREVIATIONS

AI Artificial Intelligence

UCAVs Unmanned Combat Aerial Vehicles

UAVs Unmanned Aerial Vehicles

SDI Surveillance Drone System

RPV Remotely Piloted Vehicle

LAR Lethal Autonomous Robot

MSC Munich Security Conference

NOD Non-Offensive Defence

CSBM Confidence and Security Building Measures

UNROCA United Nations Register of Conventional Arms

SALT Strategic Arms Limitation Talks

COW Correlates of War

UDI Undersecretariat of Defence Industries

TAF Turkish Armed Forces

ISR Intelligence, Surveillance and Reconnaissance

1. INTRODUCTION

1.1 Foundations of the Research Interest

The evolving nature of international affairs not only changes the face of interstate relations but also affects our understanding of the norms of the upcoming world order. This dynamic characteristic of the politics and conflicts at the international level is open to be shaped by modern warfare and its technological advancements. Today, the real question that emerges from this adaptive sphere is whether the relationship of each discovery in the armament industry leads to certain implications on the policymaking of states, or this cause-effect link is established in a reverse manner. To be able to assess whether such a relationship exists and if it does, what is its direction together with the contributing factors and parameters, this research aims to narrow down this wide scope with a specific group of technological advancement in warfare from a focused theoretical perspective.

With the changing nature of international armed conflicts, localized and regionalized demonstrations of clashes among different groups have become the new ways in which governments put their defense and security systems into use (Stein and Lobell 1997). Border security has become a bigger concern and with the evolution of new warfare technologies, targeted killing has emerged as a new phenomenon. The traditional armament race that dominated the Cold War era with the rivalry for nuclear weapons had started to be replaced with the competition in the technological advancements that do not threaten the extinction of mankind but can demonstrate superiority enough to intimidate the opponents in the systemic level. Within this wider picture of “apparent randomness and unpredictability”, accommodation of new militaristic capabilities like armed drones while questioning whether there is a correlation between having a certain capability and being more belligerent to be involved in an international armed conflict becomes a chicken and egg problem for those who try to explain the patterns in international relations (Lähteenmäki and

Käkönen 1999).

One of the issues in the security studies of International Relations that has been emerging as a focus of interest is the utilization of artificial intelligence (AI) technologies. There have already been various ways in which actors in international relations have utilized AI such as Surveillance Drone System (SDI) and Remotely Piloted Vehicle (RPV) and finally, we witness the usage of drones like the MQ-9 Reaper that can be used for both surveillance and airstrikes (Imperial War Museums 2018). However, one type, in particular, has been put into action by the highest-ranking military powers in the world, Unmanned Combat Aerial Vehicles (UCAVs) (Ernest et al. 2016; Global Fire Power 2020). The role that UCAVs play can be examined from different perspectives like as a branch of new AI technologies like Lethal Autonomous Robots (LAR), as the ethical concerns that they create in IR studies (depending on the autonomy capacity that they possess) and/or as a variation in decision-making processes of security policies. Regardless of which perspective they are studied from, the fundamental fact about UCAVs is their accelerating utilization by different actors in the international system. Especially, there is a good chance of seeing some actors utilizing these new tools more than the others in relation with their regime types and authorities with the power to do so.

Leaders that think like Stalin who once said “those who lag behind are beaten”, demonstrate a commitment to the mindset encouraging the race over the superiority in defense and offense as well as other spheres of statehood like economy (Stalin 1931). Successive conflicts in the Middle East, dissolution of states followed by rising ethnic frictions, terrorism becoming a more common threat for governments, and separatist movements with anarchic tendencies constitute only a part of the triggering factors that directed leaders like Stalin to pursue further advancement in their mightiness. Moreover, this mental map must be investigated through which means they come into practice. What are the incentives that lie behind such thinking? Is there a specific domestic political-institutional setting and/or political regime that facilitates such thinking and eventually policymaking? To answer such primary questions that spring to mind, a structured analysis is in order which will enlighten the shadows of the calculations that constitute one face of the coin for UCAVs. Furthermore, it can be stated that studying drones is an educated decision since 102 countries in the world possess active military drone programs as of today (Gettinger 2020).

The theoretical proposition driven from the selectorate theory and domestic audience cost theories holds the promise of examining this evolution in war-making while answering those basic questions. In other words, this research will focus on

investigating whether the advantage of lower costs with UCAVs is a decision that is taken due to considerations of domestic dynamics and calculations rather than being an immediate response to an international armament race to sustain and/or to pin down the balance of power at the systemic level. Although there is an evolution of war-making strategies in general, the observation on drones allows us to think that they come to the forefront especially within certain countries more than they do in others. By touching upon some obvious and dominant examples like the United States' utilization of aforementioned technology in its foreign and domestic policy-making as well as other regional powers like Turkey and Israel might strengthen the efforts to trace a pattern. Emanating query from this line of thinking is that, is there a correlation between countries that possess a higher number of UCAVs and countries that have a certain regime type.

The technological advancement that UAVs and UCAVs possess can be interpreted as a part of the international competition over the ownership of the supreme warfare capabilities. Replacing nuclear proliferation with drone proliferation as an administrative factor for the head of states to search for prestige in the 21st century, can facilitate understanding the growing appeal of armed drones for certain countries more than others (Horowitz, Schwartz, and Fuhrmann 2020). In doing so, domestic willpower to pursue such interest becomes an area of concern that can be revealed with the examination of the regime types. In other words, since these latest warfare technologies provide minimization of material and human costs compared to traditional combat aircraft, the leaders who hold office in democratic settings might be expected to prefer obtaining UAVs and UCAVs since they will decrease the possibility of being held accountable for the loss of lives and so on. This mode of thought brings about the differentiation between democracies and non-democracies if the possible deeper variance in regime types regarding their possession of these latest types of armaments. The theories of IR like selectorate theory and domestic audience cost theory that focused on revealing the dynamics of decision-making processes under different domestic – institutional – settings and their reflection within the resulting foreign policies of countries regarding security and defenses are auxiliary to investigate the question of this paper.

In the wake of the examination across selectorate and domestic audience cost theories, it has been noticed that the differentiation between democracies and non-democracies is relatively obvious. Jessica Weeks' (2012) study on the variance of authoritarian regimes based on personalism and militaristic leadership types draws us a picture that solely represents the distinctive belligerency levels for those peculiarly defined authoritarian regimes. Judging by this categorization, the differentiation of belligerency can be replaced with the frequency of obtaining and using

UCAVs. Moreover, while this substitution assumes a similar tendency between belligerency and ownership of autonomous aircraft, it is also aware of the fact that such research opts out the discernment between authoritarian regimes and democracies. That is why the same observation for democracies will be accounted for via a different hypothetical questioning. Herewith, this research is constituted in a two-phased manner to delve into the opulence of UCAVs within different authoritarian regime types and in different forms of governments overall.

1.2 Research Question, Assumptions, and Challenges

From where the argument was left off, the research interest becomes guided to assess whether unmanned combat aerial vehicles are utilized by political leaders to reduce the material and human costs that emerge by being a part of an international armed conflict or not. This inquisition goes in line with the rational argument of “costs and risks of war supply states with strong incentives to locate non-military settlements that both sides would prefer to a fight” (Fearon 1994). Indeed, this study only applies to scenarios following the decision to take part in the conflict and using actual military mightiness. In addition to this presumption, this theoretical linkage builds upon the interdisciplinary logic bridging between international and domestic politics since there is an expectation to see that leaders with a higher possibility to face domestic audience costs will be more likely to exhaust the promises of new warfare technologies (De Mesquita 2002). In the building of literature foundations of the study, such positioning of this study between two levels of analysis will be touched upon further in detail.

Among several challenges of this study, one of the most prominent ones that come with searching such a newly emerging type of armament/weaponry can be identified as the availability of reliable and exact data access. Most of the AI technologies which are developed for the sake of military power supremacy/dominance of the states are not shared as a public record since they are probably considered as a part of national security strategies. So far, the ethics and international peace studies have been concerned about the availability of such data for the sake of transparency and expressed the importance of accessibility of them. That is why this study will put to use the data provided by the United Nations Register of Conventional Arms (UNROCA) about the imports and exports of the countries on a yearly basis. This data set is restricted to the trade transaction numbers and does not involve the production capabilities of the countries. Also, the data entry is left out to the good

intentions of the governments to provide the most truthful numbers without the existence of any imperativeness. The inconsistency between the numbers reported by the countries and by the partners demonstrates that countries prefer to withhold such information due to other national interests.

Although trading volumes of weaponry of the countries gives an essential insight to their overall armament activities, still, there is an overlook of the manufactured capabilities at home which may significantly alter the result of this study. Despite these foregoing challenges, the need for this area to be studied and the quintessence of the issue at hand remains the same. It is also essential to recall that air defense and offense systems go beyondUCAVs and most of the prominent international players still rely on more traditional forms of aircraft. Be that as it may, this study aims to envision the prospective whereabouts ofUCAVs in the total militaristic capabilities of states and the pattern for their own rather than speculating or exaggerating about their promises. Indeed, this comparative perspective could be established in a more structured manner if these trade volumes were reported in US\$. Then, placing these expenditures in a meaningful picture of GDPs by getting their percentages would make a more meaningful quantitative analysis.

Stemming from this wide introductory basis, the refined research question of the study emerged to seek how the internal political arrangements in a given country may constitute the essence of the motivation for the ownership of the latest military equipment, here represented by drones. While doing so, the theoretical assumption is built upon the exclusive effect ofUCAVs in overall militaristic capabilities and carved out other technological advancements. In addition, the research is conducted under the *ceteris paribus* approach towards other elements that are involved in the leaders' decision-making processes. To assess whether there is such a correlation or not and if it does whether it is a causal one, a sturdy literature review will be accompanied by rigorous empirical analysis.

2. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Competing Paradigms in International Relations Theories

The surge of wars has been in the foreground of the befuddles of politics since Thucydides and the parties in these armed conflicts have been the target of multiple deliberations, leading to the introduction of diversified hypotheses about their substances, dimensions, and conformations (Dolgert 2012). From 5th century B.C onwards since the days of Thucydides, the only visible change has been towards discovering new tools, instruments, and mechanisms that will catalyze the defeat of the opponents more effectively, easily, and rapidly. Undeniably, history has witnessed some efforts to avoid the devastations of wars but as of the 21st century, armed conflict is a resort of modern states that remains an unarguable fact. What determines whether there will be such action highly depends on the power distributions and the capability races across units of the international system (Gerth and Mills 1946).

While seeking the patterns of the factors that constitute states' behaviors towards one another, capability reveals itself as one of the most important elements in the balance of power for several theorists from different schools of IR (Carr 1981; Waltz 2001). The expected utility theory situates the relative power and capability positions at the heart of the decision-makers calculations about initiating an armed conflict or not (De Mesquita 1980). While this very idea constitutes the essence of the theoretical proposition here, it can be also considered as the basis of theories such as domestic audience cost theory. This idea is accompanied by various projects and studies that tried to justify the theory like the Correlates of War (COW) project which eventually will be auxiliary in this study, too (Greig and Enerline 2017) From a more concentrated point of view, militaristic capabilities diverge from the rest as the key factor that requires to be pondered since it may hold the promise of carrying an important amount of explanatory power for the outbreaks of wars. Simultaneously, these capabilities must be considered as the limbs of both internal

and external political decisions which eventually play a crucial role in determining the security, strategic defense systems and welfare of a given country.

Building on the realist emphasis on the essentiality of distribution of capabilities to determine the possibility of war, the pluralist paradigm opens the room for a more internal nature of such dynamics (Viotti and Kauppi 2019). After all, as Waltz puts it “each state is the final judge of its cause” and they are, indeed, expected to decide on their faith to be taking the risks of wars/armed conflicts based on their unique domestic balances (Waltz 1993). This overlapping and interwoven nature of performing as a state at two different political levels comes with its own need for delicate and clear analysis. Indeed, this need is no different than Rosenau’s attempt to underline the necessity of intermixture of national and international factors (Rosenau 1969). To exemplify at an abstract level, dependency theorists often rely on the idea of domestic and exterior connections constituting the structural elements for a given country, the outstanding and staggering role that internal factors play must be conceded to interpret their embodiment in interstate affairs (Cardoso and Faletto 1979). What this can be brought down to is that the states’ allocation of their resources on the basis of their domestic considerations and limitations, like having more military power or investing more in education, determines their relative place in the international system and power distribution.

If the discussion comes to how different types and levels of capability of a state (since the ultimate consideration is about the decision to be involved in a war or not, the widely mentioned “capability” can be narrowed down to militaristic components for the sake of the theoretical argument here), then one of the “variations in the calculating ability of states” can be exemplified as the technological advancement in warfare competences of a state (Keohane 1986). The necessity of guarding one’s self against the evils of others as one of the basic human nature takes the cumulative shape of military capabilities as one of the most essential concerns (Hobbes 1980). Furthermore, to what extent that one feels threatened will resolve its management of security and defense policies.

Military capability can still be debated as a systemic factor since it can only accord when it is compared to the mightiness of other actors. However, from a liberal orientation of IR, domestic politics through public opinion can give shape to the magnitude of these capabilities, and eventually foreign policies regarding engaging in the war (Snyder, Bruck, and Sapin 1962). Even though there are various methods to delve into decision-making processes of foreign policy that entails being involved in an armed conflict such as bureaucracy, political organizational structure, and/or transnational actors, nonetheless such structural segregation does not necessarily

fit the theoretical framework of the research here (Allison 1969; Keohane and Nye 1971). As a part of the redistributive policies of states', military capabilities take up a significant part of domestic politics since they construct an important segment of the expenditures. Moreover, they are pivotal when shaping national strategy for concerns of defense and security. These perspectives on militaristic capabilities can simply be found in Jervis' perception of foreign policy which significantly accounts for the internal elite disagreements as to the determining force for "limits of the impact of both domestic politics and international situation" (Jervis 1976).

Instead, the examination of domestic politics under more concise parts will allow the removal of obstacles that may arise due to the complexity that comes with studying an undiscovered territory like the latest technological developments in warfare. For that purpose, benefiting from selectorate theory and focusing specifically on domestic audience cost theory may satisfy the above-mentioned need for theoretical categorization. It is essential to acknowledge that various other critical components lead to a leader's decision about what kind of military equipment to invest in and whether to respond to a threat militaristically such as concerns of economy, international recognition, stability, and so on (Snyder, Bruck, and Sapin 1962). In other words, domestic audience cost theory's ability to account for leaders' actions based on their interests of preserving their reputation together with their seats, allows for defogging the tendency towards drones which fundamentally aim to reduce both materialistic and human life costs of war. Since it is much more manageable to shed light on one variable at a time to interpret a social phenomenon's emergence, concentrating on the elite-voter, leader-elite and leader-voter perspectives will be illuminating while paying attention to reasons of investing in and accelerating the usage of newly developed military technologies such as drones.

2.2 Unmanned Combat Aerial Vehicles

A considerable amount of world citizens has been exposed to a new flying technical tool that can be attained for self-absorbed aspirations like taking photographs and recording videos or for governmental applications like China has been doing for transporting and telemedicine warranting (Marr 2020). Lamentably, prerogatives of this new technology, also known as drones, have not been limited to non-combat purposes. It must be no coincidence that the initiation of the first projects of unmanned aerial vehicles (UAV) was recorded during World War I to ease the defeat of the enemy. Followed by the arms race during the Second World War, the interest

together with further investments in the area accelerated in the post-war era as a military power was perceived as the key to effective and overwhelming diplomacy. That is why, Cold War years, can be utilized to demonstrate particular examples of how the technology of warfare altered the calculations of diplomacy and shaped the counterpoise of power (Leffler and Painter 1994). In addition to diplomatic relations and establishing power dynamics theoretically, military capabilities, the race over the ownership of the latest technology in arms shaped the foreign policy-making process of all the actors at the time. Although there is no denying of the subsidizing factors like availability of raw materials and/or condition of the economy, in the end, whether or not the state in question owns the superior military capability acts as the ultimate determinant.

Using the military capability to decide which power is to be reckoned with and which one is not, has been closely related to the level of technological advancement in these vocations since the 1950s – from the atomic bomb to ballistic missiles. Latterly, this notion is utterly advocated by drones as they have been developing a reputation for their own. According to data provided by New America, there are twenty-nine countries that are developing armed drones ranging in starting production date between 2001 to 2019 (New America 2020). Similar data on the ascent of the UAVs numbers which was presented at the Munich Security Conference can be seen in Figure 1. Overall, UAV capabilities have almost doubled in the last decade and this new phenomenon brings several questions and propositions by itself.

Since the first utilization of them by the United States of America in Yemen in 2002, drones have emerged as an optional way of responding to the crisis. Thenceforward, it is still not quite comprehended what they are and how do they operate. These two questions immediately follow the realization of the aforementioned new tendency in armament. Incipently, the definition of UAVs follows as:

“Drones – more formally, unmanned aerial vehicles (UAVs) - are pilot-less aircraft controlled by individuals located on the ground, often some distance from the area where the platform is operating. Drones come in many shapes and perform a variety of missions, including reconnaissance, intelligence collection, and combat (Walsh 2018).”

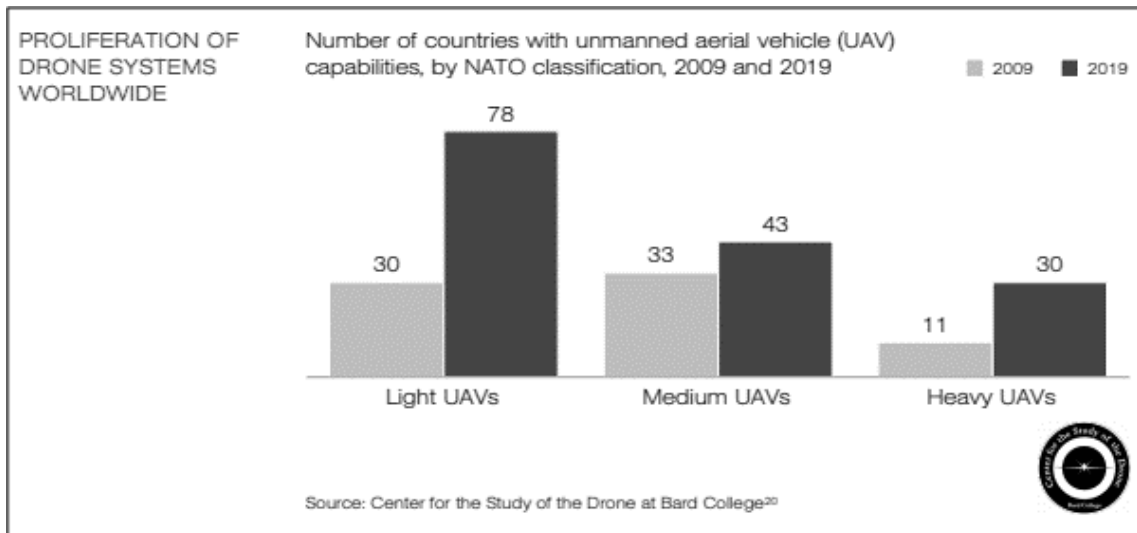


Figure 2.1 Number of Countries with Unmanned Aerial Vehicles (UAV) Capabilities, by NATO Classification, 2009 and 2019 (Munich Security Conference 2019)

Similar types of definitions have been provided by different scholars most of whom were troubled with the ethical and moral implications of such technologies. While some attributed this new way of killing as the “virtuous war” which eventually facilitated the United States’ power hegemony, others were more cautious and worrisome about the possibility of periling the laws of war (Asaro 2012; Der Derian 2009; Sharkey 2010; Wagner 2014). UAVs and UCAVs are and can be interpreted as parts of the AI technologies and Autonomous Weapon Systems (AWS), nonetheless, concurrent ethical and legal analysis cannot be directly and solely associated with them and a separate one is required due to drones’ “unique characteristics that make them particularly susceptible to misuse in comparison to other technologies” (UN 2015).

The contemporary examples of utilizing UCAVs for achieving strategic foreign policy goals have been marked with the astonishing strike numbers under the Obama administration. A total of 563 operations that are conducted through armed drones in countries like Afghanistan, Yemen, and Somalia occupy a crucial turning point for the emergence of targeted killings as a new way of fighting the wars (Purkiss and Serle 2017). This major shift in the traditional American foreign policy tools has been interpreted from different angles. The justification of using targeted killing as a way of protecting American lives and values overseas has been the popular discourse for substantiating positive domestic responses at home (McCrisken 2013). Put in another way, whether Obama’s accelerated drone program was a decision that resulted in pure cost-benefit calculation of lost American lives and burden of the war on Al-Qaeda or a deliberate strategy to boost democratic government’s popularity

is still an ongoing dilemma. However, it became an undeniable fact that Obama's investment in autonomous weapons made UAVs and UCAVs a popular choice that also brought a supply shock by global competitor China in the 2010s as well.

In a further analysis of drones' fields of usage, combat-related ones are taken under the microscope categorically more often. The undertakings of lower costs in terms of human lives, military equipment while granting a more precise targeting made UCAVs famous and covetable by various actors of IR. After all, if we think of them, "... in an age when the United States led the world in the use of drones, these weapons appeared to offer a simple and unrivaled solution to the complexities of war" (Rogers 2017). This statement would be missing if it is not completed with the realization of the fact that new complexities and rivalries arose with this new way of war-making, too. Wars and the thought of wars that may occur at some point are the core initiative to invest and develop new technologies that are superior to one's opponents. To that end, the "state of nature" has evolved in a certain path which eventually kept the race over discovering unprecedented methods to destroy others while modernizing and justifying doing so in various channels (Rousseau 2009).

In his wide-range analysis of the 20th century, Keylor once again underlines the centrality of the armament by exemplifying Germany's positioning in the era that followed the Versailles treaty. This exemplification serves as a bridge between two world wars and represents the essence of the ongoing arms race rooted at those times. Adding on the idea, the post-WWII events eventually contribute to "... rearmament, remobilization, and the remilitarization of the United States and its allies in Western Europe" (Keylor 1996). Most of these changes are considered in terms of nuclear weapons. Although UCAVs represent deep differences from nuclear weapons -in the sense that the devastation that they cause most importantly- both can be reconciled at the fact that parties with interest in these technologies race for them and utilize them as a way for militaristic supremacy. If so, such perception of UCAVs raises understandable concerns about contradicting the mentality of strategic arms limitations which marked the post-Cold War era and changed the course of the world. Having said that, such repercussions remain out of the context of this thesis, while by nature requiring at least mentioning of those.

Besides the incontrovertible origin of UCAVs as the products of arms race among nations, the amount of the contribution to the level of military advancement in a given country is another source of debate. The inquiry on them can conclude -treating drones as a part of targeted airstrike option- that uses for combat pledge to both punish and to deter adversaries while minimizing risks to user's military forces and civilians (Brown 2007). However, with the data access limitations at

hand and their consideration as part of the strategic defense and security planning lead to limited interpretations and inferences that may support, they are indeed game changers in warfare. Certainly, drones can be added at the end of the line of warfare history which can be originated back to Kelly's early findings in shreds of evidence of violent deaths since the Palaeolithic ages (Kelly 2000). Since then, the desire to kill and to fight remained constant while manners of conducting so had escalated to the technology that allowed to destroy remotely.

In line with this kind of thinking of drones, those might also be associated with the comprehension of the "contemporary Western way of war" since their "... intention is to avoid both the 'body-bag syndrome, which might damage domestic support for the war ...'" (Williams 2012). This concern about the internal dimension and implications of UCAVs will be further evaluated and will constitute the essential argument of this paper in the following pages. Interim, the domestic repercussions of these new technologies might be limited with the acknowledgment of their effects on the given society. As it goes for all policies of the governments, the usage and ownership of UCAVs are also both supported and recalcitrated by the people. Eventually, those attitudes towards them did and will find ways of embodiment in political bodies in the systems, maybe more in some than others, depending on the regime type and the level of permeability of political institutions about societal ideas. Fundamentally, those ideas are formed on the basis of the cost-benefit calculations for each individual and collectively for the nation as well. And, "the key is a technological development that provides certain capabilities at a lower cost for the user—either in dollars or in payload weight, power, and cooling—" might be expected to find a certain level of positive reflection (Davis et al. 2014).

So far, the breakdown of the issue has been mainly burdened with the components of state-making which are mostly driven by interests and fears of officeholders. Furthermore, drones do not only come into the picture when there is a conflict between two states. They have been used for peace operations, peace-keeping missions, security tasks, non-state actors' hostile interventions, mercenary activities, and so on. Regardless of their purpose of operationalization, they stipulate more precise and effective removal of the opponents and their extensions and that is the core subject hither.

2.3 Selectorate and Domestic Audience Cost Theories

The underlying relevance of domestic audience cost theory to the utilization of UAVs/UCAVs lies within the most fundamental reasoning of impairing the costs of responding to an adversary through militaristic means. Despite its obvious promises and getting on the same page with Rogers, Walsh's reading of the utilization of UAVs and UCAVs holds the promises of reducing political cost for the user at home, of having the higher possibility to initiate conflict, of avoiding public opposition, and of not endangering the military personnel (Rogers 2017; Walsh 2018). But why should a leader care about such dimensions at all, if the risk is clear enough to require the deployment of troops or other violent measures are taken? One answer may be political survival.

Regardless of the regime types, leaders, for all reason, ought to desire to stay in office as long as possible. Domestic audience cost theory on the one hand and selectorate theory on the other, bring forward particular statements about how that desire can be attained and what are some possible obstacles against it. There is no reason to think otherwise that those leaders include the decisions to be involved in an armed conflict or not in their reckonings and these estimations allow us to generalize about those leaders' perceptions and providences towards new combat technologies. The selectorate theory lays the ground for the fundamentals of this study that should be compatible to discuss the compositions of the "difficult problems in balancing the interests of constituents and desires of foreign rivals" (De Mesquita 2013). In this dual play, leaders are expected to satisfy their society, preserve their prestige in the international sphere and minimize the cost of achieving to do so to avoid any further implications that they might face. In other words, this is an extremely hard task if not impossible.

If we conceptualize leaders' decisions to acquire UCAVs as part of their national security expenses, the selectorate theory might suggest a coherent theoretical explanation that is based on the proportionality of internal political actors. The "selectorate" is defined as a part of the society with the ability to choose who will be the leader (De Mesquita et al. 2005). The segment within the selectorate which endorses the incumbent leader is identified as the "winning coalition". Among these, the "leader" is the ultimate decision-maker who acts as the final judge for the decisions regarding resources and security. In political governance that has a large winning coalition pledges to provide more "public goods" rather than "personal favors" which would be the case in political systems with smaller winning coalitions. This difference matters because the formerly defined scenario brings the implications

that can find direct impressions on both domestic and foreign politics and that is central to our work here as it was for Putnam (1988). As the result of such calculation in both levels, the selectorate theory comes up with a generalization for the pattern of acquiring better and more militaristic capabilities.

The expenses of security and defense are more likely to be higher in countries that have larger winning coalitions since such consequences will bring the immediate threat of removal from office or other kinds of pressure from his/her supporters due to the costs of economic losses and human lives (De Mesquita 2002). Although selectorate theory focuses on various scenarios in which the distribution of power between actors and political institutions within a given state, the selectorate theory provides an appropriate passage for the leaders' decisions at both levels in terms of the prices that they pay. In lieu of selectorate theory, domestic audience cost theory fulfills the gap of accountability of the leader by leaning towards a more domestic level analysis. Prior to the analysis of the domestic audience cost theory, its inferences must be placed in the context of the "two-level game" concurrently.

In a comparison between small vs. large winning coalition countries, the diverging attitudes of states about their policies – such as economy, security, education, health system, and so on- raises the question of in which type UCAVs and alike military technologies fit the best. The theoretical conglomeration here establishes the tie between the promise of providing more public goods, welfare, and efficient governance with the auxiliary properties of UCAVs to fulfill those promises. Put in another way, selectorate theory's attribute on the states with the large winning coalitions may be expected to be drawn to capabilities that will avoid casualties of fellow citizens and economic devastation while achieving security policies leaving the problem of accountability aside. Indeed, this mental balance that is theoretically built faces the most imminent threat of disaccord in interests of foreign audiences and domestic proponents. Despite this obvious source of segregation and/or convergence in policymaking, any action can be utilized by domestic opponents to jeopardize the leader's capabilities. Among all these, the desire to survive politically may and ought to accumulate enough incentive to hamper most of the problems. And the drone technology, with its previously clarified technical and practical pledges, might come as a convenient tool for leaders who are trapped in this two-faced game by the nature of their job.

For example, De Mesquita et al.'s (2005) comparison between Weinberger and Sun Tzu on their views of war may indicate diverging propositions about the sizes of the winning coalition. Alternatively, a back-to-front analysis allows more easily to conclude that the availability of the resources that will allow the leader to fight -if it

comes to that- is constituted by the substance of the military mightiness. Veritably, the size of the winning coalition might decrease or increase the possibility of armed conflict. Put aside these statistical alterations like “the prospective consequence”, both types of institutional arrangements are ought to assure their security in the case of the decision being taken on behalf of combat (De Mesquita 2002).

The selectorate theory indicates that avoidance of civil and international war enlarges the size of winning coalitions while decreasing the size of the selectorate and this kind of a balance assures the survival of the leaders while enhancing their prerogative of policymaking, regardless of the regime type (De Mesquita et al. 2002). As it is specifically underlined by the commentators of the idea, the selectorate theory does not promise to categorize states as democratic or non-democratic based on the size of the winning coalition and the selectorate (Gallagher and Hanson 2013; Kennedy 2009). However, the instinctive overlap of some bridges over the reconciliation with the domestic audience cost theory’s propositions. Although the selectorate theory explains the institutional dynamic that lies behind whether to be involved in warfare, in line with the motivation to survive in the leadership, audience cost theory also may help to explain how the judgment of the leaders is shaped to be involved in the international conflicts.

Fearon (1994), later enhanced by Trachtenberg (2002) was troubled with leaders’ attitudes towards settling versus engaging in a war on the basis of historical examples, which eventually led to the embodiment of the domestic audience cost theory at some level. The domestic audience costs can be explained in terms of inconsistencies and undetermined results of being involved in a war as these conditions tie the hands of leaders while they decide to take any action or not (Kertzer and Brutger 2016). In the picture that Fearon draws, a leader who poses a threat ends up with two options when the nemesis calls the bluff; to back down or not to back down. On the one hand, fulfilling the initial threat might secure the country’s interests, protect the balance of power, and be perceived as a successful policy-making by the public. On the other hand, backing down can leave the country vulnerable to the opponent’s intentions, damaging the reputation and endangering the security and political interests of the country. In the middle of this two-way street, domestic audiences are ought to behave differently depending on their regime types. Although democracies represent themselves as more advantageous in generating an audience cost for leaders and signal a resolve more easily in their foreign affairs, the accountability in democracies can mean bullying the states with lower accountability by using belligerent foreign policy rhetoric and eventually tie their own hands (Guisinger and Smith 2002; Weeks 2008).

As Fearon (1995) comes up with five concrete scenarios for democracies that may make war inevitable, the fact that simply domestic audience costs being too large and making war the better option can be another reason for democracies to prefer utilizing better weaponry and advanced technologies. Through this argument, the ownership of UCAVs by democracies can simply strengthen the hands of domestic audience cost and allow the public to question why not utilize that technology and back down. In other words, armed drone technologies in the spectrum of domestic audience costs can substantiate the leaders' threats and compel compliance. Then, Fearon's initial idea of democracies prevailing in bargaining but fighting the wars to protect images and promises for audiences complies with the idea of expecting more advanced technology in their militaristic capabilities in these regimes compared to others (Levy 2012).

In the overall picture of domestic audience costs theory, UCAVs also constitute a third way for leaders in democracies. Since the possession or usage of this technology cannot be directly interpreted as an initiation of a full-fledged war or complete backing down, it blurs the lines while giving these leaders a chance to survive politically in the face of an audience cost. If Smith's assumption on leaders' ability affecting the outcome of the crisis is applied, then the acquisition of UCAVs for democracy can serve as an acceleration of the abilities in both scenarios (Smith 1998). A leader making a credible threat with the actual capability to fulfill while both domestic and foreign audiences watch can be pulled off with competencies like armed drones.

While what audience cost theory promised to provide explanations for the way that threats are perceived and that leaders bargain about fighting was supported and carried further by some like Schultz (2012), others like Snyder and Borghard (2011) criticized the theory as being a secondary mechanism as opposed to its promised to be a generalizable explanation for the way international affairs turn out to be. What seems to be the commonality in all audience cost theoretical researches is that they go and distinguish between different regime types and the emergence of the relative size of costs that leaders pay. What is important here is, whether it is a difference between democracies or non-democracies or whether it is a variance among authoritarian regimes, it found evidence for the fact that leaders while deciding to be involved in an international conflict calculate the related cost-benefit calculation of using military force that may lead to domestic audience response (Weeks 2012). In democracies, these outcomes are evaluated in elections by the citizens who are assumed to punish their leaders for failure with their reliable knowledge on the issue as well as their backing down. For non-democracies, this direct cause and effect linkage seems to be more loosened and other scholars argued that domestic audience costs are not in a linear relationship with the regime type (Slantchev 2006).

If the empirical study finds any evidence to support this proposition at all, this will allow creating one of the first theoretical linkages between warfare technologies of the 21st century and regime types.

2.4 Historical Progression ofUCAVs within Practical Concerns

The logical roots of the research here need to be accompanied by the chain of events that led to the development ofUCAV technologies in the first place. The vision to conduct militaristic operations “by airplanes with no men in them at all” goes back to the deployment of explosive armament via pilotless aircraft in World War I (Spinetta 2011; Wagner 2014). The gradual advancements in technology that allowed for distant communication channels also allowed for the tracking and operation of aircraft from far away. As a commonly made mistake, unmanned aerial vehicles are constantly mixed with remotely piloted vehicles (RPVs). Although they both can operate without the presence of a pilot, drones can be programmed for autonomous flights without simultaneous controls on the ground as RPVs need to have.

The modern version of unmanned aerial vehicles has been observed to start operating in the 1980s and since then they have been utilized for different purposes like gathering intelligence, observation, and baits in certain circumstances. “Advantages of greater speed, maneuverability, range, and endurance” has been the pure and pragmatist reason behind the built-up reputations of these (Scharre 2011). In addition to these, UAVs andUCAVs can stay in the air for a longer period while doing so for a cheaper cost. These pieces of equipment of a unique kind that proves to be capable of carrying both disposable, lethal, and unlethal tools with themselves that allowed militaries to consider what kind of action they would like to take when the drones still above the hot spot location (United States Department of Defense 1994).

Since WWII, UAVs have been serving for militaristic purposes with their ability to infiltrate enemy barricades, to determine the scales of damages by bombings, to detect the kinds of weaponry’s (like chemical and nuclear), and to conduct missions that are ought to be life-threatening for soldiers (McGonigle 1992). The gradual improvements in the reconnaissance capabilities of UAVs brought about more interest from the governments in mid 20th century. Their ability to swiftly move in the air by deceiving traditional radar and defense systems indicated that UAVs were on the verge of supplanting the conventional aircraft following the successes in the

Yon Kippur War. Since 1973, there have been dozens of such tactical utilization of UAVs in the Middle Eastern region alone. Decisiveness and the long-range competencies constitute the irreplaceable pearls UAVs and UCAVs that appear to remain a substantive part of combat aircraft.

Along with attack and defense measures, territorial security and border surveillance are other two priorities of states which make them allocate serious amounts of their resources to assure the protection and defense of their land. As Blazakis (2006) discusses, the USA has been one of the forthcoming countries to take advantage of UAVs to facilitate these missions. Certainly, the USA has not remained to be the only one who pursued such benefits of UAVs. Israel has become another highly controversial utilizer of the technology in 2008-2009 on Gaza civilians while aiming to target Hamas leaders (Boyle 2013; Walters 2014). As the import and export transactions data that is provided by the United Nations Register of Conventional Arms recently demonstrates that, Turkey is the leading country with the highest number of UCAV exports in 2019 followed by the USA (UNROCA 2021). Concurrently, the fact that Turkey as a strategic partner for western powers gravitated towards breeding, accumulating, and dispensing this very contemporary militaristic capability, must be acknowledged.

Turkey's journey of UAVs kicked off in 1990 followed by a major leap forward in 2004 (Kahvecioglu and Oktal 2014). The agreement between the Undersecretariat of Defence Industries (UDI) and Turkish Armed Forces (TAF) to produce "Anka" -the first UAV to be produced in Turkey with all of its control systems- was signed in 2004 while stating the completion of the project in 2012. The aim to secure Turkish borders has been the initial point for pursuing such a project, to begin with. Despite the failures of the "Anka" project, Baykar technologies carried on the vision by producing various other UAV mechanisms like "Bayraktar" and "Malazgirt" - names of the drones produced in Turkey-. The document that is prepared by UDI (2011) places Turkey as one of the central players for UCAVs by the year 2030 and proposes a technological structuring for such preparations. Others like Mevlutoglu (2017) argue that the record of these high numbers of production and export numbers are not so sustainable due to various defense and industrial policies like dependence on foreign equipment as well as technical and designing incompetencies. Although the following decades may reveal a change of path for the place UAVs possess in Turkish defense policies, so far, their importance has been escalating as they have been doing so many other international players.

In defiance of such efficacies, indeed there are some shortcomings of UAVs that must be undertaken in an academic investigation such as this one. Employment

of UAVs and UCAVs for intelligence, surveillance, and reconnaissance (ISR) purposes has been upsetting the balances of power in the international system which is fragile to changes in the hard power capabilities of the players (Lele, Lele, and Bose 2019). Furthermore, the AI systems that undergird the UAV and UCAV operational capabilities generate huge data sets which might allow for decision-makers to rely on estimations and patterns that are results of computerized observation. In other words, removal of human impact in the assessment of militaristic action taking and considering the uniqueness of each incident has the potentially wrong and cruel judgments (Brundage et al. 2018).

On top of these concerns, there are prospective problems concerning the UCAVs undermining international law by their capability for “targeted killings” and sequent need for the legal regulation of these (The United Nations Office for Disarmament Affairs 2015). Also, for the sake of international security, upholding human rights and protection of civilians and assuring lawful usage of UAVs, demand transparent and accountable foundations. To do so, among measures of tracking developments, acquisitions, transfers, and end-use monitoring, currently, “under the United Nations Register of Conventional Arms, Member States are requested to provide data on imports and exports of conventional arms from their territory, including armed UAVs” (The United Nations Office for Disarmament Affairs 2015, p. 60). Being the sole large-scale data for the transactions of UCAVs, this data set is auxiliary for the empirical analysis of this study which will be elaborated on in the following chapters. However, this data alone does not fulfill the requirements for the solid legal, theoretical, technical, technological, moral, and political foundations for UCAV operations. Keeping these reservations in mind together with the growing essentiality of UCAVs, their normative placement within the international theories must be done to attribute the investigation this study ought to accomplish.

2.5 Positioning of UCAVs between Domestic Politics and International Conflict

A theoretical structure that ought to be constituted between domestic politics and international affairs can be associated with each other based on different theories. One of the leading propositions was offered as the interconnectedness of two levels as a “two-level game” in which decision-makers -leaders- are restricted with the circumstances of both levels (Putnam 1988). Building upon Putnam, Moravcsik’s introduction of “double-edged diplomacy” that harbors domestic politics as an inter-

vening variable that contributes to predictions, decisions, and outcomes of systemic level, paves the way to placing the allocation of resources and capabilities in this context (Moravcsik 1993). Then, this argument complements the propositional link between leaders' concerns about audience costs and their investments in cutting-edge technology weaponry. Put in another way, the interpretation can follow as states that are eager to possess the military equipment that will reduce their domestic opposition to be involved in an international dispute stuffs the De Mesquita's winning coalitions desire/need to expand Putnam's win-set (De Mesquita et al. 2005; Putnam 1988). A similar argument was illustrated by Eichenberg who inspected International Nuclear Force (INF) decisions while suggesting a mind-map of Chief of Governments (COG) who eventually made their calculations on the basis of matching the domestic win-set (Eichenberg 1993). This "dual-track" is a pure example of the internal politics – foreign policy linkage that is ought to be drawn. On this same attachment, drones may be put in the place of Strategic Arms Limitation Talks (SALT) or INF decisions which will consequently determine the COG's come-backs at home or vice-versa.

At the interstate level, the military technology that a country possesses, such as the one mentioned here, is evaluated as an important determinant of the costs and of the prices that one state might gather compared to its rival (Slantchev 2011). Unsurprisingly, such technological advancement over other actors at the international level gives an upper hand for the players who own them. Despite this obvious desire to overwhelm the adversaries, this paper ought to look for more domestic-level incentives to acquire a competence like UCAVs. Meaning that leaders' judgments on issues like security and defense are affected by their consideration of winning over domestic players, achieving domestic goals but above all others, enhancing domestic political support. The essentiality of responding to a security crisis effectively incorporates the foremost evaluation criterion of a decision-maker who is expected to conserve their fellow military personnel with minimum damage to the economy and equipment possible. This domestic obligation shapes the foreign policymaking and strategic level of advancement of a country and that eventually determines the state's relative location in international power distribution since remaining domestic political institutions are more or less similarly shaped within other actors of the systemic level (Moravcsik 1993; Trachtenberg 2002).

A vast majority of literature examines the reflections of domestic politics into international bargaining and the kinds of responses that a country gives to the various crisis in accordance with internal interests. However, the delicacy that is needed to be possessed while scrutinizing the intervening impact of leaders' considerations overlaps with the variance in the selection of spreading the militaristic measures

and means. Hence I argue, aforesaid militaristic capabilities lie at the heart of the “Frontier” between domestic and foreign spheres (Rosenau 1997). These capabilities are important parts of a leader’s considerations if s/he decides to be involved in an armed conflict like the effect that will have on the next election, and simultaneously, like the impact that will have on the reputation of the country in the international arena.UCAVs act like an alternative for the traditional understanding of warfare and that leads to different a new way of calculating and making decisions for leaders about being involved in an international conflict -both domestically and foreign policy-wise. All these contributions shaped the anticipation about the existence of a correlation between being a less democratic state and having a higher number of drone possession. Because eventually, what is decided regarding those drones will find its reflection in the international arena.

3. EMPIRICAL RESEARCH

3.1 Theory-Empirical Evidence Linkage

The notion of international armed conflicts, why they occur, what forms have they taken throughout the centuries have been a commonly studied research area by distinctive scholars by now. The alteration of weaponry's which is an essential variant in the formulations of war has occupied a substantive part of the projected theories. The breakthrough in this area as the developments of autonomous weapon systems as well as unmanned aerial vehicles which are also come to be known as drones require to be examined from a domestic political line of vision on a large scale.

Among various reasons why drone technologies have become prominent like catching up with the international competition over armament with the desire of one-upmanship, domestic willpower constitutes an essential aspect of them. Especially some leaders like the ones who hold office in democratic societies begin to justify the usage of armed drones more on a moral, legal, strategic, and political basis (Himes 2015). Studying political leaders' line of thinking that leads to investing in, producing, or using armed drone technologies through the lenses of domestic audience cost theory has been a work item that caught little if not no attention at all.

When one investigates the theories of IR which are specialized in audience cost theory and selectorate theory, it can be discovered that most of the thought is given to the diversification between authoritarian regimes and democratic regimes. Nonetheless, academic anticipation obtained from the fundamental notion of these theories might permit us to envision that drones will be an instrument that is more continually used in democracies in contra to non-democratic political settings because of their experience of minimizing material and human costs. Thataway, a new study by Jessica Weeks (2012) shaped the pursuit of this study to seek whether there exists a mutual affinity between what is the degree of authoritarianism in a given country

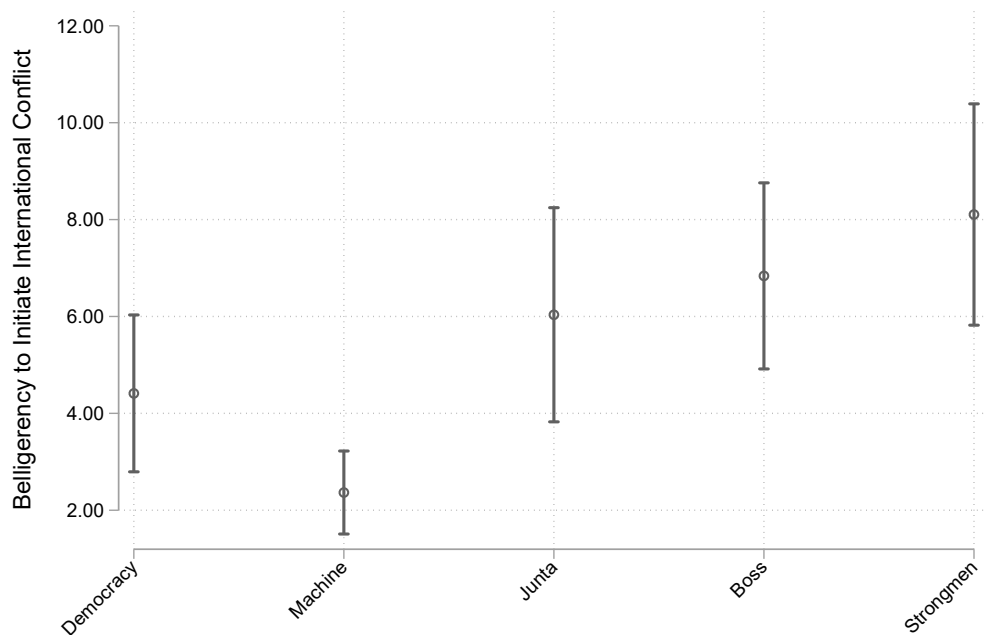
and the number of drones that countries have.

When it comes to whether being involved in international armed conflicts or not is logically related to the decision-making mechanisms of incumbent leaders which are driven mainly by the desire for political survival regardless of the regime type that dominates the given state (De Mesquita and Siverson 1995). Let it be selectorate theory or audience cost theory, both place wars in leaders' line of thinking and this angle allow us to fathom out those leaders' stances towards warfare technologies that may give them an advantage or the upper hand. As originally suggested by Fearon under the roof of audience cost theory, compared to non-democratic regimes, democracies are more prone to venture into international armed conflicts (Fearon 1994). Without any doubt, leaders as individuals are the last resort when it comes to actions and their actions please and disquieten both leaders themselves and the citizens who have to live by the consequences of those actions (De Mesquita 2002). In democracies, these consequences are interpreted in elections by the voters who are assumed to hold accountable their leaders for failure with their reliable knowledge on the issue as well as their backing down. For non-democracies, this direct cause and effect relation seems to be more loosened and other scholars argued that domestic audience costs are not in a linear relationship with the regime type (Slantchev 2006).

Building on this differentiation between democracies and nondemocracies, the endurance of authoritarian regime types against various international and domestic crisis brought a new insight to the field while the expectations about different authoritarians' calculation to be involved in international armed conflicts were shaped based on personalism and militarism dimensions (Weeks 2014). Through this contribution of hers, Weeks' segregation of authoritarian regimes and their belligerency enable us to examine the perception of the technological developments by the leaders with a more nuanced approach. Aside from direct observational anticipation about the utilization of the latest armament technologies by democracies to prevent such domestic costs, how authoritarian leaders depending on their sort peruse such developments directs the research question here.

To measure the belligerency to be involved in international armed conflicts, she categorizes authoritarian regimes by using the raw data from Geddes' analysis and creates four groups which she calls boss, junta, machine, and strongman by examining the regimes between 1946 and 1999 (Geddes 2003). To group the regimes as such she utilizes two dimensions of military and personalism in Geddes' coding. Following a different operationalization from Geddes, Weeks comes up with those four groups of authoritarian regimes and with a directed-dyad analysis which is the variable that constitutes DV as if there is a country initiates Militarized Interstate

Dispute (MID), it scores 1 otherwise 0. Since her DV is a binary variable, she uses logistic regression for her analysis together with the primary IV of the regime type as she categorized above and various other control variables such as stability of the regime, military capabilities, trade dependence, and so on. Her analysis gives empirical support for her argument that machines are not more prone to be the initiator of conflicts than democracies as previous literature suggested and with the utilization of fixed-effect analysis she finds that juntas, bosses, and strongmen are more prone to starting armed conflict than machines. To interpret the substantive effects of this variance in the regime types she utilizes the “CLARIFY” command for hypothetical scenarios of MIDs under ceteris paribus condition and concludes that boss, junta, and strongmen are twice more likely to start conflicts than machines. To illustrate this effect, the conflict between Iraq and Kuwait was taken into consideration in scenarios with varying regime types of Iraq. This illustration especially will be auxiliary in terms of visualizing our expectations about countries with the boss, junta, and strongmen regime types will have more trade interactions of UCAVs than machines. *(Please see Figure 23.1)*



Notes: Estimates calculated using CLARIFY on Model 2 of Table 1, with control variables set to the values for the Iraq-Kuwait dyad in 1990.

Figure 3.1 Predicted Percent of the Time That Side A Will Initiate Conflict: Iraq - Kuwait Scenario Varying Iraq’s Hypothetical Regime Type (Weeks 2012)

Moving on with the phenomenon of the continuous existence of an armed conflict in international relations, one may ask the question of how leaders persist in being

involved in such conflicts despite those domestic costs. One of the immediate answers to this question may seek different paths to reduce the cost of being involved in such conflicts and this is exactly where the technological developments become auxiliary. As Snyder puts it beautifully, “. . . war will be more likely when military technology makes attacking easier than defending" (Snyder 1989, p. 10). At this exact point, the question of “why making attacking easier matters?” causally relates to domestic politics and the role that the cost plays for the leaders comes into play. As one of the latest and most common advancements in warfare technologies, the increasing attention was directed to the usage of unmanned aerial vehicles also called “drones” in public.

As of the 21st century, more than 90 international actors use drones, and this alone constitutes the gap in the changing dynamics of international conflicts which should be explored (Sayler 2015). Before the empirical analysis of this topic, it is essential to note that there are various other significant alterations in war-making as the use of artificial intelligence and autonomous weapon systems. However, since those are mostly classified programs that are considered as national security tools, the data regarding such capabilities were not accessible for me. Another reason for focusing on the armed drone technology is that they have become a somehow familiar tool for the past 20 years and contemporary warfare is defined by modern targeting and use of drones (Franklin 2008; Issacharoff and Pildes 2013).

Examining such technological developments in armament at the interstate level may overlook the importance of the domestic factors which affect the countries’ possession of such new technologies or not. Regime types as one of the most fundamental characteristics of the states, establishing a linkage between these new material capabilities and the rationality of having those improvements or not based on domestic political mechanisms hold the promise bringing hold a new line of discussion in the literature.

3.2 Nature of the Mosaic Data and Emergent Methodology

The scarcity of data about theUCAVs also significantly limited the extent of the study and guided study towards this formulation. To be able to study drones in line with the research question at hand, I coded the trading activities of the countries to operationalize the phenomenon of interest as the dependent variable. The categorization of the United Nations Register of Conventional Arms (UNROCA) is used for this purpose which includes drones under “Category IV: Combat Aircraft and

Unmanned Combat Aerial Vehicles (UCAV)" (UNROCA 2021). Here, the export and import amounts for UCAVs were given for each state, and two different numbers were reported by the country itself and by the partner between 1992 and 2019. These two kinds of reporting of the numbers required me to conduct two different analyses which require further elaboration.

On the one hand, the first analysis for the scenario takes into account the total amount of imports and exports reported by the country and on the other hand, the second analysis for the ones that were reported by the partner on the other hand. This will be what I will call the first type of DV. In the second analysis, I operationalized my dependent variable by taking averages of the numbers that were reported by countries and by partners for imports and exports separately and summed them up to reach an average trade volume that constitutes second-type DV. The formulations of operationalizations are as follow:

First-Type DV Operationalization

$$EXP_C + IMP_C = COUNTRY_T$$

$$EXP_P + IMP_P = PARTNER_T$$

Second-Type DV Operationalization

$$AVR[(EXP_C + IMP_C)] + AVR[(EXP_P + IMP_P)] = TRADE\ VOLUME_{AVR}$$

What Weeks examined and concluded was that there was some variance among the authoritarian regimes regarding the belligerency to initiate conflict. This allows me to expect the same kind of a trend in the distribution of UCAV trade volumes across different types of authoritarianism. However, since Weeks' data cover only until 1999, by following her footsteps, I integrated various independent variables by collecting the same datasets with their updated versions and merged them for my different hypotheses.

Hypothesis 3.1. *Strongmen, junta, and bosses are more likely to have higher degrees of UCAV trade volume than machines.*

Hypothesis 3.2. *Countries that score higher on the polity scale (more democratic) are more likely to have higher degrees of UCAV trade volume if they have higher levels of military expenditure.*

As hypotheses that took shape were versatile, several independent variables were analyzed through the utilization of a couple of different datasets. By using the latest dataset by Geddes and her colleagues, I categorized autocracies based on

their coding of personalism and militarism as Weeks has done (Geddes, Wright, and Frantz 2014). To measure for being a democracy or authoritarian regime on a continuous scale as provided by the Polity V project, I included their dataset for the sake of my second hypothesis (Marshall, Gurr, and Jaggers 2020). To control for variables like military capabilities and expenditures (as Weeks have done) I gathered related data from the Correlates of War Project (Greig and Enerline 2017). To see whether there was such a correlation between the economic well-being of a country and their amount of UCAV trade transactions, I integrated the GDP of the countries for the given time from World Bank (World Bank 2019). This latest control variable was included as the result of a short presentation on the immature version of this analysis which eventually earned the suggestion to check for the correlation between GDPs and UCAVs if there was any.

I run two different models respectively for the first and second hypotheses. The second model includes an interaction term to account for the effect of military expenditure conditional on the polity score. The creation of this complex data set together with the effort to account for two ways of interpreting the data via two different types of DV brought multifaceted outcomes into being.

3.3 Findings

The relative regression outputs of my analysis with the first type DV can be found in Table 3.1. I run two different models respectively for the first and second hypotheses. The first and fifth columns in Table 3.1 demonstrate the regression results for Model 1. There has been no empirical support for my theoretical expectation meaning that there is no statistically significant relationship between having higher UCAV trade volumes with any of the regime types when the numbers reported by the countries are used. However, machines and junta have statistically significant coefficients at a 95% confidence level when numbers reported by partners are used in the regression. The omission of junta coefficients for the numbers reported by countries demonstrates the problematic nature of the dataset and categorization of the regime type which occurs due to the low number of observations.

The distribution of the UCAV trading activities across different regime types which can be seen in Figures 3.2 and in Figure 3.3 also does not meet the theoretical expectations that arose in line with Figure 3.1. For instance, since Weeks concluded that strongmen were more belligerent to initiate international conflicts, they were supposed to have the highest number of UCAVs. However, we see that this is not

the case for both types of reported numbers. For Model 2, by diving the sample for each regime type, military capabilities seem to have statistically significant coefficients for strongman, bosses, and machines with numbers reported by countries and only for bosses and machines with the numbers reported by partners. Military expenditures have a statistically significant relationship for bosses and machines with the numbers reported by countries, but no such effect can be seen in any regime type for the numbers reported by partners. Polity score alone seems to be an important explanatory variable only for bosses in the country reported numbers and for machines in partner reported numbers.

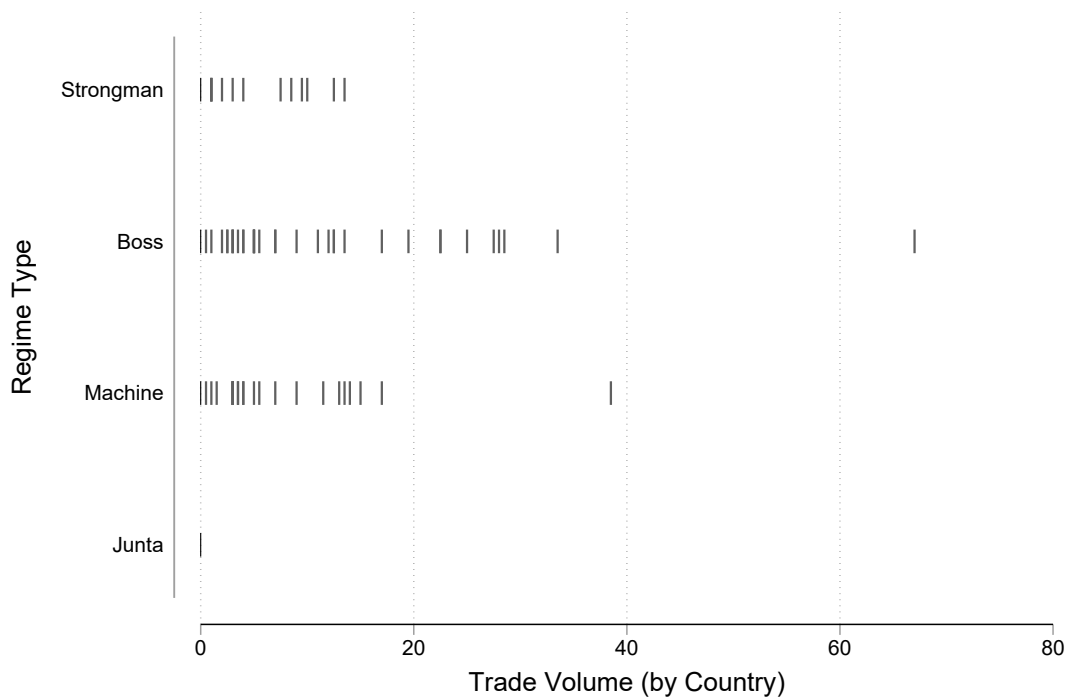


Figure 3.2 The Distribution of UCAVs Across Authoritarian Regime Types (By Country)

Table 3.1 Linear Model Regression Results (First-type DV Operationalization)

	By Country					By Partner				
	M1	Strongman	Boss	Machine	Junta	M1	Strongman	Boss	Machine	Junta
Strongman	0.788 (1.048)					1.711* (0.926)				
Boss	1.748* (0.979)					1.578* (0.867)				
Machine	0.655 (0.968)					1.732** (0.864)				
Junta	0.293 (1.070)					2.117** (0.942)				
Military Cap.(log)	38.817*** (7.093)	668.343*** (232.085)	185.506*** (56.661)	29.058*** (5.957)	0.000 (.)	37.525*** (6.335)	651.946 (420.880)	168.415*** (45.006)	27.809*** (8.229)	-525.558 (468.504)
GDP (log)	0.012 (0.149)	-0.974 (0.847)	-0.110 (0.278)	-0.152 (0.213)	0.000 (.)		-0.672 (1.537)	-0.071 (0.221)	-0.524* (0.294)	0.754 (0.604)
Military Exp.(log)	0.450*** (0.122)	-0.372 (0.700)	0.734** (0.307)	0.337* (0.196)	0.000 (.)	0.330*** (0.066)	-0.937 (1.270)	-0.146 (0.244)	0.634** (0.271)	0.837 (0.623)
Polity Score		0.588 (0.630)	-1.566*** (0.481)	-0.233 (0.191)	0.000 (.)		0.207 (1.143)	0.475 (0.382)	0.676** (0.264)	-0.153 (0.785)
Polity × Mil. Exp.(log)		-0.049 (0.050)	0.131*** (0.040)	0.020 (0.015)	0.000 (.)		-0.024 (0.091)	-0.041 (0.032)	-0.057*** (0.020)	0.007 (0.062)
Constant	-6.464** (2.721)	24.601* (14.216)	-5.805 (4.847)	-0.457 (3.147)	0.000 (.)	-5.375*** (1.270)	22.890 (25.781)	3.320 (3.850)	4.662 (4.348)	-25.489* (12.774)
N	934	60	385	343	53	983	60	385	343	53
R ²	0.131	0.273	0.361	0.129	.	0.115	0.130	0.102	0.214	0.181

Standard errors in parentheses * p<0.1, ** p<0.05, *** p<0.01

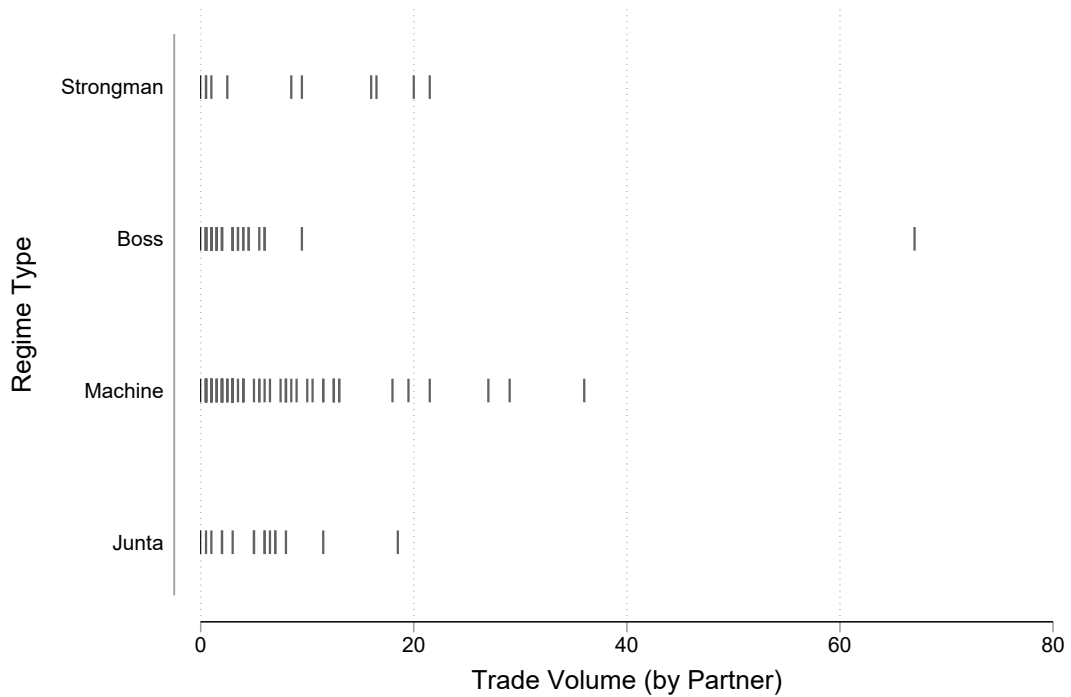


Figure 3.3 The Distribution of UCAVs Across Authoritarian Regime Types (By Partner)

The inclusion of the interaction term to test the conditional relationship in the second hypothesis shows different statistical relations for different regime types in two different types of reporting (Brambor, Clark, and Golder 2006). To be able to comment on the conditionality of military expenditures, the marginal effect should be calculated. The illustration of the marginal effect can be seen in Figure 3.4. For the trade volume numbers reported by the countries, the average marginal effect of the military expenditure has a statistically distinguishable positive effect on almost all values of the polity score takes. Since lower values of polity score mean authoritarian regimes, there seems to be a statistically distinguishable effect of being more democratic (polity score) on having higher trade volumes, conditional on having higher military expenditures. However, this effect seems to be reversed when the same marginal effect is calculated with the numbers reported by partners for all values that the polity score takes. This inconsistency across results will be touched upon later.

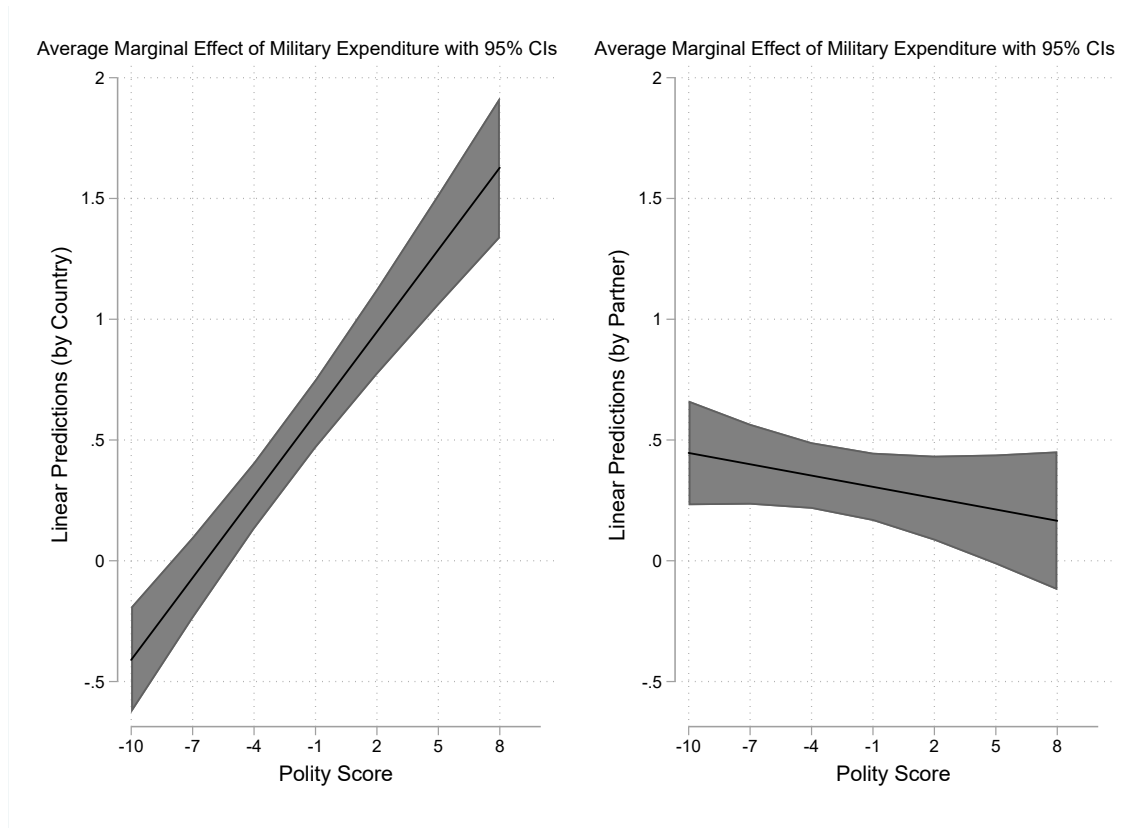


Figure 3.4 Average Marginal Effect of Military Expenditure on UCAV Trade Volume with 95% CIs for First-Type DV Operationalization

When the dependent variable is operationalized by taking the average of the numbers that are reported by both parties and the same models are run again with this second-type DV operationalization, only bosses seem to have statistically significant coefficients for Model 1 which can be seen in Table 2. The absence of the statistically significant coefficients for other authoritarian regime types for Model 1 results directs us to examine the outputs of the regression for Model 2. When samples are divided for Model 2, military capabilities, expenditures, polity score, and the interaction term itself are significant variables only for bosses and machines which are presented in Table 2. Again, to conclude for such conditionality, the marginal effect is calculated and illustrated in Figure 3.6. As can be observed, we see a similar effect of military expenditure conditional on polity score as we did in Figure 3.4 with the numbers reported by countries. This output is aligned with the first-type DV operationalization which was reported by countries. The overlap of these same marginal effects results on the polity democracy scale provides certain empirical support for more democratic regimes having more UCAV trade volumes.

Table 3.2 Linear Model Regression Results (Second-type DV Operationalization)

	M1	Strongman	Boss	Machine	Junta
Strongman	2.618*				
	(1.387)				
Boss	3.388***				
	(1.295)				
Machine	2.370*				
	(1.281)				
Junta	2.493*				
	(1.415)				
Military Cap.(log)	77.398***	1320.289***	353.922***	56.867***	-525.558
	(9.385)	(445.587)	(69.775)	(9.133)	(468.504)
GDP (log)	-0.149	-1.646	-0.181	-0.676**	0.754
	(0.198)	(1.627)	(0.342)	(0.327)	(0.604)
Military Exp.(log)	0.924***	-1.309	0.587	0.971***	0.837
	(0.161)	(1.344)	(0.378)	(0.301)	(0.623)
Polity Score		0.795	-1.091*	0.444	-0.153
		(1.210)	(0.592)	(0.293)	(0.785)
Polity × Mil. Exp.(log)		-0.072	0.090*	-0.038*	0.007
		(0.097)	(0.049)	(0.022)	(0.062)
Constant	-9.921***	47.492*	-2.485	4.205	-25.489*
	(3.601)	(27.294)	(5.969)	(4.825)	(12.774)
N	934	60	385	343	53
R^2	0.224	0.228	0.398	0.316	0.181

Standard errors in parentheses * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

On top of these regression outputs, data dispersion must be also covered to assure the anticipated illustration. The distribution of the dependent variable with this type of operationalization again does not provide us the distribution of UCAV trade volumes across regime types in line with their belligerency which Weeks attributed before. By looking at Weeks' conclusion was about the fact that machines were less belligerent to start an international conflict, they were expected to own the least amount of UCAVs. In contra to this line of thinking, Figure 3.5 demonstrates an accumulation of ownership for machines as well as bosses. We can see the distribution of the trading volumes with second-type DV operationalization in Figure 3.5. Although there is an accumulation of low UCAV trade volumes for strongmen regimes, the expected trend is not observed.

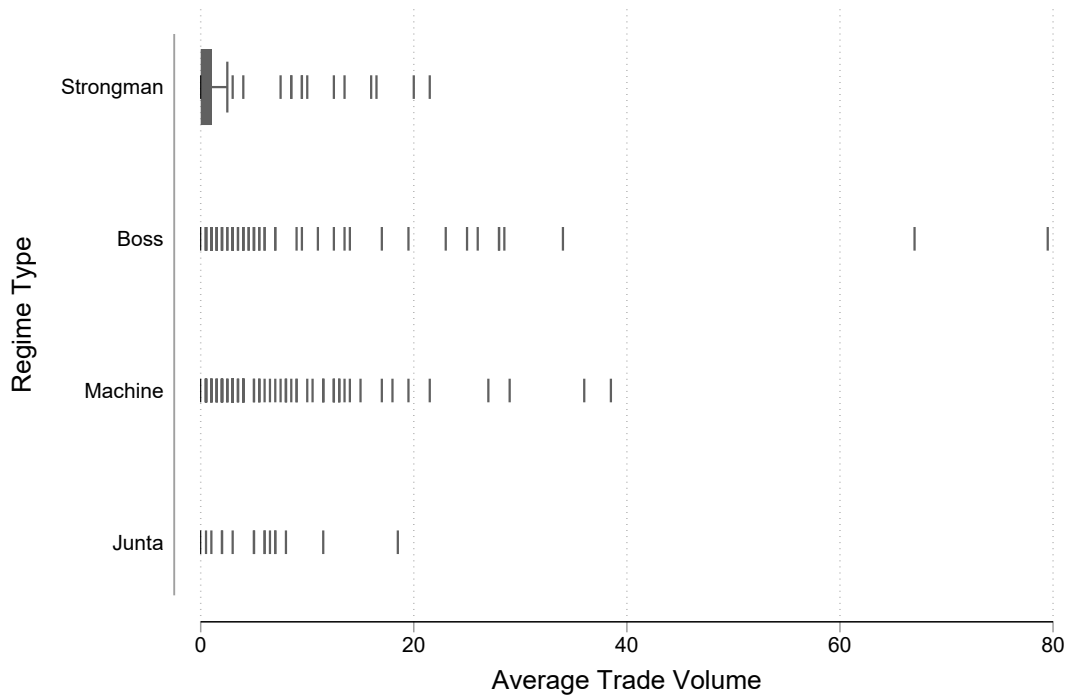


Figure 3.5 The Distribution of UCAVs Across Authoritarian Regime Types (Average Trade Volume)

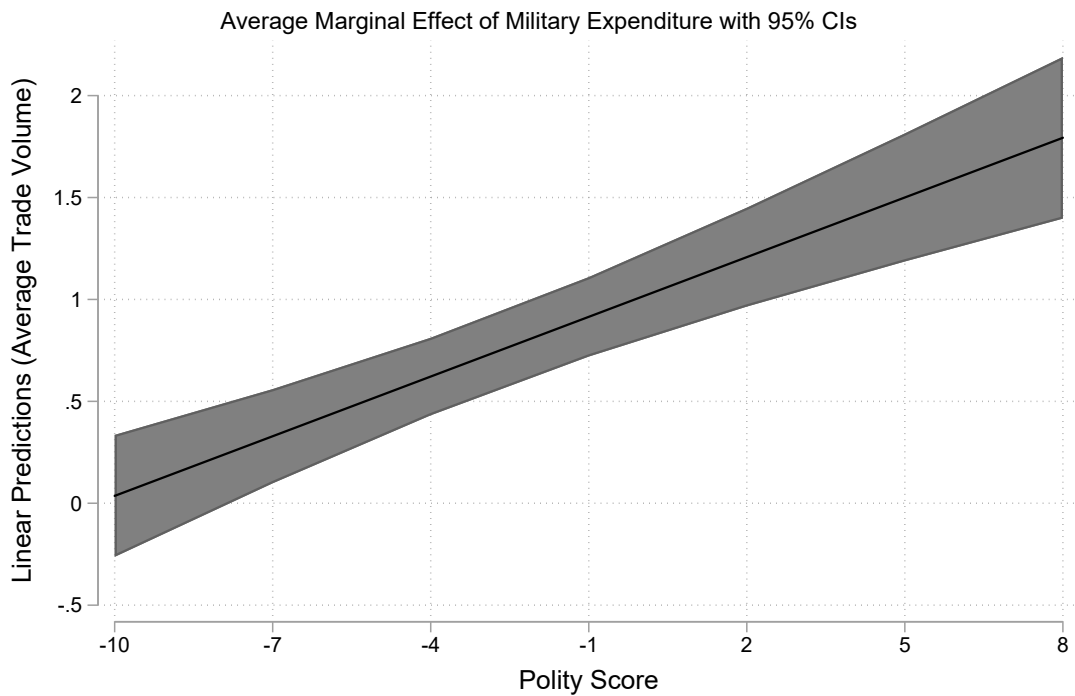


Figure 3.6 Average Marginal Effects of Military Expenditure with 95% CIs for Second-Type DV Operationalization

Although this empirical study does not give any empirical support for the relationship between varying authoritarian regime types and having higher UCAV trade volumes, we found some empirical evidence for such a difference between authoritarian and democratic regimes based on polity score. With this finding, we may empirically support one of the basic presumptions of domestic audience cost theory as far as its implications on warfare technologies are concerned.

4. CONCLUSION

4.1 Reservations and Inferences

As a consequence of this meticulous analysis, several deductions require further enlarging upon. First and foremost, since the main data set that is gathered from UNROCA harbors the actual number of combat aircraft and unmanned combat aerial vehicles but not the dollars spent on them, this restricts the study in a certain perspective. That is to say since there is no exact information about the amount of the expenditures to acquire these warfare technologies, there is no way to calculate their meaningful percentages within each country's GDP to interpret their significance for that state more properly. If we could have done so, the dependent variable could have been operationalized within the form of a percentage of overall trading activities as well. This is also important from a theoretical perspective as well. The domestic audiences are to care about where governments spend their tax money – accountability that is expected to be observed in democracy-. Ever since militaristic capabilities almost always constitute the biggest part of the expenditures, the inability to interpret the place of UCAVs within the overall economic picture of countries withholds promising implications that this study could unrevealed.

Another issue that must be emphasized prior to further dilating upon the inferences of the study is that the absence of actual domestic UCAV production numbers. We can only syllogize about the study by overlooking at-home production of these capabilities to assure national security and ISR measures without countries' need to share an exact amount of ownership and this debouches serious missing information for the study (New America 2020). Along with these concerns, the UNROCA data set covers the period between 1992 and 2018. Because of the invalidity of the rule of high numbers here, having a low number of observations can be the reason for the draw a blank finding with the first-type DV operationalizations. If the actual numbers could be publicly available down from the first steps of developing UAVs

and UCAVs that were taken in World War I, the larger dataset could give stronger support for the empirical findings.

While acknowledging the deficiencies of the study above, there are certain substantive contributions achieved, too. The fact that the study incorporates multiple data sets with the purpose of making inferences about the latest development in warfare technologies from the perspective of domestic audience cost theories is fulfilling. Although there have been several studies over placing armed drones to comply with international law, to question their morality, and to discuss their strategic importance, their dual effect in both domestic and foreign spheres has gathered a little attention. Relying on the theory-empirical linkage that was aimed to be established above, this study can conclude that UCAVs possess a certain impact to be considered when it comes to debates over the leaders' political survival.

In addition to this contribution, marginal effect calculations provided support for reaching the conclusion about the fact that conditional on spending more on militaristic capabilities, having more democratic elements within political regimes has a positive relationship with having a higher trade volume of UCAVs. In the course of failure to find any empirical support for a pattern that can be discovered between having more UCAVs and being a certain authoritarian regime, the prospective relation was detected within the separation between democratic and non-democratic regime types. Having pointed out this, a larger conclusion can be reached through the institutional structures of a leader having a determining effect on the nature of the militaristic capabilities in the given country.

The rising awareness of drones and the threats that they can exhibit against world peace will drive more initiative to enlarge this line of argument. The future data on the topic and the inclusion of further robustness tests for the study hold the promise of providing stronger empirical evidence for the investigated relationship between UCAVs and regime types. Especially, a data set that can depict the demonstrated effectiveness of UCAVs will reinterpret the findings of this study.

4.2 Further Implications

All around the world, public opinion evolves into a phase in which different government agencies are expected to provide reports that reveal their characterization of drones about where, why, how and to what extent to use them*[citepRogers2014](#). The conceptualization of armed drones by governments will shape the regulation of

these new intellections on combat aircraft. Likewise, the effort to presume where the accumulation of this mightiness will take place will be crucially helpful to take necessary measures against any hazard within international politics. All along, this has been the qualifier purpose of this study. Being seized by terrorist groups, unwitting possession by malicious states, developing new types by spiriting human factors away even more with harder traceability, and decreasing the costs of ownership spawn novice challenges for different groups that need to be tackled. Any correlation that can be ascertained will assist to catalyze a multilayered and multi-lateral answer to this dilatational problem.

The freedom from human involvement for the operationalization of an aircraft that is capable of taking lives in a matter of pressing a button has the potential to accelerate any form of violent action whether it be counterinsurgency or peace operations. Scaling down the notion of collateral damage into a piece of equipment via using UCAVs “brings good results” for the leaders who decided to do so (Brown 2007). Indeed, the structural surroundings of the leader in question will determine his/her ability to do so. As far as this study is concerned, the structural surroundings have been perceived within the limitations of political settings and regime types. Responses, reactions, and sanctions that a leader will face shapes the prospect of fishing for superiority within armament that is promised by the latest technology available like drones.

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The fear of losing the next elections or even facing a toppling down with a vote of no confidence can be enough to choose minimization of loss of lives in security measures in democracies. Although such concerns are much more unlikely in non-democracies, the manifoldness of regime types under the roof of non-democracies also needed to be unfolded. As Weeks (2012) has done before us, by following the footsteps of Slater’s (2003), search for such a distinguishable effect across authoritarian regimes

did not warrant us with a similar effect that we obtained within the difference between democracies and non-democracies. Accompanied by various exiguosness and ineffectualness of the data at hand, the study had arrived at certain conclusions together with achieving the goal of underlining the importance of relatively untended phenomenon in international affairs.

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APPENDIX A

Stata Do File

```
***THESIS****
cd "C:\Users\Beg m B y ksava \Desktop\Thesis\Data\Data
  Analysis-Stata "
import excel "beg m-data.xlsx", sheet("Sheet1") firstrow
clear
drop cimptot pimptot cexptot pexptot
reshape long cimp pimp cexp pexp, i(country) j(year)
kountry country, from(other) stuck
tab country if _ISO3N_==.
replace country="Azerbaijan" if country=="Azerbaijan"
replace country="Cape Verde" if country=="Cabo Verde"
replace country="Croatia" if country=="Crotia"
replace country="Macedonia" if country=="North Macedonia"
replace country="Eswatini" if country=="eSwatini"
drop _ISO3N_
kountry country, from(other) stuck
rename _ISO3N_ icode
kountry icode, from(iso3n) to(cown)
rename _COWN_ cowcode
drop if cowcode==.
save "beg m-data.dta", replace
/*import and merge POLITY*/
preserve
import excel "p5v2018.xls", sheet("p5v2018") firstrow clear
rename ccode cowcode
save "polity5.dta", replace
restore
```



```

merge 1:1 cowcode year using "polity5.dta"
drop if _merge==2
drop _merge
/*merge the Geddes data*/
merge 1:1 cowcode year using "GWftscs.dta"
drop if _merge==2
drop _merge
/*merge GDP data*/
preserve
import excel "WorldbankGDP.xls", sheet(Data) firstrow clear
*****NEW PART*****
drop F-AE
destring year, replace
drop if year==.
drop if cowcode==.
*****
save "gdpdata.dta", replace
restore
merge 1:1 cowcode year using "gdpdata.dta"
drop if _merge==2
drop _merge
/*import and merge national material capabilities*/
preserve
import delimited NMC_v4_0.csv, clear
rename ccode cowcode
save "nmc.dta", replace
restore
merge 1:1 cowcode year using "nmc.dta"
drop if _merge==2
drop _merge
save "thesisdata-merged.dta", replace
use "thesisdata-merged.dta", clear
drop version flag cyear
recode polity (-88=.) (-77=.) (-66=.)
/* 1 p1 m1 2 p1 m0 3 p0 m0 4 p0 m1*/
encode gwf_regimetype, gen(regimetype)
recode regimetype (3=1) (9=1) (7=4) (1=4) (2=4) (4=3) (5=3)
(6=3) (8=2) (10=2)
label variable regimetype "regimetype"

```

```

label define regimetype 1 "Strongman" 2 "Boss" 3 "Machine" 4
    "Junta", modify
gen strongman=0
recode strongman (0=1) if regimetype==1
gen boss=0
recode boss (0=1) if regimetype==2
gen machine=0
recode machine (0=1) if regimetype==3
gen junta=0
recode junta (0=1) if regimetype==4
recode cimp(.=0)
recode cexp(.=0)
recode pimp(.=0)
recode pexp(.=0)
egen avrcont = rmean(cimp cexp)
egen avrpart = rmean(pimp pexp)
gen milexln = log(milex+1)
gen cincln = log(cinc+1)
gen gdpln = log(gdp+1)
reg avrcont regimetype cincln gdpln gwf_duration milexln
eststo m1: reg avrcont strongman boss machine junta cincln
    gdpln gwf_duration milexln
eststo m1a: reg avrcont c.polity##c.milexln cincln gdpln
    gwf_duration if regimetype==1
eststo m1b: reg avrcont c.polity##c.milexln cincln gdpln
    gwf_duration if regimetype==2
eststo m1c: reg avrcont c.polity##c.milexln cincln gdpln
    gwf_duration if regimetype==3
eststo m1d: reg avrcont c.polity##c.milexln cincln gdpln
    gwf_duration if regimetype==4
reg avrpart regimetype cincln gdpln gwf_duration milexln
eststo m2: reg avrpart strongman boss machine junta cincln
    gwf_duration milexln
eststo m2a: reg avrpart c.polity##c.milexln cincln gdpln
    gwf_duration if regimetype==1
eststo m2b: reg avrpart c.polity##c.milexln cincln gdpln
    gwf_duration if regimetype==2
eststo m2c: reg avrpart c.polity##c.milexln cincln gdpln
    gwf_duration if regimetype==3

```

```

eststo m2d: reg avrpart c.polity##c.milexln cincln gdpln
    gwf_duration if regimetype==4
esttab m1 m1a m1b m1c m1d m2 m2a m2b m2c m2d using "Table1.
    tex", tex replace b(%10.3f) se stats(N r2, fmt(0 3)
    labels("N" "\$R^{2}\$")) ///
unstack starlevels(* 0.1 ** 0.05 *** 0.01) alignment(1)
    label nogaps nonumbers noomit nobase compress mtitle(" All
    " "Strongman" "Boss" "Machine" "Junta" "All" "Strongman"
    "Boss" "Machine" "Junta") coeflabels(_cons Constant)
egen avrexpr = rmean(pexp cexp)
egen avrimpr = rmean(pimp cimp)
gen tradevolume = (avrexpr+avrimpr)
reg tradevolume regimetype cincln gdpln gwf_duration milexln
eststo b1: reg tradevolume strongman boss machine junta
    cincln gdpln gwf_duration milexln
eststo b2a: reg tradevolume c.polity##c.milexln cincln gdpln
    gwf_duration if regimetype==1
eststo b2b: reg tradevolume c.polity##c.milexln cincln gdpln
    gwf_duration if regimetype==2
eststo b2c: reg tradevolume c.polity##c.milexln cincln gdpln
    gwf_duration if regimetype==3
eststo b2d: reg tradevolume c.polity##c.milexln cincln gdpln
    gwf_duration if regimetype==4
esttab b1 b2a b2b b2c b2d using "Table2.tex", tex replace b
    (%10.3f) se stats(N r2, fmt(0 3) labels("N" "\$R^{2}\$"))
    ///
unstack starlevels(* 0.1 ** 0.05 *** 0.01) alignment(1)
    label nogaps nonumbers noomit nobase compress mtitle("
    Additive" "Strongman" "Boss" "Machine" "Junta")
    coeflabels(_cons Constant)
graph hbox (avrcont), over(regimetype) scheme(plotplain)
    medtype(marker) medmarker(msymbol(pipe) msize(vlarge))
    marker(1, msymbol(pipe) msize(vlarge)) marker(2, msymbol(
    pipe) msize(vlarge)) ytitle("Trade Volume (by Country)")
    name(finall , replace)
graph export Final1.pdf, replace
graph hbox (avrpart), over(regimetype) scheme(plotplain)
    medtype(marker) medmarker(msymbol(pipe) msize(vlarge))
    marker(1, msymbol(pipe) msize(vlarge)) marker(2, msymbol(

```

```

    pipe) msize(vlarge)) ytitle("Trade Volume (by Partner)")
    name(final2 , replace)
graph export Final2.pdf, replace
graph hbox (tradevolume), over(regimetype) scheme(plotplain)
    medtype(marker) medmarker(msymbol(pipe) msize(vlarge))
    marker(1, msymbol(pipe) msize(vlarge)) marker(2, msymbol(
    pipe) msize(vlarge)) ytitle("Average Trade Volume") name(
    final3 , replace)
graph export Final3.pdf, replace
reg avrcont c.polity##c.milexln cincln gdpln gwf_duration
margins , dydx(milexln) at(polity=(-10(3)10))

marginsplot , recast(line) recastci(rarea) legend(off) scheme
    (plotplain) ytitle("Linear Predictions (by Country)")
    xtitle(Polity Score) title("Average Marginal Effect of
    Military Expenditure with 95% CIs") name(m111, replace)
reg avrpart c.polity##c.milexln cincln gdpln gwf_duration
margins , dydx(milexln) at(polity=(-10(3)10))

marginsplot , recast(line) recastci(rarea) legend(off) scheme
    (plotplain) ytitle("Linear Predictions (by Partner)")
    xtitle(Polity Score) title("Average Marginal Effect of
    Military Expenditure with 95% CIs") name(m222, replace)
graph combine m111 m222, graphr(m(small))ycommon xcommon
    graphregion(color(white))
graph export MargAnalysis1.pdf, replace
reg tradevolume c.polity##c.milexln cincln gwf_duration
margins , dydx(milexln) at(polity=(-10(3)10))

marginsplot , recast(line) recastci(rarea) legend(off) scheme
    (plotplain) ytitle("Linear Predictions (Average Trade
    Volume)") xtitle(Polity Score) title("Average Marginal
    Effect of Military Expenditure with 95% CIs") name(m333,
    replace)
graph export MargAnalysis2.pdf, replace

```