

WEAPONS FOR PEACE OR WAR? THE ROLE OF MILITARY INDEPENDENCE
IN MILITARIZED INTERSTATE DISPUTES

by

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Abstract

The global trade in weaponry has created an environment in which states are now utilizing arms transfer agreements to bolster their own domestic defense industry aspirations. Previous research concerning arms transfers has suggested that a state may alter its behavior depending on its level of dependency on foreign sourced weapons. However, previous scholarship primarily examined the effect from importing arms and not the effect that military industry will have upon state behavior. Since the number of states possessing domestic defense industries has risen by 250% since 1950, it is paramount that we understand the effect of a domestic military industry on state behavior. To explore this problem, this dissertation utilizes militarized interstate dispute and arms procurement data. 3 primary independence variables are created, all of which measure military independence in different ways. These variables include, military industry presence, arms supplier diversification, and foreign dependence on military goods. The dissertation hypothesizes that the level of military independence will have an effect on the probability that a state will be involved, initiate as well as decrease dispute duration.

Chapter 1: Introduction

1.1 Introduction

Since the advent of the modern state system with the treaty of Westphalia, the possession of a modern defense industry has been hallmark of all great powers. A domestic defense industry allows a state not only to equip its military with the latest and most devastating weapons, it allows the state to insulate itself from exogenous pressures, more so than a state which primarily relies upon importing defense technology. However, not every state has the financial means or the willingness to invest the large amount of money required to build and sustain a robust defense industry. Those states that are not able to mitigate dependency by pursuing military industrialization, may seek to mitigate dependency by diversifying their suppliers. States such as Saudi Arabia and Turkey have actively sought to diversify imports in the recent years for fear of embargo (Weitz, 2014; Zanotti, 2011). The recent Arab spring saw arms deliveries by the US and UK to Egypt and Bahrain suspended because of human rights concerns. Moreover, Turkey has actively begun to look for arms suppliers outside of the EU because of strained relations caused by EU support for recognition of the Armenian Genocide of 1915 as well as the fear of embargo by EU members because of possible actions against Kurdish rebels in Iraq and Syria.

By diversifying suppliers, states hope to decrease risk of exogenous pressure in their political actions as well as mitigate the threat of supply interruption, especially

during times when their security is threatened. Therefore, states may seek to mitigate dependency, especially if they wish to undertake strategies which may threaten their supply of weaponry, which almost always involves militarized dispute. Security independence by decreasing arms dependence allows a state to more freely pursue its ambitions and engage in conflict without relying upon exogenous resources. Diversifying suppliers or developing the means to produce weapons domestically allows the state to resupply its forces during a dispute and mitigate losses which may be experienced.

We know from the organizational theory of resource dependence that resources are the basis of power by which firms can influence the behavior of other firms¹. In order to mitigate dependency and decrease uncertainty over the supply of a good, a firm will adopt countervailing strategies such as, integrating production, or associate with additional suppliers²(Pfeffer & Salancik, 1978). Although this theory was originally only extended to commercial relationships between firms, recent IR literature suggests that the same dynamics are occurring within state relationships concerning arms transfers (Kinsella, 1994, 1998b; Sanjian, 2003; Sanjian, 2001a). However, resource

¹ Resource dependence theory sees resources as sources of power. The more resources a state has over another state the more influence, and thus power, it may have upon another firm. In order to mitigate the risk of this influence the firm will undertake countervailing strategies such as absorb the constraint, or diversify its resources. The same theory can be easily extended to states in place of firms. Obviously its difficult for a state to absorb the constraint in the same way as a firm but it may choose to either build its own weapons, or it may choose to diversify the number of states it may import from. For more information see Pfeffer and Salancik(1978) and Casciaro and Piskorski (2005)

² By integrating production a firm absorbs constraint by choosing to produce a good that it had previously relied on a outside supplier to provide.

dependence theory does not help to explain behavior of a state after a strategy has been pursued. Prospect theory and bargaining theory allow us to understand how that state may perceive costs in disputes differently if it is militarily independent. Decreased dependence in the form of military industrialization decreases the costs of engaging in disputes because of its ability to replace lost military equipment relative to a state which does not possess the ability to replace lost equipment. Consequently, if a state has the ability to resupply forces during conflict, then it may be more willing to participate in conflict. Literature concerning arms transfers and military industrialization suggest that a decrease in import dependence has been largely a result of countries wishing to decrease the chances of exogenous influence on domestic decision making and being able to engage in conflict without risking their supply of arms being cut-off³ (Brzoska & Ohlson, 1986; Catrina, 1988).

IR literature concerning both arms transfers as well as conflict has failed to take into account of the effect of arms dependency on state behavior relating to conflict. IR literature concerning arms transfers effects on state behavior fails to recognize varying levels of dependency, possibly explaining the mixed results concerning the effect of arms transfers on state behavior during conflict. Since weapons are a means to wage war, one would expect that the conflict literature would have identified varying levels

³ Many pushes for military industrialization such as those in Israel, Argentina, Iran, and China have been a result of arms embargoes resulting from the involvement in conflicts and unpopular regional aspirations.

of arms dependency and their effect on conflict, but this has not been the case. Literature concerning conflict primarily utilizes composite variables such as the Composite Indicators of National Capability (CINC) score to evaluate military capability and state power. A military that is able to produce its own weaponry or keep its resupply lines open during conflict has a much larger capability than a state that risks its entire resupply of arms being cut off when it needs it the most. Therefore, this under specification fails to take into account how states acquire their weaponry, which in this conceptualization is directly related to a state's capability. This dissertation seeks to fill these holes by creating variables that which represent varying levels of military independence. By testing these variables on a state's likelihood of conflict, as well as duration, escalation, and settlement, we can better understand the main effect that arms dependency has on a state's behavior during conflict. It is hoped that the following results will provide a valuable contribution to international relations conflict literature and expand our knowledge of the arms transfer system.

In the following pages I first present recent trends in arms production and transfers in order to illustrate that arms dependency is being increasingly pursued by states to increase decision-making independence. I then review the relevant literature supporting the link between arms dependency and conflict, as well as the weaknesses in both arms transfer and conflict literature stemming from the exclusion and under-specification of key explanatory variables, which this dissertation seeks to correct.

After a short review of the literature an introduction to the theoretical framework is presented as well as the data and methodology of the empirical chapters. Lastly an outline of the entire dissertation is provided.

1.2 Recent Trends: Decreasing Dependence, Rising Diversification

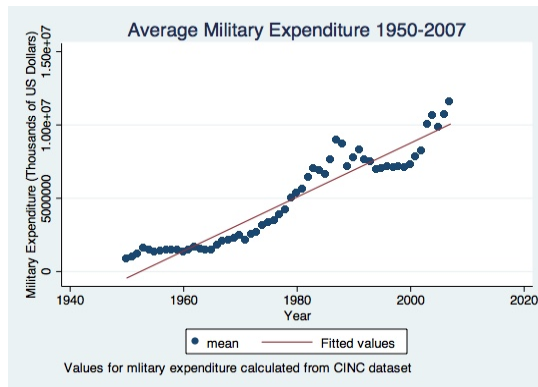


Figure 1: Average Military Expenditure (\$ Constant 1999)

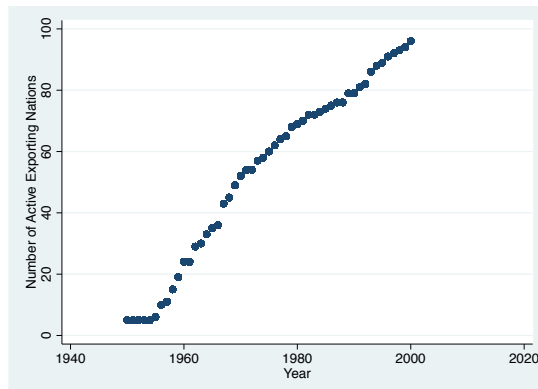


Figure 2: Number of Actively Exporting States by Year

Recent trends suggest that over time an increasing number of states are pursuing military industrialization. For the majority of the past 50 years, western states have controlled the trade in weaponry and have been the largest producers of advanced military equipment⁴. Our understanding of military industrialization's effect on state behavior was crafted during this relatively stable period of time. However, times have changed. States that once had no

⁴ Kinsella (2008) illustrated through the use of network maps that the traditional importers such as the USSR, USA and China traded to specific states throughout the cold war. However, this system of transfers has shifted since the end of the cold war. Kinsella suggests through the data that the arms transfer system is not as divided as it once was and that increasing numbers of weapons producers has converged the system.

ability to produce their own weaponry, much less to export it, now contend with historical producers. "Revisionist" states, such as China and Russia, have created robust defense industries able to equip their own militaries with state of the art weaponry and export excess arms to further their political interests⁵. The number of states possessing indigenous defense industries has increased, overall global dependency on foreign arms has decreased, and average military expenditure has increased⁶. These factors suggest that our traditional understanding of military industrialization may be unsuited to explain current state behavior, or even that of the post- cold war period.

Since the end of the World War II global military expenditures have been steadily increasing in all major regions of the world. Figure 1 illustrates the systemic shock from the fall of the Soviet Union, and its ideological rivalry with the United States, is prevalent. In this period, we find that both military expenditures, as well as the number of states importing weaponry, decreases dramatically. Many Eastern European countries, including Russia, could not afford to spend at the same rates as in the decades leading up to the 1980's. However, since 1992, global military expenditure has risen steadily in volatile areas that are home to long standing regional rivalries and

⁵Realists distinguish between two types of states, one which is satisfied with the values, norms and order of the international state system (status-quo state) and a state which is not satisfied with the norms values and order of the prevailing state system (revisionist state).This differentiation is used extensively in power-transition theory.

⁶ See Figure 1

no clear cut leading regional power. Why is this important? This long-term trend is important because it represents increasing military industrialization in all regions of the world.⁷

Since the end of the Cold War, the number of states possessing the ability to produce and export indigenous military equipment has increased 250 percent, as seen in Figure 2. Although the top tier suppliers, such as the United States and the Russian Federation, have yet to lose their top spots among arms exporters, their share of the export market is decreasing. States which have primarily relied upon foreign procurement of weaponry, such as Brazil, China, Turkey and India, have all experienced a substantial increase in weapons exports. These exports have decreased unit costs of indigenous weapon platforms which translates into decreased procurement costs for their respective militaries as well as increased revenue to help support the growth of domestic military industry. For many states, military industrialization is significant for state security. The ability to produce domestic weaponry decreases reliance upon other states that may seek to influence state behavior. States such as Israel, Brazil⁸, India⁹, and China¹⁰ have all pursued military

⁷ Although increased military expenditure is necessary for increased military industrialization it is not sufficient on its own for military industrialization to occur.

⁸ See Brazil's "National Strategic for Defense" Page 18: "(Defense, 2008) Partnerships with other countries will be attempted, aiming at developing the technological capacity and the making of national defense products to gradually rule out the need to purchase imported services and products." URL:

industrialization in the name of defense independence for security reasons. Although these producers may not be able to compete head to head with large arms suppliers, like the United States, their ability to produce and export weaponry may have substantial consequences on the global balance of power as exemplified by Steven E. Miller:

“The indigenous weapons production phenomena is one small dimension of a much larger development: the diffusion of power throughout the international system. This has occurred in the economic and political realms as well as in the military. In each case this has involved the erosion of the incredible concentrations of political, economic and military power in the hands of a small number of large industrial states”(Miller, 1980).

http://www.defesa.gov.br/projetosweb/estrategia/arquivos/estrategia_defesa_nacional_ingles.pdf

⁹ See India’s “Defense Production Policy”: “Self-reliance in Defence is of vital importance for both strategic and economic reasons and has therefore been an important guiding principle for the Government since Independence.” URL: <http://www.mod.nic.in/writereaddata/DPP-POL.pdf>

¹⁰ See China’s “National Defense White Paper 2002: “China's defense-related science, technology and industry is the state's strategic industry, and the important industrial and technological foundation for national defense modernization, as well as a major driving force for the development of the national economy, science and technology. “

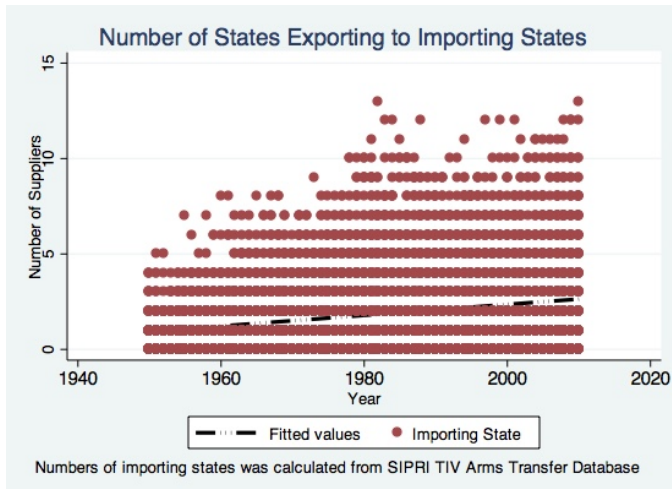


Figure 3: Number of States Exporting to Importing States

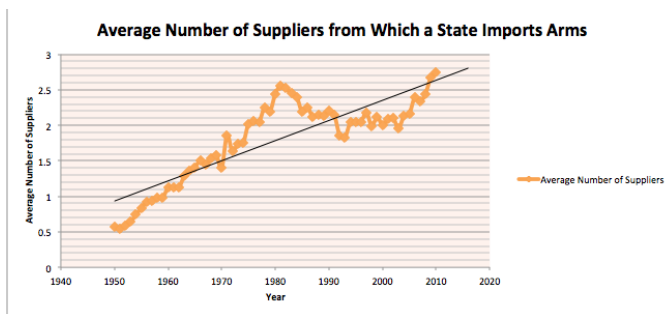


Figure 4: Average Number of Suppliers From Which a State Imports Arms

States that cannot afford to pursue military industrialization may also pursue diversification of suppliers. Figures 3 and 4 illustrate that the number of suppliers for a given state has increased over time. This diversification of suppliers allows a state to decrease its dependence on one primary supplier and mitigate risk of supply cut-offs or exogenous political pressure. For example,

Turkey and Saudi Arabia have

recently begun to diversify arms import partners because of fear of embargo. In the case of Turkey, recent EU support for recognition of the Armenian genocide has strained political relations. Moreover, the rejection of EU countries to allow the export of warships to Turkey has fueled Ankara's fear of a future arms embargo, especially if it acts against Kurdish rebels beyond its boundaries (Weitz, 2014; Zanotti, 2011).

Some analysts believe that Saudi Arabia’s recent pursuit of diversification is a result of US arms embargoes to Egypt and Bahrain as a result of human rights concerns during the Arab Spring, coupled with possible pressure from Israel’s supporters in Washington (Cordesman, 2009; SIPRI, 2012). Egypt itself signed a 5.9 billion dollar deal with France for the Rafael fighter which many suspect is a result of Egypt’s frustration of being held “hostage” by the US and its human rights complaints¹¹. Unlike during the cold war, countries such as Turkey and Saudi Arabia can look to a plethora of alternative suppliers, possibly making arms exports less a tool of coercive foreign policy. However this increasing diversification has been given little attention by scholars despite previous research suggesting that the presence of domestic military

industry may have profound effects upon state behavior and possibly increasing the likelihood of conflict participation (G. G. and P. F. Diehl, 1993; Kinsella & Tillema, 1995; Kinsella, 1994; Sample, 1997; Wallace, 1979).

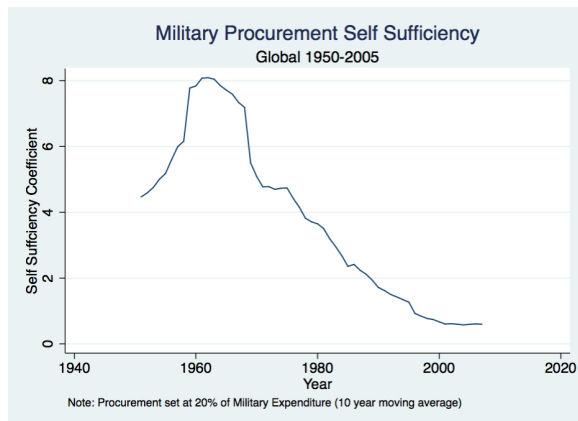


Figure 5: Global Military Self Sufficiency

¹¹ Military expert and retired army officer Ahmed Abdel Halim said was quoted as saying, “The diversification of the supply of weapons and technology is aimed at dissuading any country from exercising a monopoly over Egypt or of trying to blackmail it.” For more details see <http://news.yahoo.com/egypt-ends-us-arms-monopoly-french-jet-fighter-212939915.html>

Correspondingly, we find that the level of military self-sufficiency of nations has increased dramatically since the beginning of the 1970s. Figure 5 shows a sharp decline in the self-sufficiency coefficient in the mid 1980's suggesting that fewer countries are totally reliant upon importation of weaponry.¹² Dependency declines until 2005 despite increased military expenditure during the same period, possibly suggesting that states are beginning to invest in military industrialization. This possible diffusion of power away from the center is bound to have great effects that warrant further empirical exploration.

Increased military industrialization as well as increased diversification of arms suppliers may represent a shift in state strategy that has profound consequences on state behavior. Scholars have suggested that strategies to decrease dependence may be a result of a state whose regional or global aspirations are counter to the status quo (Brzoska & Ohlson, 1986). A state that is able to produce its own weaponry, or has diversified supply so as to not risk cut-off, may be more willing to engage in conflict

¹² This measure of self-sufficiency is first used by Catrina (1988:82). The coefficient is found by dividing arms imports by %30 of military expenditure. Catrina (1988) defended this estimate of %30 by by citing literature by SIPRI (1980:63) as well as Brzoska (1983):166). However, using data gathered since 1980 the actual spending on military procurement varies from around %10 to %25. The formula is run using %20 and the results both globally and regionally and at 5 and 10 year moving averages are in the appendix figures 19 through 52

in order to pursue those aspirations. The purpose of this dissertation is to examine if these strategies of dependence result in a change in state behavior regarding conflict.¹³

Arms transfer literature has suggested that both arms transfers and military industrialization effect state behavior, but quantitative empirical research on these strategies has been scant, especially in instances of intrastate conflict. While the literature on arms transfers has primarily examined the effect that transfers may have on state behavior it has ignored how the diversity of supplier as well as the level of dependence of the recipient state affect state behavior. Last, the way in which scholars research conflict primarily uses composite variables which are underspecified, failing to take into account the ways in which a state comes to possess weaponry. By including variables measuring dependence, a more nuanced understanding of interstate conflict may be possible.

1.3 Arms Trade Literature: Missing Variables and Empirical Evidence

For years literature on the arms trade has suggested a link between both military industrialization and arms transfers on state behavior, primarily concerning conflict. However, early arms transfer literature primarily dealt with arms transfers and its use as a tool of foreign policy. Authors suggested that arms transfers, in the form of aid or

¹³ A State may also pursue military industrialization for economic purposes. Many countries most notably Russia have singled out their defense industry as a vital component of their economy. Putin was quoted at a military forum in June 2015, "It's clear that the efficiency of the military-industrial complex is the most important source of economic growth,"(Meyer, Biryukov, Pismennaya, & Arkhipov, 2015).

sales, could be used to entice states to follow a particular policy, for rewarding a state for following a policy that rewarded the supplying states foreign interest (Brzoska & Ohlson, 1986; Guetzkow & Schelling, 1966; Katz, 1984; Pierre, 1982, 1997; Wulf, 1993),¹⁴ or using the threat of cutting off supply to influence state behavior¹⁵. Arms transfers were seen as a symbol of state support. The United States and Russia both used arms transfers to bolster its foreign interests as well as show each other regions in which they were active.

More recently qualitative research on arms transfers has pointed to the role of arms dependency on state behavior, suggesting that the level of dependence and domestic production may play a role in state behavior, especially in relation to conflict (Catrina, 1988; Laurance, 1992). In order to increase dependence a state may decide to produce its own weaponry. Military industrialization has been suggested to have a negative effect on state behavior, possibly making it more likely that a state will be involved in conflict

¹⁴ Military aid can be used as both negative and positive sanctions. US military aid as a positive sanction includes transfers to Somalia in order to gain access to facilities at Berbera and Mogadishu. Another example was the promise of 40 million dollars to the Philippine government in 1986 if the government enacted favorable reforms toward democracy. Negative sanctions include the cutting off of aid to China after the 1989 (Tiananmen Square) and the ceasing of military aid to Argentina during the Falklands conflict in 1982.

¹⁵ For example, the threat of severing military sales to Israel during the 1973 conflict has been cited as a major impetus for the agreed upon 25 October ceasefire which effectively ended the conflict (Pollock, 1982:177).

Once data on arms transfers and production became more openly available empirical research sought to test these assertions. Arms race literature began to show evidence for and against arms transfers increasing the risk of conflict (Brito, 1984; P. F. Diehl, 1985a, 1985b). Civil conflict literature has found results suggesting that arms transfers have a positive effect on both duration and intensity of conflict (Moore, 2012). Research seeking to find if arms transfers actually could be used to alter a state's foreign policy to mirror the supplier state has found mixed results (Fearon, 2011; Kinsella & Tillema, 1995; Kinsella, 1998a; Pearson, Lounsbery, & Sislin, 2010; G. S. Sanjian, 2003; Gregory S. Sanjian, 1999, 2001b; Sislin, 1994; P. L. Sullivan, Tessman, & Li, 2011a).¹⁶

In fact, the literature concerning arms transfers provides mixed results and could lead one to the impression that arms transfers may not have direct effect on conflict. However, quantitative literature has disregarded the role dependency may play upon state behavior during conflict, even as the qualitative literature highlighted the

¹⁶ Sanjian (1998) found that 6 of the 9 countries examined followed a more conflictual foreign policy the more dependent upon arms they became. In the other 3 the exact opposite was found in that their foreign policies became more tempered. The mixed results could have been an effect of sampling among traditional regional rivals such as India, Pakistan, Israel and Egypt. Therefore conflict may occur at a higher rate than normal. Sislin (1994) found that between 1950 and 1990 the use of arms transfers to alter foreign policy behavior was successful a little more than half of the time but other factors such as the power of the supplying state are thought to be crucial determinants of success when arms are transferred

importance of this variable. Quantitative empirical analysis regarding the role of arms transfers on conflict has not taken into account arms dependency.

Within dependency there are two primary variables, military industrialization and supplier diversification. Literature in organizational theory has suggested that the number of suppliers a firm has will have an effect on state behavior.¹⁷ Moreover, the literature has suggested that military industrialization has an effect on state behavior by affecting its military capability and making it likely to engage in conflict (Brito, 1984; Collier, Hoeffler, & Söderbom, 2004; Collier & Hoeffler, 2007; Craft & Smaldone, 2002; G. G. and P. F. Diehl, 1993; Kinsella & Tillema, 1995; Kinsella, 1994; Maniruzzaman, 1992; Sample, 1997; Wallace, 1979). Both the amount of arms domestically produced and well as the number of suppliers has been theorized to affect state behavior regarding conflict but neither has been quantitatively tested.

1.4 International Relations Conflict Literature: A Problem of Under Specification

Since military industrialization and arms trading are so closely related to issues of power and security it would be reasonable to expect that International relations literature concerning conflict would use indicators of military industrialization and dependence as critical variables when explaining conflict. However, most indices of state power rely primarily on measurements such as GDP and military capability.

¹⁷ See Pfeffer and Salancik 1978 “The External Control of Organizations: A Resource Dependence Perspective”

These indicators have been compiled into composite scores such as CINC, GINC, and the Correlates of War National Capability dataset. Although data of these indicators have served as invaluable foundations for empirical analyses in the IR literature, scholars have criticized these measures as incomplete, underspecified and possibly skewing empirical results (De Soysa, Oneal, & Park, 1997; Efird, Kugler, & Genna, 2003). The use of military expenditures as well as GDP per capita have also been heavily utilized which further contribute to our lack of understanding between arms and conflict. Data on military industry, as well as import/export data from sources such as SIPRI, now allows for further exploration of military industrialization and dependency and its subsequent impact on state behavior. With more information available than ever before, further specification of these composite indicators is needed.

Within IR scholarship, GDP is a popular indicator to control for state power as it is thought to be connected with the military capability of a state. Within the measurement of GDP, there lies military expenditure, which contains the center of the under specification problem. Military spending measures do not differentiate between domestic procurement and foreign procurement of military equipment. Some suggest that increased investment in military industry increases the state's capabilities which may result in a change of state behavior (Pierre, 1982, Katz, 1984, Laurance, 1992, Catrina, 1988). States looking to increase influence within a region will pursue

increased military capability and possibly seek to invest in domestic military industrial projects. The possession of a domestic defense industry, as well as increased returns from military industry, can be measured and used to further specify GDP and its effect on state behavior.

Military capability presents its own problem of under specification. Scholarship pertaining to rising and major powers has focused on military capability to make inferences into how states rise and fall, but not how a state acquires its military capability could alter its behavior. Two states in military parity may act completely different from one another based upon how they have acquired their military capabilities. Increased commercialization of the arms trade has created a situation in which the military capability of a nation can change drastically in a small period of time. Arms may be transferred in a matter of days, thus altering regional and global stability far more quickly than many IR scholars realize. However, procuring weaponry from foreign sources also leaves a state vulnerable to foreign influence from the supplying state. Research has suggested that dependence on foreign sources can restrain a state's behavior and temper foreign policy (Guetzkow & Schelling, 1966; Gregory S. Sanjian, 2001b, 2003; Sislin, 1994; P. L. Sullivan, Tessman, & Li, 2011b). Therefore, this dissertation seeks to provide evidence that arms dependence has an effect on state behavior especially in regards to conflict and should be independently measured in empirical scholarship concerning conflict.

1.5 Theoretical Framework and Research Design

1.51 Theoretical Framework

This dissertation borrows primarily from two theoretical frameworks which are interrelated, prospect and bargaining theory, both of which are supplemented at times with resource dependence theory. These theories are utilized order to explain the effect that increased military independence may have upon dispute behavior. Both help us to understand why states may seek to mitigate dependency, and how this dependence may affect state behavior. Chapter 3 primarily utilizes prospect theory to explain that increasing military independence decreases the perceived costs of participating in a dispute relative to state with little or no military independence.

Chapter 4 is concerned with the effect that military independence may have upon dispute duration. This chapter primarily utilizes rational choice theory's' bargaining framework of war. This theory is utilized to show that as military independence directly affects that level of uncertainty present in a dispute. Increasing levels of military independence is theorized to lessen uncertainty and result in shorter duration disputes. A state engaged in a dispute must mitigate uncertainty through by gathering information on the opposing states military capability. It takes time for a state to mitigate uncertainty and the more uncertainty present in the dispute the longer the dispute will last.

1.52 Data and Statistical Methods

In order to test how issues of dependency affects state behavior concerning disputes, I create two empirical chapters using three primary independent variables which are developed to test the effect of varying levels of arms dependency on three dependent variables. The primary independent variables include: Defense Production,¹⁸ Dependence,¹⁹ and Diversity.²⁰ The dependent variables include conflict onset, initiation and duration. Various control variables which are commonly utilized in studies concerning the dispute behavior of states. are also utilized, including capability, defense pacts, major power status, polity score, contiguity, defense pacts, cold war and regions. By using these control variables this dissertation seeks to control for issues that have been closely associated with dispute behavior including, state capability, territory, alliances, and exogenous temporal factors. The methods used to test these variables include logistic regression, and cox proportional hazard models.

1.6 Outline of the Dissertation

Chapter 2: Literature Review

The primary objective of this chapter is to give the reader an overview of literature concerning arms transfers and military industrialization. Through a review of the development and evolution of the literature I help the reader understand where this

¹⁸ Production is measured by a binary variable: 1= possession of domestic arms industry; 0= does not possess a domestic defense industry.

¹⁹ Measured with the formula: $\text{Value of Imports} - \text{Value of Exports} / \text{GDP}$

²⁰ Measured with the formula: $\# \text{ of Importing States} / \# \text{ of Active Weapon Exporting States}$

dissertation is nested within the literature, as well as how it will contribute to International relations scholarship pertaining to arms production, transfer, and conflict.

Chapter 3: Military Dependence and its effect on Dispute Onset and Initiation

The primary objective of this chapter is to explore how increasing levels of military independence affect the likelihood of dispute onset and initiation. A state may pursue defense independence through the establishment of a domestic defense industry, or purchasing equipment from foreign suppliers. Both of these strategies have the effect of increasing the state's military capability. Moreover, increased defense independence also has the effect of decreasing the cost of conflict for the state. If a state has the ability to resupply forces that have been lost in a dispute then its perception of loss may differ than that of a state which has no ability to resupply forces that have been lost. A domestic defense industry benefits the state by providing the ability to compensate for losses by domestic resupply as well as rapidly expand the production of arms when the state encounters a threat. This chapter seeks to answer two research questions:

How does increased military independence affect the likelihood that a state will be involved in a dispute?

How does increased military independence affect the likelihood that a state will initiate a dispute?

Chapter 4: Military Independence and Dispute Duration

The primary objective of this chapter is to explore how military independence may affect dispute duration. It is theorized that the presence of a military industry or increased supplier diversification will decrease the uncertainty within a dispute. Using bargaining theory this chapter asserts that the state utilizes a military industry and supplier diversification to signal to its rivals that its military capability will be sustained during a dispute. This ability to resupply allows a state to engage in a dispute for a longer period of time than a state which does not have the ability to resupply. This ability to resupply decreases the uncertainty of military capability that is present within a dispute. The less uncertainty states in a dispute have to mitigate, the more quickly both states in a dispute will converge on a settlement. This chapter seeks to answer one primary research question:

How does increased military independence affect the duration of a dispute?

Chapter 5: Conclusion

Lastly chapter 5 offers concluding remarks. Although it has been shown that domestic military industries affect state behavior many other avenues of research are available to future scholars specifically examining which mechanism arms industries work through to affect domestic and foreign policy. Past researchers have postulated

extensive lists of how arms industries might affect state behavior but empirical evidence to support these mechanisms is not currently available and represents fruitful future avenues of research.

1.7 Concluding Remarks

It is hoped that the findings in this dissertation will have a significant impact on both international relations scholarship concerning disputes, as well as impacting the attention given to conventional arms transfers and defense industrialization. Within international relations scholarship this dissertation hopes to contribute a more nuanced understanding of factors affecting the likelihood of onset and initiation, and duration. It is also hoped that the results within this dissertation will highlight the problem of under specification of popular composite variables utilized in much of the conflict literature. It is also hoped that this dissertation will speak to organizational theory by giving evidence that long accepted organizational theories such as resource dependence theory can work outside the scope of and explain why states seek to diversify sources of military goods. Lastly, this dissertation hopes to have a significant impact on the attention given to conventional arms transfers by providing evidence that these transfers have a negative impact on peace and stability in the international state system.

Chapter 2: Literature Review

2.1 Introduction

Before I present the empirical chapters of this dissertation, it will be useful to sketch out the evolution of the arms trade literature over the past 100 years and show where this dissertation both fits in and advances international relations theory. Understanding how this literature has evolved is crucial in understanding the shortcomings within the research, as well as the direction in which this dissertation will proceed and contribute to our further understanding of arms transfers and production's effect on state behavior.

Within this literature review I identify work on four primary chronological “phases” of the arms trade, each phase with a different primary focus as well as methods of research. The first phase suggested that arms production and conflict are linked. The second phase explored the role that military industrialization and arms transfers could be utilized to affect state behavior. The third phase provided a better understanding of the effects the arms transfers and production on state behavior through quantitative research on arms races. Lastly, the fourth phase involved a large influx of quantitative research on arms transfers and military industrialization. Within each phase there are weaknesses that still need to be strengthened, such as the role of

production in state behavior as well as diversification in arms exports and imports both of which this dissertation seeks to address.

2.2 First Phase: Polemical and Partisan

The first phase stretched from the end of the First World War to the start of the Second World War. This first phase can be characterized as polemical, and partisan. The research was largely qualitative, relying upon survey and interview data in order to denigrate the arms industry. The literature placated a public that was trying to comprehend the horrendous loss of life from the First World War and was quick to place blame upon arms manufacturers who had provided the means for destruction. Terms that were used to describe arms producers, such as “merchants of death, and “war profiteer” illustrated the deep ill sentiment the public had toward arms producers during the interwar period. Books such as Engelbrecht’s *“Merchants of Death”*(1934) and Smedely Butler’s, *“War is a racket”*(1935) came to characterize the world’s view of arms producers and had the effect of further politicizing practices in the arms trade. For the public, this literature painted a picture of war profiteers controlling the destiny of states by pushing conflicts that would inevitably result in large profits for arms producers. The individual, rather than the government, was thought to have great influence over the direction of state policies and assisting the government in preparing and waging the next conflict. The solution to this perceived evil influence was thought

to be the full scale nationalization of the defense industry so that no one person, or business enterprise, could profit and push a state towards war.

Although nationalization of arms industries in many nations did not occur, the increased public scrutiny of arms producers and arms trade practices did have the positive result of spurring nations, such as the United States and Great Britain, to investigate arms industry practices in their respective countries. The US Senate's Nye Committee documented huge profits for domestic defense industries which served only to push the country further toward isolationism and stoking the anti-defense industry sentiment in the US and Europe but did give a glimpse into the increasing role that the arms industry and arms transfers would have on the international order. Although the majority of work on arms transfers and production was qualitative in nature, this phase is important for this dissertation because it was the first time in which scholars and the lay person alike began to acknowledge that the production and trade of weaponry had a strong effect on state behavior, thus laying the foundation for future research on arms transfers and production. The vast majority of the literature during this time period was qualitative in nature since accurate estimates of arms transfers were not made available by the states whose governments feared releasing potentially damaging information.

The arms transfer literature became scant during the buildup and through the Second World War. Following the Second World War, the literature remained largely

unchanged, polemical and qualitative, but the availability of accurate qualitative data on arms transfers as well as the restructuring of the world political order spurred a new phase within arms trade research.

2.3 Second Phase: Policy Focus and Birth of Quantitative Data

The second phase stretched roughly from 1965 to 1973 and witnessed the first time accurate quantitative data became available, providing information on the international trade in arms, as well as defense industrial capacity of leading industrialized world powers. The Stockholm International Peace Research Institute published its first World Armaments and Disarmament Yearbook in 1970 marking the first time in which data on arms transfer and defense production was publicly available²¹. Other journals such as the International Institute for Strategic Studies journal “the Military Balance”, which published data concerning national military capabilities and force structure, were also published during this phase. Authors such as Thomas Shelling(1966), Leis Frank (1969), Robert Harkavy (1975) and Geoffrey Kemp(1970) began to use these data in case studies to explore how and why states choose to trade military goods. Arms transfers and production were no longer viewed as an exogenous variable affecting the state and its policies, but rather a tool of a state to further its political interests.

²¹ Although SIPRI Yearbook represented a watershed in the availability of arms data, accuracy during this time period was poor as many countries remained reluctant to share their arms transfer data for numerous reasons.

For these early arms trade scholars, it did not matter if the arms industry was privately owned or nationalized, the government would use arms to protect its interests and alter political balances around the globe. Arms were thought, and to a degree still are, to buy influence in particular regions that were politically strategic to the exporting nation. Much of the literature during this phase were case studies focusing on specific regions, countries and client relations. Although there was now an increased availability of arms transfer and production data, much of the research utilized data that was case specific, failing to understand the larger system in which arms transfers operate. However, this literature laid the foundation on which future arms transfer scholarship would be built. The next phase witnessed a salvo of research concerning arms transfers and production, and the first attempts to outline the structure and evolution of the arms trade system.

The importance of this phase cannot be discounted as it represents the first time that scholars began to theorize that arms transfers can in fact be utilized as tools to alter a recipients states' behavior. At the same time, organizational theorists were beginning to explore resource dependency theory (Pfeffer & Salancik, 1978), which focused on the role that diversity of suppliers played in decreasing dependence and thus insecurity of firms. Although this research was done with a focus on commercial firms and not states, it nonetheless influenced scholars in the next phase such as Catrina (Catrina, 1988) who thought that states could mitigate this influence created

by arms dependence by seeking multiple producers. This dissertation is heavily influenced by the policy literature populating this second phase, as well as resource dependence theory as a way to explain state behavior and the role of multiple trading partners on state behavior, especially during conflict.

The third phase stretched from 1973 to the end of the cold war and the fall of the Soviet Union. This phase represents a watershed moment within arms trade research because scholars in both the policy and academic community began to work together to better understand the arms trade system. Along with this explosion of research international politics witnessed the largest transfer of arms seen in history. The availability of military hardware by multiple suppliers meant that countries were no longer forced to build their own military industry if they wanted to equip their armies; now they could merely shop around and find a seller that offered a product which suited their security needs. Arms races on the Asian continent, as well as between the superpowers, spurred political science scholars studying deterrence and the spiral model to take into account the effect of arms races on risk perception and the likelihood of conflict (Brito, 1984; P. F. Diehl, 1985a, 1985b).

2.4 Third Phase: Policy Reigns, Quantitative Research Develops

Unlike the previous phases, the literature within the third and fourth phase is incredibly diverse with different assumptions and motivations underlying research on the arms trade. During this phase, the first research was published examining arms

trade and production at the systemic level (Neuman & Harkavy, 1980). These early works were followed by more detailed quantitative scholarship primarily emphasizing arms transfers as tools of foreign policy (Catrina, 1988; Pierre, 1982). Parallel to the previous phase, much of the literature utilized case studies and rarely ever situated arms transfers into the broader fabric of relations between states. Within this phase there are three primary categories of literature: American foreign policy, political economy and iconoclasts.

The American foreign policy literature focuses primarily on the political motivations and the impact on foreign policy that arms transfers, and production may have on the international state system, but primarily focused on the United States. This literature pays scant attention to the overall structure of the arms trade system and instead focuses on the arms transfers and production being primarily utilized as tools of foreign policy (Catrina, 1988; Kemp, 1970; Milstein, 1972; Pierre, 1981, 1982; Pollock, 1982)

The political economy literature during this phase was the first scholarship that attempted to take into account political, economic, and military motivations in arms trade and production. The vast majority of the literature focused upon the effect of military industrialization on economic growth since a great number of countries were attempting to use military industrialization to spearhead general industrialization. The relative short period of this phase yielded results that were generally inconclusive and

the effects of this industrialization strategy could only be determined years later (Ayres, 1983; Bjerkholt, Gleditsch, & Bjerkholt, 1984; Brzoska & Ohlson, 1986; Katz 1986; Ram, 1986; Rasler & Thompson, 1988). However, authors such as Catrina (1988) and Brzoka (1986) thought that military industrialization, as well as the diversification of arms suppliers, would have an effect on state behavior by allowing a state to be less dependent and thus less influenced by the state it was importing arms from. Consequences for this diversification and increased military industrialization were theorized to possibly effect state behavior by allowing the state to act more freely in following regional ambitions. However, these studies still left much to be desired. Brzoska (1986) failed to empirically test his assertions and Catrina's (1988) work failed to take into account the level of diversification as well as the ability of the state to produce its own arms, even though it is actively importing weapons from foreign suppliers.

Lastly, the 'iconoclasts' primarily focus upon arms transfers as regional specialists. The proxy conflicts that were abundant in the 1980's spurred many authors to begin to investigate the effect that superpower arms transfers were having on importing nations. Because the majority of these proxy conflicts and arms transfers were occurring in developing nations, authors such as James Katz(1984, 1986) and Stephanie Neuman (1980, 1984) wrote almost exclusively on the effect that arms transfers were having on developing nations. Other authors such as David Pollock

(1982) and Anne Gilks (1985) focused on specific nations or regions such as the Middle East and China (Ayres, 1983; Deger, 1986; Neuman & Harkavy, 1980). Unfortunately, the majority of the conclusions and insights drawn from these works do not shed much light upon the arms trade or the system it is nested in.

Borrowing heavily from authors such as Brzoska (1986) and Catrina (1988), who began to investigate the effect of military industrialization on state behavior as well as arms dependence and state behavior, this dissertation seeks to build on and extend the scholarship in this phase. Brzoska's (1986) suspicion that developing nations would develop their own industry to both mitigate influence and foster their own regional aspirations will be empirically tested in this dissertation, but not limited to developing nations as in Brzoska's research. Catrina's (1988) assertion that states might not seek to develop their own military industry but instead will seek multiple trading partners to decrease dependence in order further their own regional interests will be tested empirically in this dissertation with two separate measures I develop for this purpose.

Literature in this third phase has two primary weaknesses, poor data availability and lack of empirical testing. Both of these issues are addressed below.

2.5 Fourth Phase: The Rise of Empirical Research

After the fall of the Soviet Union and the bipolar system, the fervor surrounding arms transfer and production research slowed significantly. Military expenditures around the globe slumped and more states began to invest in growth

strategies that did not include the establishment of robust defense industries. Countries such as Singapore, Nigeria and Turkey have shown that a nation is able to increase its regional influence without large expenditures geared toward increasing military capabilities. It is in this last phase when empirical quantitative research concerning the arms trade came into its own and has yielded fascinating insights into how the arms trade affects the state at the national level as well as the international level. The fourth phase has two primary groups of literature; literature concerned with American foreign policy and academic literature nested in political science.

Literature concerning American foreign policy and its effect on the trade of arms has continued to be a mainstay in arms transfer literature, although to a lesser extent than in the past. Although analysis of arms trade effect on US interests abroad still exists (P. L. Sullivan et al., 2011b), economic considerations have taken precedent in the most recent phase of arms trade scholarship. Literature concerning the effect of the modern economy on the US industrial base and economic effects on American defense firms have become more common than in the past as American policy makers begin to realize that competition among international arms makers, as well as military expenditures have changed drastically since the end of the cold war and could greatly effect both America's national defense capabilities as well as its economic growth (Bitzinger, 2003; Guay, 2007). Anthologies examining issues stemming from and affecting American arms exporting firms such as Brzoka and Pearson (1994a, 1994b)

and Markusen and Costingan (1999) continue to examine arms transfers and military industrialization in terms of US foreign policy interests.

Within the political science scholarship pertaining to arms trade one has to separate the field into two primary foci: scholarship that is concerned with arms transfers, and scholarship that is concerned with military industrialization. Although these two subjects have been primarily treated separately, they are actually two sides of the same coin. Military industrialization provides the means for a state to produce, and export arms. Conversely, the lack of military industrialization creates conditions where a state must seek outside sources for military equipment procurement. Literature concerning military industrialization and arms transfers are clustered around two primary sub-fields: international political economy, and international relations. These two subfields treat arms transfers and military industrialization as independent variables, but they differ in their dependent variables. International relations literature primarily gravitates around the dependent variable of security and conflict. International political economy scholars are primarily concerned with economic growth. Whereas international political economy scholars primarily deal with military industrialization, international relations scholars deal with both military industrialization and arms transfers. Both fields have yielded valuable insights into both the nature and structure of the arms trade system.

International relations literature concerning the arms trade is primarily focused upon arms races and their effect on regional stability and conflict. Similar to the early work done on arms races, literature during this phase found evidence suggesting that arms races did cause disputes to escalate into conflict (Baliga & Sjoström, 2004; P. F. Diehl & Crescenzi, 1998; Kydd, 2000; Rider, 2009; Sample, 1997). However, during the fourth phase we see a shift away from previous arms race literature by incorporating the differentiation between how countries acquire their weaponry. Previous scholarship informed scholars that arms exporting states may be able to use arms to influence the behavior recipient state (Catrina, 1988; Guetzkow & Schelling, 1966; Sislin, 1994).

The arms race literature itself has evolved in both in terms of measurement strategies and in terms of the appropriate focus of analysis. Initially, the literature's primary form of measurement was military expenditure. There was little regard as to how states acquired their weaponry, it was only important that the country was spending large amounts of money on their military. Empirical testing using this form of measurement found evidence suggesting that arms races increased tensions between rivals and thereby increased the possibility of open conflict (Baliga & Sjoström, 2004; P. F. Diehl & Crescenzi, 1998; Kydd, 2000; P. Levine & Smith, 1997; Paul Levine, Smith, Reichlin, & Rey, 1997; Rider, 2009; Sislin, 1994). However, scholars familiar with previous literature suggesting that arms transfers could alter state behavior

(Catrina, 1988; Guetzkow & Schelling, 1966; Pierre, 1997) now incorporated arms transfers into their models. Doing so, scholars found mixed results; arms transfers to rivalries did not have the effect of influencing states to not fight (Kinsella & Tillema, 1995; Kinsella, 1998; Sislin, 1994). Furthermore, empirical evidence suggested that arms transfers to a rivalry could mitigate tension if the supplier state exported enough military weaponry to make the recipient state the dominant power in the rivalry (Morrow, 1993; Gregory S. Sanjian, 1998, 2001a, 2003; Schofield, 2000), bucking balance of power theorists who assert that stability is the product of rough military parity (Morgenthau, Thompson, & Clinton, 2005; Waltz, 1979).

International relations research examining the link between arms transfers and conflict, outside of the arms race literature, has become more prevalent in this most recent phase of arms trade literature. Craft and Smalldone's (2002) work highlighted the need for further research on the effect of arms transfers on states not involved in arms races. Craft and Smalldone's (2002) study on arms imports to sub-Saharan African states found evidence that suggests these arms transfers were instrumental to the onset of conflict between 1967-1997. They found evidence of increased probability of war for countries that import arms, which were not involved in arms races. Other authors have asserted similar conclusions further highlighting the current gap in literature on the arms trade and conflict (Craft & Smalldone, 2002; Garcia, 2009; Laurance, Wagenmakers, & Wulf, 2005; Wulf, 1993). Additional empirical research by Krause (2004) found similar effects of arms transfers on conflict onset but also found that

increased imports also increased the chances that the importing state would be the initiator of a dispute. More recent literature has suggested a link between conflict duration and arms transfers presenting findings that suggest that arms transfers significantly prolong conflict. However much of this literature focuses on civil conflict and not interstate disputes (Moore 2012; Jonsson & Brennan, 2013; Balch-Lindsay & Enterline, 2000). Elbadawi and Sambanis (2000) found that factors which assist the military capability of a fighting force had the effect of prolonging the duration of a civil war. Similar results were noted by Gleditch et. al(2009) who found that rebel groups with high arms procurement capacity were involved in longer duration disputes as opposed to groups with low capacity.

Recently there has been exploratory research attempting to help us understand the overall structure of arms trade system by mapping arms transfers using social network analysis. Authors such as David Kinsella (2008, 2013) and Anders Akerman (2010) have shed light upon a structure that previously, because of computational limitations, had only been theorized. Stark clustering of states during the cold war confirmed what many had thought; much of the arms trade was based around 2 primary suppliers of both weaponry and political ideology. Interestingly, both papers found that the system is changing, becoming more dense, and increasingly difficult to differentiate particular clusters, suggesting that motives for trading arms are not the same as those 30 years ago. Although quantitative literature on the arms trade has increased dramatically we are left with numerous puzzle pieces that have not been

addressed. We not only have to know what the structure looks like but the consequences of these structural patterns.

IPE scholars heavily populate the literature concerning military industrialization because the process of military industrialization is so closely linked to economic development. IPE literature on military industrialization has primarily treated military industrialization as an independent variable affecting economic growth. Literature concerning the link between economic growth and military industrialization has suggested that military industrialization has a negative effect, especially in developing nations (Amara, 2008; Boehmer & Sobek, 2005; Boehmer, 2010; Brauer & Dunne, 2005; Brauer, 2007; Gartzke, Li, & Boehmer, 2001; Heo & Hahm, 2006; Kirkpatrick, 1995, 2004; Pearson et al., 2010; Ra'anan & Pfalzgraff, 1978; Rey, 1997; Smith, Humm, & Fontanel, 1985; Wolpin, 1986). Many of these authors point to the failed military industrialization policies adopted by many developing nations in 70's and 80's that were expected to spur economic growth through "spill over" effects as evidence supporting this negative relationship.

International relations scholarship concerning military industrialization is not as robust as the IPE literature but it has offered interesting insights into the effect of military industrialization on conflict. Similar to IPE scholars IR scholars utilize military industrialization primarily as an independent variable, but unlike IPE scholars their dependent variable of concern is conflict. A review of this literature suggests a

positive correlation between military industrialization and conflict at both the interstate (Alesina & Spolaore, 1996; Boehmer & Sobek, 2005; Boehmer, 2010; M. D. W. and D. R. Davis, 1992; Golde & Tishler, 2004; Morrow, 1993; Stevenson, 1995) and intrastate level (Wang, 1998), although these arguments are not tested systematically. These findings raise the question; if the majority of the scholarship suggests that arms transfers have profound effect on state behavior it seems logical that the ability to produce these weapons would also alter state behavior in profound ways.

The fourth phase witnessed the growth of arms transfer literature in political science scholarship. This phase provides, by far, the most empirical evidence suggesting that there is an effect of arms production and transfers on state behavior. This dissertation borrows from the strengths of this scholarship, as well as builds upon the weaknesses in both the international relations and IPE scholarship. The IPE scholarship is important because it is primarily focused on how the role military industrialization impacts state behavior and economic growth. International relations literature finds evidence suggesting that arms imports have an effect on state behavior, primarily during a dispute. This dissertation borrows the focus of the IPE scholarship concerning military industrialization, and tests it using conflict as a unit of analysis.

2.6 Concluding Remarks

The primary problem of the majority of the literature is that arms transfer effects are viewed almost entirely in how they affect the recipient state. This literature continues to fail to address the complex relationship between the state and its arms industries. Treating the way in which countries acquire arms as homogenous makes little sense when the literature suggests that countries that import arms will have their behavior altered. Attention to this relationship and how it then affects the arms trade system and international relations as a whole is greatly under explored. This dissertation seeks to illuminate the effects that military industrialization and arms transfers may have upon the producing nation.

The goal of this dissertation is to fill this theoretical hole and provide valuable data in order to assist scholars and policy makers alike in understanding the effect of both arms transfers and arms production on state behavior during a dispute. Chapter 3 and 4 investigate the effects of both transfers and production capabilities on the arms trade system, filling the gap in the literature that has left out the impact of domestic arms production on the likelihood of a state being involved and initiating a dispute.

Each one of these phases of research has built upon the other and has allowed us to begin to understand the effect that arms transfers and production have upon state behavior. This dissertation seeks both borrow and build upon findings and assumptions of past research to provide a valuable addition to both the literature and our understanding of the arms transfer system as a whole.

The primary focus of the first empirical chapter of this dissertation is on the role that military independence has upon a states likelihood of dispute onset and initiation, aspects that have yet to be addressed in arms transfer literature. By borrowing from assumptions and findings in all four phases that the transfer of arms has an effect on state behavior, I extend the same logic to arms production. Decreasing dependence upon imports by establishing a domestic defense industry allows a state to mitigate the possible exogenous pressure form the exporting state as discussed in phases two and three (Ayres, 1983; Bjerkholt et al., 1984; Brzoska & Ohlson, 1986; Catrina, 1988; Ram, 1986; Rasler & Thompson, 1988) and four (Kinsella & Tillema, 1995; Kinsella, 1998; Sislin, 1994). This mitigation of exogenous pressure may impact the willingness of states to enter a dispute through decreasing the perceived costs of a dispute. Authors in phases three and four also suggested that with this decreased dependence a state might be more willing to pursue its regional aspirations by force (Baliga & Sjoström, 2004; Diehl & Crescenzi, 1998; Kydd, 2000; Rider, 2009; Sample, 1997). Moreover, by establishing a domestic defense industry a state is able to now provide its forces with resupply when it needs it the most, during conflict. This could have the effect of lowering the perceived cost of losses in a dispute.

The fourth chapter primarily focuses on the effect that military independence has upon the duration of a dispute. Dispute duration has been studied little in international relations literature, much less in terms of defense industrialization and arms transfers

American foreign policy literature as well as quantitative literature from the third and fourth phase suggests that arms transfers and military industrialization may increase the duration of a dispute. In both chapters, military independence will be examined through three different variables, military industry supplier diversification and level of foreign dependence. Failing to take into account both the number of importing partners as well as the value of its exports is a glaring weakness in the empirical literature. States, which have been studied in previous quantitative research such as Israel do not solely rely upon exports and possess a sizable and active military industry (Kinsella and Tillema 1995; Kinsella, 1998).

Chapter 3: Military Independence and Dispute Onset and Initiation

*"There is nothing more common than to find considerations of supply affecting the strategic lines of a campaign and a war."
- Carl von Clausewitz*

3.1 Introduction

Arms transfers²² and arms dependence have had a prominent status in international debate since the end of the World War II. Each year has ushered in technologically advanced, and, of serious consequence, more lethal weaponry. The supply side of the arms transfer system²³ has seen the number of state arms producers, originally a club of only a few powerful nations, explode exponentially. The number of state arm producers has expanded from 5 to nearly 100 nations since the end of World War II. States now seek to arm their military forces with weapons as diverse as the weapons producers themselves. While a state formerly had to pay for its weaponry with cash and political allegiance during the Cold War, today's arms market is much different. Buyers now gather at arms expositions and sample weaponry from a variety of producers. Buyers can enjoy demo flights in the most modern warplanes, or incentive rides in some of the most technologically advanced armored vehicles.

²² This paper deals only with transfer and production of conventional weapons. The definition of conventional weapons used in this paper is borrow from Stockholm International Peace Research Institute's (SIPRI): Major conventional weapons cover aircraft, armored vehicles, artillery, sensors, air defense systems, missiles, ships, engines, and other equipment designed for military use.(SIPRI, 2010)

²³ The arms transfer system refers to the environment in which international arms transfers take place. This system includes factors that affect both the production and purchase of military weaponry.

Buyers may also choose to call for open competitions where previous political rivals now vie for lucrative contracts.²⁴

All of these changes may be unsettling because we attach military industrialization and arms transfers to conflict,²⁵ but is this association valid? We know that to have the opportunity to participate in conflict, or the tools to wage war, weaponry alone does not result in conflict. After all, there are many nations who produce and purchase weaponry at a great rate, but rarely partake in conflict. Unfortunately, when we look to the literature on the topic, we are left with greater confusion. Not only does the literature present divergent conclusions, but there is also a dearth of empirical research. We are left with a handful of primarily qualitative policy literature that paints several different narratives about the relationship between military industrialization and arms transfers on state behavior and conflict. Two of the most prominent theories involve weapons deterring or exacerbating conflict behavior.

Deterrence theorists would have us believe that a state becomes more secure by increasing military capability. A state may increase military capability through

²⁴ Examples of competitions most recently include M-MRCA fighter competition and Brazil's F-X2 fighter competition. India's MMRCA competition was worth upwards of 12 billion dollars and had bids from the United States, Russia, France and the EU. The Brazilian FX-2 competition was worth 4.6 billion dollars and included bids from the US, France, EU, China and Sweden.

²⁵ Conflict and dispute may be used interchangeably but refer to the same concept, militarized interstate disputes. Militarized interstate dispute is defined as "Militarized interstate disputes are united historical cases of conflict in which the threat, display or use of military force short of war by one member state is explicitly directed towards the government, official representatives, official forces, property, or territory of another state. Disputes are composed of incidents that range in intensity from threats to use force to actual combat short of war" (Jones, Bremer, & Singer, 1996: 163)

arms transfers and military industrialization,²⁶ which is expected to deter potential adversaries by making the prospect of conflict too costly. Accordingly, governments and their defense industries advocate this belief as it is more tolerable, and less disagreeable than recognizing the death and destruction that weapons sew. Notwithstanding, it is also true that in many cases a strong military has proven to be a deterrent,²⁷ particularly in cases of states with nuclear weaponry.

Conversely, others argue that arms serve to exacerbate instability and promote more conflictual behavior. Confusedly, states that advocate arms transfers as a source of stability and security also embargo transfers to other states for the opposite reason, that weapons will destabilize and exacerbate conflict. Adding to these two camps, we are also left with a problem of endogeneity; often, the motivation to seek weaponry is directly related to dispute. States which are involved in a dispute or anticipate a dispute will purchase or produce weaponry to bolster their own military capability. It seems logical to associate the trade and production of weaponry to the occurrence of conflict but this may not always be the case for defense procurement, and so the confusion continues.

²⁶ Military Industrialization is the act in which a state actively invests in the construction of industry that will produce military weaponry.

²⁷ US President Obama was quoted as saying in regards to US arms transfers, “Supporting our partners not only lifts the burden from the shoulders of our military, but it also contributes to a more stable international order. To this end, we assess the ability of the recipient to field, support and appropriately employ the requested system in accordance with its intended end-use.”(Kausner, 2014)

This chapter argues that military independence alters how a state perceives costs associated with disputes by allowing it the ability to resupply and alter military capability when it is needed. In this respect increased military industrialization can provide both a deterrent and exacerbation effect on dispute behavior. It is hoped that this chapter will reduce the confusion about the causal relationship between military arms transfers and industrialization on state dispute behavior. By creating and testing three primary independent variables, military industry, foreign arms dependence, and arms supplier diversification, I investigate the effect that these variables have upon a states likelihood of being involved in disputes as well as the propensity to initiate disputes. I expect that both the presence of a domestic defense industry as well as decreased dependence on a sole supplier, exhibit a powerful effect on a state's conflict propensity.

3.2 Literature Review

The overwhelming majority of the literature concerning the role of arms transfers and conflict is descriptive and qualitative in nature. It is primarily concerned with developing nations and U.S. foreign policy. This is not to say that this literature should be ignored; to the contrary, this literature has provided the foundation for the current empirical research on arms trade and production's effect on conflict. This descriptive literature suggests that both acquisitions of military arms, and more specifically, production capability, act as a catalyst for dispute by allowing a state the

means to engage in conflict much more easily (Katz, 1984). Military industrialization in countries such as Israel and Argentine preceded (or motivated) future conflicts, like the Falkland's conflict and six day war (Katz, 1984) . However, there is a lack of empirical evidence linking arms transfers and military industrialization to dispute onset or initiation. This chapter seeks to remedy this problem.

Much of the previous literature perceived arms transfers as a tool available to policy makers in both superpowers during the cold war. As Andrew Pierre (1982) put it, "Arms transfers are foreign policy writ large". Arms transfers were used to both bolster allies as well as protect against conflict. Case studies were commonplace as authors sought to show how superpowers carefully used arms transfers to both exacerbate and mitigate conflicts around the globe (Pierre, 1981; Pollock, 1982; Wallace, 1979). This literature also suggests that states pursue military industrialization in response to the great amount of risk import dependence placed on the importing state (Ayres, 1983; Katz, 1984; Miller, 1980; Neuman, 1984). For examples of states that had pursued massive military industrialization in response to arms embargoes over unpopular conflicts authors pointed to South Africa, Argentina and Israel.

The weakness of this early literature is its lack of empirical evidence. This was not the consequence of a lack of desire for larger quantitative analysis, but a consequence of data availability and reliability. Although arms transfer and military

expenditure data did exist as early as the 1970's, it was limited in scope of nations as well as the reliability of the data. However, this literature provided the foundation for much of the empirical research on the arms trade by providing detailed case studies and theories for future empirical researchers to test.

Initial empirical studies exploring the effect of arms transfers on international conflict were concerned with the transfers between super power and their regional rivalries. Huth and Russett (1984) found that super power arms transfers to regional rivalries successfully deterred conflict from occurring. More recent studies on superpower arms transfers find that arms transfers had, at best, mixed effects. Arm imports to regional rivalries were found to be profoundly destabilizing, increasing the chances of conflict between the rivals (Gregory S. Sanjian, 1999; Wallace, 1979). However, others suggested that the level of import dependence significantly affected the importing states behavior in the rivalry (Kinsella, 1994, 1998b). David Kinsella (1998) found that as a state decreased its dependence on the superpower supplier, it was more likely to pursue policies that were not congruent to the supplying superpower, resulting in a more conflictive foreign policy.

The arms transfer system has changed dramatically since the end of the cold war arguably becoming more economically driven than at any time in the past. The number of suppliers has steadily increased and this has allowed states to become less reliant on one primary supplier. Reflective of these changes, current research on arms

and conflict has begun to explore the main effect of arms imports on state behavior, independent of superpowers or rivalries. Craft and Smalldone's (2002) study on arms imports to sub Saharan African states found evidence that suggests these arms transfers were instrumental to the onset of conflict between 1967-1997. Additional empirical research by Krause (2004) found similar effects of arms transfers on conflict onset but also found that increased imports also increased the chances that the importing state would be the initiator of a dispute.

Unfortunately, results from these empirical studies are not always consistent and have not allowed for a generalized understanding of the main effect that arms transfers and dependence may have upon state behavior. Some research suggests that arms transfers increase conflict prone behavior by giving the means to wage war (Bas & Coe, 2012; Craft & Smalldone, 2003; Duquet, 2009; Kinsella, 1998b; Krause, 2004; Mayer & Rotte, 1999) while others find that arms transfers may increase cooperative behavior and decrease the likelihood of a dispute (Kinsella, 1998a, 2002; Gregory S. Sanjian, 2001b)), or not affect the likelihood of conflict at all (Milstein, 1972; Suzuki, 2007). The best explanation for this mix of findings on the effects of arms on conflict is the under-specification in how states acquire their arms and their limited empirical domain. Many of these studies limit the scope of their research to particular regions or actors. By controlling for, but not restricting, the domain of actors we may obtain results that are more generalizable. These results will provide a better understanding of

the effect that arms transfers, production, and dependence have on state behavior concerning dispute onset and initiation.

3.3 At First Glance: Weapons Industry, and Importer Diversity

Figure one illustrates the rapid rise of active arms exporters, or military industries around the world from 1950-2010²⁸. We can see that following the post World War II period, there were very few states, save for the superpowers,

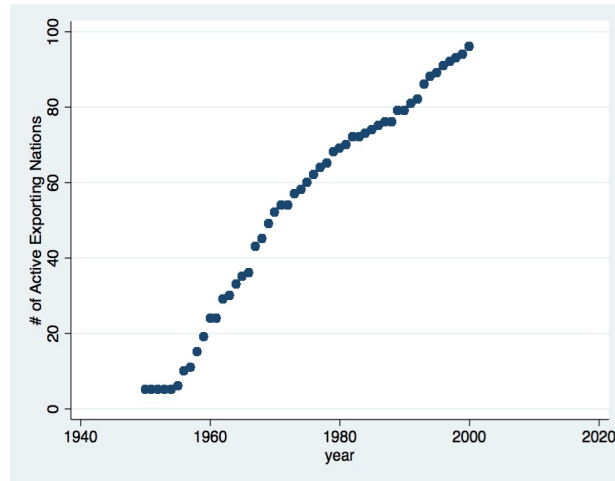


Figure 1: Number of Actively Exporting Nations by Year.

that actively transferred arms around the world. However, shortly before 1960, the number of states who transferred arms surged. With this increased supplier diversity, we should expect to find qualitative evidence that suggested a shift from the market being driven by the supplier to being driven primarily by the buyer,

²⁸ Arms Producers and Arms exporters are conflated in this dissertation because of the difficulty in coding producers. This is a glaring weakness in the the chapter however, It is also a strength. States that export can be considered as having industry that has passes a threashold of capacity. If an industry is developed enough to export it is most likely more able to affect state behavior than a small arms industry that does not export.

but we find the exact opposite during the Cold War²⁹. Scholars described arms transfers as heavily concentrated among two primary trading blocs, one centered around US arms transfer policy and the other around the Soviet Unions arms transfer policy (Kinsella, 2008) Arms transfers were, as Pierre (1982:3) termed “foreign policy writ large”. Superpowers traded weapons as a sign of goodwill and foreign policy congruence, and supply interruptions as punishment for actions converse to superpower interests. However, as the cold war came to a close, scholars’ increasingly suggested the growing influence of market forces, and the diminishing importance of foreign policy considerations, on arms transfers³⁰(Grimmett, 2002; Laurance, 1992).

Although the vast majority of states must rely to some degree on foreign sources of weaponry, the number of suppliers to choose from has grown significantly since the end of the cold war. During the cold war a state may have only had a few choices of producers to import weapon systems from, but today states may have multiple choices. The ability to shift suppliers mitigates the risks associated with

²⁹ A sellers market, in this case, would be arms transfers that are primarily dictated by the seller of the equipment. Conversely , a buyers market would refer to arms transfers that are primarily dictated by the wants and needs of the recipient.

³⁰ In a recent CRS report in 2012 for Congress, Grimmett and Kerr write, “Whereas the principal motivation for arms sales by key foreign suppliers in earlier years might have been to support a foreign policy objective, today that motivation may be based as much, if not more, on economic considerations as those of foreign or national security policy.”(Pg. 1)

dependency. Resource dependency theory³¹ has primarily been applied to study of organizational behavior, but it is salient in the case of states and arms dependency too. Research dependency theory argues that power is decided by how resources are distributed. Organization A's power over organization B is equal to organization B's dependence on organization A's resources. In order to mitigate risks, an organization must diversify its sources for resources by seeking other trade partners. Although a state's overall dependence on foreign resources does not change, it is able to mitigate risk by seeking multiple trading partners. High levels of import diversification may mitigate high levels of dependency. Embargoes or supply interruption, which would have crippled a state with low supplier diversification, may only be a minor inconvenience to states with greater supplier diversification,. Increased diversity may make the buyer less vulnerable to exogenous pressure and promises the buyer more liberty to undertake policies, including unpopular policies, such as war/dispute engagement/conflict. Even more, a state may choose to reduce risk altogether through domestically producing its own weapons.

³¹ On resource dependence theory see (G. F. Davis & Cobb, 2009; Hillman, Withers, & Collins, 2009; Pfeffer & Salancik, 1978)

Table I. Dispute Involvement by Weapons Industry

Dispute involvement	Observations	Mean
0	1345300	0.418
1	7083	0.539
	p =.0000	t(1.4e+6)=-20.56

Table II. Dispute Involvement by Number of Importers

Dispute Involvement	Observations	Mean
0	1088246	2.2
1	8928	2.32
	p=.0012	t(1.1e+6)=-4.90

In order to understand how the presence of a domestic defense industry or arms dependence relates to dispute initiation and involvement, I first examine the degree to which military dependence affects dispute involvement and initiation. To do this, I examine the bivariate relationship between weapons industry and supplier diversity, and dispute onset and initiation. In addition to the descriptive statistics, these

relationships are also t-tested to examine if there is a statistically significant difference between the groups³².

Table III: Dispute Initiation by Weapon Industry

Initiated Dispute	Observations	Mean
0	1090773	0.402
1	3368	0.57
	p=.0000	t(1.1e+6)=-19.79

Table IV. Dispute Initiation by Number of Importers

Initiated Dispute	Observations	Mean
0	898736	2.19
1	3329	3.1
	p=.0000	t(902063)=-24.39

Tables one and two present the results of t-tests concerning dispute involvement. The dependent variable in both tables is binary representing the

³² Exporting nations are classified as states, which export indigenously designed equipment. Arms transfers of second-hand equipment, as well as equipment that is licensed and not indigenously designed is not included. For a full list of states with military industries and when they became active exporters see appendix,

involvement in a dispute by a state. The independence variables differ between the two tables. Weapons industry, a binary variable, is the independent variable in table one and the number of arms imports, a continuous variable, is the independent variable of interest in table two. The results from table one show that the overwhelming number of the observations are characterized by no dispute involvement. However, results from this table suggest states that are involved in a dispute seem to be characterized by a higher level of weapons industry presence than cases of non-disputes (.539 to .418). This difference is statically different at the .001 level. Similarly, in table two, we find that states that are involved in disputes tend to have more weapons suppliers than states which are not involved in disputes (2.32 to 2.2).

When we turn our attention to dispute initiation we find similar results to that of dispute involvement. In these tables the independent variables remain the same as in tables one and two but the dependent variable changes from dispute involvement to dispute initiation, a binary variable. Results from table three suggest that states that initiate disputes are characterized by higher levels of weapon industry presence than those states who do not initiate disputes (.57 to .402). Moreover, results from table 4 suggest that states that initiate conflict will have on average a greater number of states from which they import weapons than those states that do not initiate disputes (3.1 to 2.19).

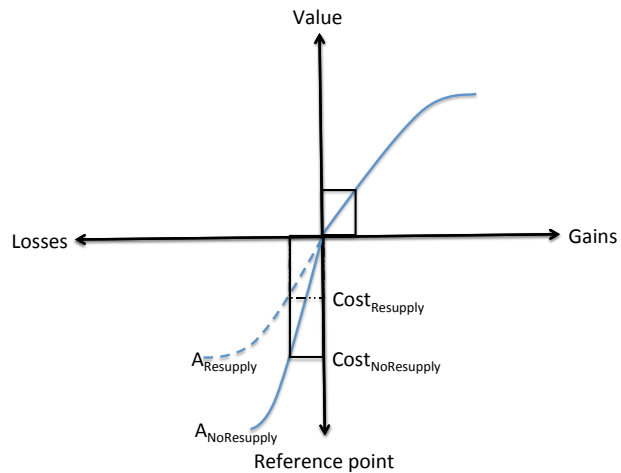
In all four tables we find that there is a strong significant difference between states which are involved in a dispute and states that initiate a dispute. States which possess a military industry may be more likely to be involved and initiate a dispute. Moreover, states that choose to import weaponry from a large number of suppliers may also be more likely to be involved and initiate a dispute. All of these results suggest that further research is warranted suggesting that weapons industry and military dependence have some sort of effect on dispute onset and initiation.

3.4 Theory and Hypothesis

The ability to resupply forces on the battlefield without fear of exogenous pressure can have profound effects on state behavior concerning disputes. The ability to resupply does not only alter a states military capability, but also its perceptions of the cost of engaging in a dispute, possibly making it more risk acceptant. I argue that increased military independence decreases the perceived cost of disputes and this change in cost is reflected in a state's likelihood of both being involved in, and initiating disputes.

Consider as an example, the relationship between State A and State B. State A has the ability to produce its weapons domestically and state B has no ability to produce nor procure weaponry. Although military capability may be the exact same between the two states, the state that produces its own weaponry, or can guarantee foreign resupply, has a lower cost of going into conflict because it does not perceive

loss in the same manner as a state with a finite military capability. For example, imagine that both State A and B are fielding a battle tank in combat, but State A produces the tank domestically and State B possesses the tank but has no ability to resupply.



The loss of the tank by State A is not perceived as high as the loss of a tank

Figure 2: How Resupply Affects the Prospect Theory S-curve.

for state B. State A can merely build another tank and replace the loss on the battlefield, thereby maintaining military capability. On the other hand, the loss of the tank for state B is seen as a sunk cost and decreases its military capability. In other words, the cost of war is contingent on the ability of a state to resupply its forces, and this decrease in cost alters how the state may perceive losses and risk.

Prospect theory allows us to explain how increased military independence affects how a state perceives losses in a conflict and how a change in perception can affect behavior. The concept and experimental foundations of Prospect theory are largely found in the economics literature of Kahnemann and Tversky(1979), Tversky & Kahneman (1992), Quattrone and Tversky (1988), and in apropos of international relations, in Levy (1992a, 1992b, 1997). This change in loss is illustrated in figure 2

of the prospect theory graph. The ability to resupply alters the shape of the S-curve in the domain of losses (moving from $A_{\text{Noresupply}}$ to A_{Resupply}) as well as the perceived level of cost (moving from $\text{Cost}_{\text{NoResupply}}$ to $\text{Cost}_{\text{Resupply}}$). A state will pursue military independence in order to improve the ability to resupply through two strategies, domestic production and importation. Arguably this decrease in cost may have the most profound effect on states that produce their own defense goods but this can apply to state which have the ability to resupply through foreign sources without the threat of supply cutoff. Since few states have the ability to create and sustain a domestic military industry that is able to fulfill all of its defense equipment needs, many states must rely on foreign sources for their military equipment needs. The more dependent a state is on foreign sources of weaponry, the more risk a state faces to supply interruptions, generally in the form of arms embargoes³³. The importation of weaponry increases a states military capability, which in turn may increase the probability of militarized dispute, but this dependency also puts the state at a risk for interruptions. Both domestic production and supplier diversification have an affect on cost by increasing military independence which results in lower perceived dispute costs for the state. Therefore, we would expect to find that the presence of a weapons industry, as

³³ Due to increased political pressure the United States placed an arms embargo on Argentina due to civil unrest during the Dirty War. South Africa was the recipient of a similar embargo during the 1970's and 80's due to its governing apartheid system.

well as increased supplier diversification and decreased defense dependence would increase the likelihood of both dispute involvement and initiation.

Hypothesis 1: The presence of military industry will increase the likelihood of a state being involved in and initiating a dispute.

Hypothesis 2: Increased supplier diversification will increase the likelihood of a state being involved in and initiating a dispute.

Hypothesis 3: Increased foreign military dependence will decrease the likelihood of both dispute involvement and initiation.

However, the advantage that increased military independence gives a state can only be reaped in disputes which involve states with dissimilar abilities to resupply. For example, imagine that state A and B both have the ability to resupply their forces through domestic resupply. Although the perception of costs pertaining to battlefield losses lowers in each state the advantage of one state over the other is no longer applicable. The advantage of resupply is no longer a great advantage when your opponent can do the same. Therefore, we would expect that states with military industry are less likely to initiate disputes with each other since a state may be less

inclined to be involved in a dispute if it foresees the ability of the opposing state to respond quickly and in strength to a foreign aggressor. Similarly, states with low military dependence and increased supplier diversification should be less likely to be targets of disputes because of their increased ability to resupply.

Hypothesis 4: States with military industries are less likely to initiate disputes with each other.

Hypothesis 5: States with military industries are less likely to be target states.

Hypothesis 6: States with increased levels of supplier diversification will be less likely to be the targets in a dispute.

Hypothesis 7: States with increased levels of military dependence will be more likely to be targets of disputes.

Lastly, the problem of endogeneity must be addressed. Many states that have developed a domestic defense industry have developed it in response to supply interruptions during conflict. States such as Argentina, Israel, and most recently Nigeria have pursued domestic military industrialization in response to embargoes or unreliable transfer relationships(Forrester, 2015). We find the same motivation when

we look at recent trends in supplier diversification. States such as Saudi Arabia and Egypt³⁴ have sought multiple suppliers for foreign weaponry directly citing embargoes placed on them and (Cordesman, 2009; Korany, 2008). States such as the United States have limited transfers to states such as Egypt³⁵ and Nigeria³⁶ in response to internal political pressure concerned with how those importing states were handling inter and intra-state disputes. It may be the case that those states that seek to diversify or build domestic defense industries are already prone to engage in disputes. Accordingly, we would further expect results supporting Hypothesis 1, 2 and 3.

3.5 Data and Methods

The primary dataset used in this chapter was the Correlates of War Militarized interstate dispute 4.1 dataset (Palmer, D'Orazio, Kenwick, & Lane, 2015). This dataset includes information regarding militarized interstate disputes spanning from 1816-2010. The basic directed dyad dataset was built using EUGENE. When testing conflict onset the variables are limited to State A in the directed dyad as any inclusion of

³⁴ A recent 5.9 billion dollar deal for 24 Rafale jet fighters from France illustrates the Egyptian push toward further defense diversification. In a recent news article retired Egyptian Army Officer and Military expert Ahmed Abdel Halim was quoted as saying, "The diversification of the supply of weapons and technology is aimed at dissuading any country from exercising a monopoly over Egypt or of trying to blackmail it," (El-Tabei, 2015)

³⁵ In response to regional and government instability in Egypt in 1013, "The USA suspended the scheduled deliveries of 12 F-16 combat aircraft, M-1A1 tanks and 10 AH-64D combat helicopters. Spain halted the scheduled delivery of C-295 transport aircraft. However, Russia delivered 14 Mi-17V-5 helicopters and continued to market its weapons to Egypt" (Wezeman & Wezeman, 2014:9)

³⁶ Due to the Leahy Law the United States has not been able to transfer arms to Nigeria since 1996 because of human rights violations.

directed comparison variable would be nonsensical. The limitations of other variables included in this study limit the timespan of the analysis to 1950-2010. Because of the limitations of other variables included in this study the timespan had to be shortened to 1950-2005. Although the timespan is shortened there remains a large number of observations for both onset and initiation analysis allowing for robust statistical analyses.

3.51 Dependent Variables

Within this chapter there are two dependent variables of interest, the likelihood of dispute onset and likelihood of dispute initiation. Both dependent variables are binary. Each analysis utilizes a statistical method that is appropriate for the level of measurement of the dependent variable.

3.52 Primary Independent Variables

Within each model there are three primary independent variables of concern, military industry, diversity of exporters, and dependence on imports. Each variable represents, in some form, a lessening of dependence upon external reliance on weapons. When appropriate each primary independent variable is separated by initiating state and target state (State A and State B respectively).

Military industry is a binary variable with a state being given a value of one if it operates a military industry producing weapons that are being actively exported.

This data is compiled by reviewing SIPRI arms transfer database and coding based on whether or not the state is exporting an indigenously produced good. By coding based on active exports a sort of threshold of production is met. States that may produce at a low level but do not export are excluded in this analysis. Although this exclusion does not allow us to capture all producing states in the system, low-level production is likely not to affect state behavior to the same extent as large production. This dissertation assumes that a state producing and exporting a weapons system is possesses a defense industry that is able to significantly impact the military capability of a country.

The second independent variable of interest is the diversity of exporters. This variable was constructed using the SIPRI arms transfer database by counting the number of unique nations a state is importing weaponry from during a 3 year period prior the year in question. This variable measures the number of states the country has been importing from in the previous 3 years. The reason why a 3-year lag was utilized was to ensure robust results. If a state transfers arms with another state these ties may stay intact and ensure future transfers, therefore, just because a state is not importing from a past exporting state does not mean that it is not going to do so in the future.

The third independent variable of interest is dependence. This variable is measuring in millions of dollar (Constant 2011) and is borrowed from the SIPRI arms transfer database and the Correlates of War 4.1 database. Dependence is constructed

by subtracting the amount of arms imported by the amount exported, and dividing it by the importing states real gross domestic product per capita which is borrowed from the Penn World Tables database(Heston, Summers, & Aten, 2012). Previous empirical research concerning arms transfers and their affect on foreign policy behavior did not account for the production of arms in states that import weaponry (Catrina, 1988). Kinsella (1998) treated states such as Israel and India as if they were solely reliant upon foreign arms transfers when they have a robust defense industry. This variable attempts to take into account that the level of dependence varies when a state is using arms exports to offset arms imports.

3.53 Control Variables

This study includes 7 control variables in each model. Control variables, which are commonly found in studies of conflict, are included in the model including contiguity, capability, capability ratio, cold war, total population, military expenditure, cold war, polity score, major power status, region, and defense pacts, all of which have been suggested to have a significant impact on conflict dynamics. When appropriate each primary independent variable is separated by initiating state and target state (State A and State B respectively).

In order to control for “geographic conflict opportunity” a variable measuring *contiguity* between the states in the dyad is included. Contiguity is defined as the

degree to which 2 states are contiguous.³⁷ Previous empirical studies have suggested that contiguity may provide a pacifying affect to dispute onset and possibly initiation (Senese, 2005). The majority of robust defense industries lie within major powers so *major powers* is included using COW 4.1 coding for major power states. Polity is included in order to control for the type of government. This variable is borrowed from the PRIO polity IV dataset (Pettersson & Wallensteen, 2015).

Cold war is a dichotomous variable delineating the time period before 1990. Scholars have suggested that the way in which countries trade and produce arms has shifted since the end of the cold war. Primary motive for the transfers of weapons has shifted from primarily foreign policy considerations to market driven dynamics (Bitzinger, 2011; Brzoska, 2004; Kinsella, 2008; Laurance, 1992). Moreover, this shift may have also affected whether countries choose to invest in a domestic military industry since there are now a plethora of arms productions to purchase from.

Capability is constructed using EUGENE and included only in models testing dispute onset. In order to control for the capability of one state relative to the other *capability ratio* is computed by dividing State A's CINC score (Singer, Bremer, & Stuckey, 1972) and state B's CINC score. This is utilized in order to control for differences in capability between the states engaged conflict. In order to control for possible influence of defense pacts on a dispute the variable *defense pact* is included

³⁷ Contiguity is coded using the Correlates of War Scale which is comprised of 5 categories, one for land contiguity and four for water contiguity. (Stinnett, Tir, Diehl, Schafer, & Gochman, 2002).

which is borrowed from the Alliance Treaty Obligations and Provisions (ATOP) dataset (Leeds, Ritter, Mitchell, & Long, 2002).

In order to address possible regional effects the variable *region* is included in the model and is constructed using the Correlates of War 4.1 coding scheme for regions.³⁸ The reference region is set for region 10 or Oceania. This region is chosen as the reference because of its low variability and low levels of arms transfers and production, allowing easy interpretation of the region variable.

3.54 Methods

When testing both onset and initiation this chapter utilizes a logistic regression model with robust standard errors. A logistic regression model is chosen because both dependent variables of interest are binary in nature. The incorporation of robust standard errors into the logistic regression model ensures that any heteroskedasticity however minute present in the model does not affect both the confidence interval estimates nor coefficients and makes the model more robust.

³⁸ Regions are coded from 1-10: 1=North America/Central America; 2=South America; 3=Western Europe; 4= Eastern Europe; 5= West Africa; 6=Sub-Saharan Africa; 7=North Africa/Middle East; 8=Asia; 9=Southeast Asia; 10=Oceania. Regions are referenced from 10 for Oceania.

3.6 Results

Table V. Dispute Onset in Directed Dyads, 1950-2010

	(1)	(2)	(3)
Military Industry	0.0965***	0.0760**	-0.106***
	-0.0358	-0.0371	-0.0402
Import Diversity		2.724***	2.267***
		-0.131	-0.138
Military Dependence			9.830***
			-0.66
Defense Pact	-0.0865	-0.109**	-0.137**
	-0.0491	-0.0506	-0.0539
Major Power	0.664***	0.741***	0.712***
	-0.0853	-0.0808	-0.0863
Democracy	0.00105**	0.000258	3.73E-05
	-0.000492	-0.000529	-0.000611
Capability	8.651***	7.249***	7.970***
	-0.62	-0.569	-0.592
Contiguity	-0.771***	-0.761***	-0.745***
	-0.00654	-0.00668	-0.0071
Region	0.0961***	0.0920***	0.0814***
	-0.0075	-0.0079	-0.00834
Cold War	-0.0476	-0.152***	-0.145**
	-0.0467	-0.049	-0.0567
Constant	-1.840***	-1.870***	-1.740***
	-0.0818	-0.0878	-0.097
Observations	743,586	628,482	501,116

Robust standard errors reported below the coefficients

*** p<0.01, ** p<0.05

3.61 Onset

The first set of tests assesses the effect that military independence may have upon dispute onset. As the previous discussion notes, increased military independence alters the way in which a state may perceive costs which can make a state more likely to be involved in a dispute. Table 5 presents results from 3 separate estimates of the likelihood of being involved in a dispute. Each model is additive. We begin with model 1 which only concerns military industry presence, and each subsequent model adds another primary independent variable related to military independence.

In models 1 and 2, military industry remains significant and positive. These results suggest that the presence of a military industry increases the likelihood that a state will be involved in a dispute which gives partial support for hypothesis 1. However, this positive effect drops out when military dependence is placed in the model giving hypothesis one only partial support. This result, although interesting, should not be all that surprising. Dependence is calculated by taking into account states that both export and import weaponry, recognizing that states which produce weaponry are all not the same. Many states which produce and export weaponry cannot fulfill their entire need for defense equipment. The fact that military industry is significantly positive until the inclusion of military dependence suggests that the level of foreign dependence may be of greater importance to state behavior than the presence of a defense industry.

Import diversity on the other hand remains positive and significant in both models 2 and 3. That the practice of diversifying suppliers increases the likelihood that a state will be involved in a dispute which supports hypothesis 2. However, running counter to hypothesis three, military dependence is found to be positive and significant. The models suggest that as dependency increases the likelihood of being involved in a dispute increases.

All of the control variables performed as expected. Increasing capability, major power status and region is positive and significant.³⁹ Defense pacts as well as contiguity are negative and significant suggesting that the presence of defense pacts may have a pacifying effect on dispute involvement but closer proximity increases the likelihood of dispute onset.⁴⁰ Cold war is significant and negative through all three models suggesting that states were less likely to be involved in conflict during the cold war than in the post -Cold War era.

3.62 Initiation

³⁹ These results support previous findings. Reed (2000) found that increasing capability resulted in a greater probability for conflict onset.; Kinsella and Russett (2002) found that Major power Status was a robust predictor of conflict onset.

⁴⁰ Johnson and Leeds (2011) also find that defense pacts have a pacifying effect on dispute involvement and initiation. However, this is not to say that contiguity does not matter. Lemke and Reed (2001) found that contiguity played a large role in great power rivalry. However, when concerned with all states and not just a subset contiguity as an indicator of dispute onset washes out. These results might support findings but Senese (2005) that other factors such as territorial issues interact with contiguity to produce a positive effect of dispute onset in contiguous dyads.

Table VI. Dispute Initiation in Directed Dyads, 1950-2010

	(1)	(2)	(3)
Military Industry Target State (State B)	0.335*** -0.0841	0.510*** -0.0903	0.516*** -0.105
Military Industry Initiating State (State A)	0.326*** -0.082	0.453*** -0.0913	0.299*** -0.108
All Posses Military Industry	-0.387*** -0.108	-0.646*** -0.115	-0.658*** -0.134
Import Diversity Initiating State (State A)		1.342*** -0.287	0.706 -0.365
Import Diversity Target State (State B)		0.939*** -0.351	1.267*** -0.392
Military Dependence Initiating State (State A)			13.37*** -0.965
Military Dependence Target State (State B)			8.926*** -1.476
Defense Pact Initiating State (State A)	-0.0978 -0.0865	-0.141 -0.0899	-0.145 -0.109
Defense Pact Target State (State B)	-0.833*** -0.0741	-0.785*** -0.0784	-0.772*** -0.0924
Major Power Initiating State (State A)	1.455*** -0.0685	1.569*** -0.0784	1.775*** -0.0879
Major Power Target State (State B)	1.377*** -0.0719	1.373*** -0.0735	1.560*** -0.0818
Democracy Initiating State (State A)	0.00286*** -0.00111	0.00189 -0.00129	-0.000191 -0.00161
Democracy Target State (State B)	-0.00776*** -0.00101	-0.00840*** -0.00121	-0.00901*** -0.00143
Capability Ratio	1.82E-06 -1.28E-05	-0.00322*** -0.00111	-0.00369** -0.00165
Contiguity	-0.803*** -0.0114	-0.778*** -0.0117	-0.731*** -0.0131
Initaiting State Region (State A)	0.00681 -0.0134	0.00307 -0.0147	-0.00492 -0.0168
Target State Region (State B)	-0.00125 -0.0134	0.00407 -0.0143	0.00859 -0.0161
Cold War	0.561*** -0.0912	0.439*** -0.101	0.784*** -0.148
Constant	-2.209*** -0.168	-2.328*** -0.188	-2.846*** -0.242
Observations	506,483	374,715	242,855

Robust standard errors displayed below the Log-Odds coefficients

*** p<0.01, ** p<0.05

Table six presents the results of the logistic regression concerning dispute initiation. Similar to the previous table concerning onset each model is additive beginning with model 1 which includes only the primary variables related to military industry. When we examine military industry presence we find many interesting findings. First, the results suggest that military industry in both the initiating state and target state increase the likelihood of dispute initiation. This supports hypothesis 1 but refutes hypothesis 5. A military industry in the target state does not seem to provide any type of deterring effect for the producing state. However, when all states in the dispute possess a military industry the likelihood to initiate a dispute is significant and negative providing support for hypothesis 4. This result would suggest that states do take into account the ability of the opposing state to resupply its forces thereby negating the cost benefit that defense production may provide a state.

Other factors affecting military independence such as supplier diversification and military dependence are positive and significant in all models for both the target and initiating state which paint a confusing picture for the hypotheses. Supplier diversification is a positive and significant indicator of dispute initiation and being the target in the dispute. These results support hypothesis 2 but refute hypothesis 6. It seems that even if a state does increase its ability to resupply its forces and increase its military capability through supplier diversification it does not have a deterring effect on

dispute initiators. The results suggest that military dependence may make the state a more likely target state in disputes. The more dependent the state is upon foreign supply the less able it is to mitigate the costs associated with disputes as a state which is highly independent. This result supports hypothesis 7 but refutes hypothesis 3.

3.7 Conclusion

The results presented in Tables V and VI provide valuable insight for the future of research concerning arms transfers and production. The findings from this paper seem to suggest that peace is found in production, and conflict is found through importation. The possession of a military industry is shown to decrease both the number and likelihood of dispute onset and initiation. This finding runs counter to many common perceptions of the military industrial complex as being a monolith leading us toward war. Although the results indicate that the production of weaponry *decreases* the likelihood of conflict, the results suggest that the importation of those arms *increases* the likelihood of conflict. This also represents the first time that military industry has been empirically tested.

The results from the dependency variable are startling in both its consistency, and strength. In all models dependence is strong, significant, and positively contributing to the number of disputes and initiations, as well as the likelihood of dispute onset and initiation. This result may be telling us two differing stories. First, increased dependence increases the chance of dispute onset and initiation, which runs

counter to arguments of supplier coercion against conflict (Pierre, 1982), and further supports arguments that arms imports exacerbate tensions (Collier & Hoeffler, 2007). Second, the results suggest that the more independent a state is, the less likely it is to be involved in or initiate disputes, which further bolsters the findings for military industry variable. The more states export, and offset their imports, the less likely they are to be involved in or initiate disputes.

What is concerning about the results for dependency is what these findings could be suggesting. Echoing the results from Kinsella (1998b), it may be that states who are highly dependent are not as susceptible to supplier coercion, and hence they behave independently of coercion. However, these results may also indicate that supplier states are using importing states to engage in disputes by proxy. Literature suggests that giving aid to proxy wars was a common practice by the two superpowers during the cold war, but it is concerning that this practice may still be occurring. These results should make us question the motives of states that export arms.

The import diversity variable, another tool for the state to reduce dependency, shows mixed results. These results suggest that as a state increased suppliers it is more likely to be involved in a dispute, but this relationship did not hold for dispute initiation. This could reflect an overall increase in arms suppliers and therefore all states are increasing diversity. The variable may also indicate that the only

mechanism of dependency that truly matters is the overall amount that a state imports, represented by the dependency variable.

From a policy perspective, those opposing military industrialization should not argue their opposition based upon the assumption that it may make a state more conflict prone. However, the results support policies that seek to curb and control weapons exports in order to decrease dispute behavior. Not only do the results suggest that increased imports result in more disputes, these imports seem to embolden the state to initiate disputes.

Chapter 4: Dispute Duration and Military Independence

*“Logistics is the stuff that if you don’t have enough of, the war will not be won
as soon as.”*
-- General Nathaniel Green, Quartermaster, American Revolutionary Army

4.1 Introduction

This chapter argues that the level of a state’s military independence plays a crucial role in conflict duration through the mitigation of uncertainty. States possessing a military industry, as well as increased supplier diversity, are predisposed to signal intentions and strength that allows for very little information asymmetry during a dispute. This decrease of uncertainty results in faster issue convergence than states with no military industry, or decreased supplier diversity. More specifically, domestic military industry⁴¹ presence significantly shortens the duration of disputes⁴² when both states involved possess a military industry. Similarly disputes which are

⁴¹ Domestic defense industry refers to any industry that produces weaponry to be used domestically as well as exported (E.G. Boeing, Lockheed Martin, Dassault, Sukhoi). The operationalization of this variable will be discussed more in depth in the data and methods section in this chapter.

⁴² I use militarized interstate disputes and dispute interchangeably in this chapter. I use the Correlates of War definition of a dispute which is defined as, “united historical cases of conflict in which the threat, display or use of military force short of war by one member state is explicitly directed towards the government, official representatives, official forces, property, or territory of another state. Disputes are composed of incidents that range in intensity from threats to use force to actual combat short of war” (Jones et al. 1996: 163).

characterized by high levels of supplier diversity⁴³ and low levels of foreign military dependence should also decrease the level of uncertainty in the dispute and lead to shorter duration disputes.⁴⁴ Using bargaining theory this chapter argues that increasing military independence results in shorter duration disputes. To test this argument, I employ new data on military industry, military importers, and disputes ranging from 1950 to 2005. The results suggest that the involvement of a states possessing a domestic military industry shortens conflict duration when compared to disputes that do not involve states with domestic military industries. Moreover, the results suggest that states that possess higher supplier diversity are associated with significantly shorter disputes. Collectively, this study suggests that the ability to produce and ensure resupply helps generate battlefield outcomes that more rapidly resolve information asymmetries among combatants, leading to shorter disputes.

The relation between military equipment and conflict is an apparent one; you need one to engage in the other. To that end, nations have placed great importance on possessing the most technologically advanced weaponry available, with some nations actively seeking to develop the means to produce this weaponry domestically. Concerned states and international institutions have also sought to control or curtail the proliferation of weapons by enacting arms embargoes and arms control policies to

⁴³ Supplier diversification refers to recipient nations importing weapons from multiple suppliers. The operationalization of this variable will be discussed more in depth in the data and methods section in this chapter.

⁴⁴ Role denotes whether the state is the target or initiator of the dispute.

better ensure stability in tense regions around the world. Arms shipments to Syria have been widely criticized as prolonging and intensifying the Syrian civil war.⁴⁵ Similar arguments have been made concerning arm shipments to the Ukrainian conflict. Does the ability to resupply weapon reserves, more easily attained through a domestic military industry over military dependence, prolong conflict? If a domestic military industry does prolong conflict, how strong is this relationship? The extant literature offers little empirical evidence to support this ambiguity. This chapter seeks to address these questions by investigating if, and how, arms transfer dependence and military industry affect dispute duration.

Traditionally, studies concerning arms and disputes narrowly focus on the amount of military capability a state possesses at the time of the dispute. However, this chapter takes a novel approach by focusing on how these states *obtain their* military weaponry and how different strategies of weapons acquisition affect behavior during a dispute through altering uncertainty in the bargaining framework. This focus advances beyond the limited focus on the mere possession of weapons. The logic supporting this position can be summed up into one important aspect of military capability: *resupply*. Without the prospect of resupply, a state confronts a finite reserve of power to navigate a dispute. The 1941 Battle of Britain illustrates this dilemma. By 1941, the

⁴⁵ US senator John McCain openly opposed the idea of supplying Syrian rebel forces saying, that assistance “may even just prolong [the conflict]” .<http://foreignpolicy.com/2013/02/14/shopping-option-c-for-syria/>

Battle of Britain had taken a toll on both the British economy and military. Britain was running out of money, aircraft and munitions to stave off a German offensive. With Britain in desperate need of resupply, the United States began to send extensive supplies of war material to the beleaguered British Forces through the Lend-Lease Act (1941). The British forces would have likely been overwhelmed were it not for the prospect of resupply, as would any nation whose military capability was dwindling during a conflict.

When a state engages in a dispute, it accounts for its own power, or military capability, as well as the power of its adversary. It is important to note that military capability is not considered solely in terms of military equipment at any single moment. Military capability must consider potential military power. Potential power accounts for resupply. Resupply permits an actor to maintain military capability over a period of time, especially when this actor is incurring battlefield losses. The ability to resupply also alters the way in which an actor may view the opposing actor. There exist a number of historical examples where military leadership promised its domestic audience a short conflict without considering in the ability of an opposing state to resupply its military. Germany's 1941 Barbarossa Operation is a great example of such misjudgment. The ability of Russia to build and resupply its battlefield losses was much greater than what the German Wehrmacht predicted. This imprudence led to

stalemate only miles outside of Moscow and an eventual German retreat as Soviet forces overwhelmed the German military.

A state has many means by which it can ensure or increase its potential military power. A state can develop a domestic military industry, much like the United States and Russia. This prevents an exogenous risk to the ability to resupply. A state can also depend on foreign suppliers for its weapons. This strategy comes with risk, however. The supplier may interrupt arms transfers if it chooses to leverage its position to coerce the behavior of the importing state. Scholars in the past have argued that Cold War superpowers used this strategy to avoid costly disputes in the Middle East and Asia (Kinsella 1994; Sanjian 1999)⁴⁶. In order to mitigate this risk, a dependent state may look to diversify supply through multiple suppliers, in order to diffuse risk.

The following pages unfold into five sections. In the next section, I review the relevant literature on military dependence and its effect on dispute duration. In the following section I investigate the descriptive statistics concerning military dependence and dispute duration to build a case supporting further statistical analysis. Next, I present theory that marries military independence and dispute duration. From

⁴⁶ Kinsella (1994) found that United States arms shipments to Israel had the effect of decreasing the chance of conflict by using the arms as leverage. The Israelis took this problem of resupply into their calculus for war with President Golda Meir being quoted as saying, “I know all the arguments in favor of a preemptive strike, but I am against it. We don’t know now, any of us, what the future will hold, but there is always the possibility that we will need help, and if we strike first, we will get nothing from anyone.”(Quotes in Reich 1991,60)

the theoretic portion, I derive hypothesis that consider which military dependency variables affect the duration of disputes and conflicts. Next, I discuss the variables and methodological approach. There, I report the results from the empirical analysis. I conclude with a discussion of the implications of the findings for scholarly research and policy making, as well as considerations for further research.

4.2 Literature Review

Despite the insights provided by earlier theoretical, empirical, and case study work, the impact of arms transfers and dependence has yet to be explored in a systematic and comparative manner. Furthermore, compounding the problem is that the relationship between arms transfers and dependence on interstate war duration is vastly understudied. It is difficult to say with certainty exactly what is the cause of this dearth of research, but one reason may be its relative obviousness. Military weapons are directly connected with conflict and disputes. In order to engage in a conflict one must have weapons, but more importantly, if one is to survive for any period of time in a conflict one must have the ability to resupply. We only need to look at the numerous real world examples to find evidence of this fact. Long duration wars, such as those in Vietnam and Afghanistan relied on a constant resupply of foreign made weaponry to resupply beleaguered forces.

However obvious the link between duration and weapons may be, we are still left with little empirical research. Early descriptive research on the arms trade

suggested that the military industrialization occurring in the late 70's and early 80's would result in more disputes of higher intensity, and longer duration (Katz, 1984, 1986). Much of the arms transfer and dependence literature during this period was nested in the larger context of superpower rivalries supplying proxy wars involving third world nations. Authors asserted that arms transfers were seen as a foreign policy tool used to increase influence around the world (Brzoska & Ohlson, 1986; Pierre, 1981, 1982). However, authors during this time period did suggest that arms transfers could also be utilized to deter or decrease dispute duration in cases where superpower involvement was possible (Brito, 1984; Catrina, 1988; Guetzkow & Schelling, 1966; Milstein, 1972; Wallace, 1979). Although the number of states pursuing military industrialization continues to increase, previous assumptions concerning why a state may pursue military industrialization may not be as salient as previously thought.

Foreign policy interests of the two superpowers primarily motivated arms transfers during the cold war. States participating in arms transfers tended to fall into either the soviet or US superpower block and their transfers reflected these political alliances (Kinsella, 2008). States such as Israel and Argentina were punished with arms embargoes if their actions harmed super power interests in their respective regions. States would not be able to pursue alternative sources of weaponry without taking a great deal of risk both politically and economically. These arms embargoes are thought to have directly motivated the push towards military industrialization because

of the fear of not being able to resupply forces during a longer duration conflict (Katz, 1984); other).

More recent descriptive scholarship has suggested that the transfer of weaponry to states involved in conflicts can both increase fatalities as well as duration. Moreover, the link between arms acquisitions and conflict duration is thought to be so strong that the United Nations directly addressed the increasing arms trade by suggesting more stringent controls on international arms transfers.

“While not by themselves causing the conflicts in which they are used, the proliferation of small arms and light weapons affects the intensity and duration of violence and encourages militancy rather than a peaceful resolution of unsettled differences. Perhaps most grievously, we see a vicious circle in which insecurity leads to a higher demand for weapons, which itself breeds still greater insecurity.”(General Assmembly Resolution 50/70B, 1997)

In a similar action, the International Red Cross also issued its own recommendations condemning international arms transfers because of the belief that these transfers would adversely affect civilian populations in conflict zones (1999).

It was only recently, as statistical techniques measuring duration became more readily available, that link between arms and conflict duration was explored empirically.

Democratic peace theorists in trying to explain the lack of conflict between democracies found that when democracies do engage in conflict those conflicts are of shorter duration than conflicts initiated by autocracies (Reiter & Stam, 1998). Competing theories tried to explain this finding by pointing toward selection effects and differences in military performances. Scholars asserted that democratic leaders selected conflicts with weaker foes because of the risks associated with losing a conflict (Bueno De Mesquita, Smith, Siverson, & Morrow, 2003; De Mesquita, Morrow, Siverson, & Smith, 1999). Tests controlling for regime type found little evidence to support selection effects and suggested that regime type had little to do with engaging in shorter conflicts (Gibler & Miller, 2012). Reiter and Stam (2002) pointed toward differences in military capability, primarily concerning manpower, arguing that democratic countries possess more professional forces that are both more efficient and determined when engaging in conflict.

However, much of the recent data comes from empirical studies on civil war and arms procurement. Although the unit of analysis is different, the underlying logic of how arms affect conflict duration can be extended to interstate disputes. Elbadawi and Sambanis (2000) found that factors which assist the military capability of a

fighting force had the effect of prolonging the duration of a civil war. Similarly, Gleditch et. al(2009) suggested that rebel groups with high arms procurement capacity tended to be involved in longer duration conflicts citing the Soviet-Afghan dispute in the 1980's as a prime example. Conversely, the authors offer the rebel movement in Papua New Guinea as an example of how the inability to procure weapons can doom the lifespan of a rebel group, thereby decreasing dispute duration.

Moore (2012) found evidence suggesting that the importation of conventional arms by rebel groups leads to deadlier and longer conflicts with government forces. The ability of a rebel group to acquire advanced weaponry was found to have a number of implications on intrastate conflict. First, the acquisition of weaponry allows a rebel group to directly engage government forces. In the case of Afghanistan the acquisition of major anti-air weaponry from the United States meant that the Soviet Union could no longer operate with relative impunity throughout the country in the Soviet-Afghan conflict. This inability to operate allowed the rebels to move freely around the country and reinforce beleaguered fighters. Other research has followed suit, finding more evidence of arms transfers affecting conflict duration in rebel movements in Colombia, and Myanmar by allowing rebel forces to survive and participate in direct engagements with regular government forces (Jonsson & Brennan, 2013; Balch-Lindsay & Enterline, 2000).

What is missing from many of these studies is the effect of supplier diversity and varying levels of dependence on duration of disputes. We could assume that since the literature is dealing with arms imports, importing states are dependent to some degree on foreign sources of weaponry, but the level of dependence is not directly measured. Both the number of arms suppliers as well as the level of dependency and its effect on conflict duration will be investigated on the following pages.

4.3 Descriptive Statistics

Table I. Dispute Duration (Months)

	<i>Mean</i>	<i>Standard Deviation</i>	Observations
All MIDS	4.88	12.6	4049

Within the dataset being utilized in this chapter there have been 4049 militarized interstate disputes from 1950 to 2010. These disputes have varied greatly in length, ranging from under a month to a maximum of 161 months. Table 1 provides descriptive statistics regarding MIDS and their duration. The average duration of a dispute is 4.88 months with a standard deviation of 12.6 months.

In order to examine how military industrialization and military dependence interact with dispute duration, I first investigate basic descriptive statistics concerning both domestic military industry and supplier diversity. In Table 2, there is an increase

in dispute duration as the number of supplier's increase, albeit by a small margin. This effect may be tempered by large standard deviations in each level of suppliers. On the

Table II: Number of Arms Suppliers and MID Duration

Number of Suppliers	<i>All MIDS</i>			<i>Fatal MIDS</i>		
	<i>Mean</i>	<i>Standard Deviation</i>	<i>Observations</i>	<i>Mean</i>	<i>Standard Deviation</i>	<i>Observations</i>
0	3.9302326	8.004071	258	9.1578947	11.367394	38
1	3.4535714	7.6636345	560	6.109589	10.740271	146
2	2.2897727	4.3219585	352	2.8461538	4.199805	78
3	2.7368421	5.8750589	380	7.9705882	10.637824	68
4	4.2972973	8.424709	296	11.076923	14.55193	52
5	2.1	3.8611107	160	2.0769231	2.8972135	26
6	3.5384615	6.9929686	130	12	11.55525	22
7	3.1794872	12.081695	78	14.714286	26.045607	14
8	2.5	2.544836	64	4.3333333	1.8748737	12
9	4.1176471	6.6186742	68	3.6666667	4.3762444	12
10	4.8148148	18.404341	54	48	55.425626	4
11	0.33333333	0.9701425	18	N/A	N/A	N/A
12	3.625	6.4897355	16	15	0	2
13	0	0	4	N/A	N/A	N/A
Total	3.2296965	7.3948204	2438	7.2194093	12.522553	474

same table we find when we only include disputes that resulted in conflict, the average dispute duration increases considerably, despite the continued trend of decreased duration with increased importers with an average dispute duration of 7.219 months.

Table III. Dispute Duration (Months) and Military Industry (All, Mixed, None)

	<i>All MIDs</i>	<i>MIDs resulting in fatalities</i>
All	3.23	8.49
Mixed	2.6	5.24
None	3.99	8.22

Note: All= Both States have a Weapons Industry; Mixed= 1 of 2 states has a Weapons Industry; None= 0 States have Weapons Industry

Lastly, the results from table 3 demonstrate that domestic military industry may also affect the duration of a conflict by allowing a state the capacity to produce weapons domestically without inheriting the risks associated with being reliant on foreign suppliers. This table is delineated by three different groups of dyads based upon military industry presence. When we consider all MIDs in table 3, we find that dyads in which all states possess a military industry result in a dispute duration on average of 3.23 months. This results are shorter than dyads in which no states have military industry but longer than dyads in which there are state who do not possess and states that possess a military industry. When only considering MIDS that result in fatalities we find that the average dispute duration increases considerably. Again we find that mixed dyads have shorter disputes but dyads that involve military industry in all states are now on average the longest length dispute.

Results from these tables are interesting in that we find that the presence of a defense industry, as well as the number of suppliers a state may possess, seems to

affect the duration of a dispute. However, these tables do not control for other intervening effects that may affect the duration of a dispute and these results provide very little explanatory value as to what may be driving the difference in dispute duration.

4.4 Theory and Hypotheses

Increased military independence can dramatically affect state decision-making before and during a dispute because of its effect on the level of uncertainty present in a dispute. States understand that issues of resources are of prime concern when engaging in a dispute. The ability to resupply forces and the ability of the opposing states to resupply is vital when assessing a bargaining range. The more certainty there is in the opponent's capability, the clearer the bargaining range and likelihood of a settlement. I argue that military independence allows a state to mitigate the uncertainty of resupply which decreases the overall uncertainty in the dispute, leading to a faster resolution of a dispute. Previous literature has suggested that with greater uncertainty in a dispute, the more time required to resolve the uncertainty and for the reality of all distributions to be understood (Montalvo & Reynal-Querol, 2005; P. Sullivan, 2008).

After a state chooses to engage in a dispute, the subsequent concern becomes maintaining and strengthening its fighting capacity and its military capability. A state cannot increase its fighting capacity, or power, without the capability to resupply its military. A state may choose two primary strategies to combat the issue of resupply,

developing domestic production capacity or importing weapons. These strategies increase a state's military independence as well as its military capability. A state may invest in a domestic military industry, allowing it to supply its forces during a conflict without looking to foreign sources of supply. A state may also elect to produce a portion of its military supply and export a portion of their supplies to finance purchases of other foreign military equipment.⁴⁷ Lastly a state may choose to resupply its forces solely through the purchasing of foreign military goods. All of these strategies help assist the state in securing the resources necessary to maintain its military fighting capacity through resupply. This ability to continue to fight through losses will lead to faster bargaining or a coercive resolution to the dispute. A settlement may be reached only when each state fully appreciates the reality of the distribution or division of the disputed issue. Therefore, we would expect that increased military independence will result in shorter dispute duration.

4.41 Military Industry and Uncertainty

The presence of a military industry could reveal private information pertaining to state strength due to the producing state receiving international status and prestige for a technologically advanced military (Suchman and Eyre, 1992; 1995). Instead of

⁴⁷ Previous studies concerning the role of arms transfers and dependence on conflict failed to take into account that numerous states fall into this particular category. This may explain mixed results. States such as Brazil and Turkey have specialized in producing particular pieces of military equipment (Brazil: Aircraft; Turkey: Lightly armored vehicles) and exporting to finance foreign weapons purchases.

concealing military capability the quest for status may cause a state signal its state strength more clearly than states that are not able to produce their own defense equipment. At the very least the presence of a military industry signals that the state can engage in prolonged conflict. Other factors such as status attribution allow for there to be little private information about the military capability of the producing state.

Although a military industry boosts military capabilities and reduces cost of a dispute for producing nations, these benefits are negated when all states in a dispute possess an industry. Studies by Suchman and Eyre (1992; 1995) and others have pointed to the importance that defense industry and technology may have on international status attribution. States such as India, Brazil, and Pakistan regularly showcase their new defense technology at airshows and defense expositions not only to garner orders for equipment but also to signal their growing military capability through domestic production. States such as the United States and the Russian Federation regularly showcase new equipment at air shows and military parades openly touting their military capability. This trend toward greater openness may serve to decrease the duration of conflict through decreasing the amount of private information held by a military industry possessing state. This lack of private information decreases the uncertainty in a dispute and may make the realities of the bargaining distribution more clear and convergence of expectations of conflicts occur

more quickly. Therefore, it likely that disputes in which all states involved possess a military industry is likely to reach a settlement quickly.

Hypothesis 1: Disputes in which all actors have a military industry will be of shorter duration.

Disputes in which no states possess a military industry can be thought to have a finite amount of military resources, therefore, their military capability is, in a sense, fixed⁴⁸. Each state has an incentive to misrepresent its capabilities in order to increase its bargaining position. Both states understand that military capability is not likely to shift when entering into conflict, unlike a state with a weapons industry. Therefore, it is much more likely that the states will continue the dispute in order to extract further information pertaining to the strength and probability of conflict. We would then expect that disputes involving no military industry to take a longer time for expectations to converge.⁴⁹

Hypothesis 2: Disputes in which no states have a domestic military industry will be of longer duration.

4.42 Supplier Diversification and Uncertainty

⁴⁸ it is fixed relative to a state which can produce its own weapons. Even if the state without a military industry decides to order military equipment it may take years for the military equipment to actually be delivered.

⁴⁹ Slantchev (2004) suggested that states closer to military parity are more likely to be involved in longer lasting conflicts because of uncertainty and overestimation. The lack of military industry, in a way, places these states at a certain level of parity possibly further strengthening the finding by Slantchev.

The vast majority of states in the international system do not have the ability to build a domestic defense industry that fully satisfies its military needs because of financial or technical constraints⁵⁰. Since the end of the cold war the average number of states from which a state imports weapons has increased dramatically, and consequences of this trend has yet to be explored. States, which cannot produce domestic weapons, are forced to look to foreign suppliers to fulfill their need for weaponry. However, the number of suppliers that a state chooses to import from may exert a similar effect on uncertainty than that of defense industry, albeit through a different mechanism. A state with few arms suppliers may seek to misrepresent its military capability because of the uncertainty of resupply from few suppliers. Previous research has suggested that arms suppliers are likely to mitigate supply to a state involved in a dispute due to international political pressure (Kinsella, 1998). States which challenge states with low supply diversification will be unsure of supplier resolve. Therefore, it may continue to engage in a dispute to gather more information on the resolve of the suppliers. States which have a high level of diversity will be less likely to be uncertain about the resolve of its suppliers as it can rely on a number of different states to fill the void if a supplier is lost.

⁵⁰ A State may choose not to pursue a domestic military industry because it is not financially feasible. (Amara, 2008; Ayres, 1983; Väyrynen, 1992) Find that for the majority of states a domestic military industry would be a net loss for the state. States like Argentina or Israel should not have been able to manufacture chose to out of necessity and security concerns knowing that these industries would be a costly burden on the domestic economy.

Past conflicts in the Middle East and South America in which states have become subject to arms embargoes illustrate the danger in only trading with few arms producing states.⁵¹ Development of domestic defense industries and expansion of arms suppliers in states such as Israel and Argentina were a response in large part to supply interruptions during conflict. If the state is not able to resupply its forces adequately the state will have an incentive to misrepresent and increase uncertainty in the dispute. As resource dependence theory suggests that the state can mitigate this risk of supply interruption by trading with a large number of weapons producers thereby reducing the uncertainty of resupply and at the same time reducing the need for a state to misrepresent its military capability. Supply interruption from one exporter may not prove as damaging for a state which imports from multiple sources as it would be for a state that imports from only one source.

Hypothesis 3: Disputes which are characterized by high levels of supplier diversification will result in shorter duration disputes.

4.43 Foreign Dependency and *Uncertainty*

Many arms producing states such as Israel and Norway, produce sophisticated military equipment, but are far from defense self-sufficiency. Therefore, we also need to take into account the level of military dependency. These states are not able to

⁵¹ International pressure on both the United States and Russia during the 1967 six day war to caused both to cease weapons shipments so as not to exacerbate or prolong the conflict.

produce every piece of military equipment needed by their armed forces and are unlikely to pursue self-sufficiency due to technical and financial constraints. Similar to the previous paragraphs concerning military industry, a state that is less dependent will produce at a higher capacity and not have as much incentive to misrepresent capabilities thus decreasing the amount of uncertainty that must be overcome in a dispute. Increasing defense independence has the effect of decreasing uncertainty in a conflict and, by proxy, decreasing the duration of a dispute. As military dependence decreases so does the incentive of misrepresenting state strength because the involved states become more certain of the ability to resupply and maintain military capability in a dispute through domestic and foreign sources.

Hypothesis 4: Increased foreign dependency will increase the duration of a dispute.

4.5 Data and Methods

The primary dataset used in this chapter was the Correlates of War Militarized interstate dispute 4.1 dataset (Palmer et al., 2015). This dataset includes information regarding militarized interstate disputes spanning from 1816-2010. The basic directed dyad dataset was built using EUGENE. The limitations of other variables included in this study limit the timespan of the analysis from 1816-2010 to 1950-2010.

Restricting the dataset to include only MID's which have two disputing states represents the purest way to test the hypotheses. This is primary because of rational

choice bargaining theory assuming that disputes are only between two actors. Moreover, the number of extraneous factors such as number of states in the dispute and alliance relationships further supports the truncation of the dataset to only include dyadic disputes. If a relationship between military independence and dispute duration proves significant at the dyadic level, then we would expect this result to hold even when we include MIDS with far more actors.

There are three separate cox proportional hazards models performed in order to find results supporting or refuting the aforementioned hypotheses. The first model is tested using all MIDS in the dataset. The second model is tested using MIDs which have at least one fatality. The third model is tested using MIDs that do not result in fatalities. The reason for the differentiation in the MIDS is because uncertainty may not be reduced until actual losses take place. Uncertainty in the resolve of suppliers may be more likely to be mitigated when those suppliers actually have to start supplying military equipment.

4.51 The Dependent Variable

The dependent variable of concern in this chapter is MID duration, which is measured in months by finding the difference between the start date and the end date of the dispute. This variable ranges from disputes durations of <1 month to a maximum of 161 months.

4.52 Primary Independent Variables

Within each model there are 3 primary independent variables of concern, military industry, diversity of exporters, and dependence on imports. Since the unit of analysis lies at the dispute level each variable is altered to reflect dispute characteristics. Each variable represents, in some form, a lessening of dependence upon external reliance on weapons.

The first independent variable is military industry presence. 2 dummy variables are created using the military industry variable. All Posses Military Industry is coded as 1 if all states within the dispute possess a military industry. Neither Posses Industry is coded as 1 if neither state in the dispute possesses a military industry.

The second independent variable of interest is the diversity of exporters. This variable was constructed using the SIPRI arms transfer database by counting the number of unique nations a state is importing weaponry from during a 3 year period prior the year in question. From this data two dummy variables were constructed representing MIDs of high and low diversity. High Diversity MIDs was coded as 1 if both states in the mid have two or more suppliers. Low Diversity MIDS was coded as 1 if both states in the MID have only 1 supplier. The reason why a 3-year lag was utilized was to ensure robust results. If a state transfers arms with another state these ties may stay intact and ensure future transfers, therefore, just because a state is not

importing from a past exporting state does not mean that it is not going to do so in the future.

The third independent variable of interest is dependence. This variable is measured in millions of dollar (constant 2011) and is borrowed from the SIPRI arms transfer database and the Correlates of War 4.1 database. Dependence is constructed by subtracting the amount of arms imported from the amount exported, and dividing it by the importing states real gross domestic product per capita which is borrowed from the Penn World Tables database(Heston et al., 2012). High dependence was coded as 1 if both states in the MID were in the upper 50th percentile of defense dependency. Low dependence was coded as 1 if both states in the MID were in the lower 50th percentile of defense dependency. Previous empirical research concerning arms transfers and their effect on foreign policy behavior did not account for the production of arms in states that import weaponry (Catrina, 1988). Kinsella (1998) treated states such as Israel and India as if they were solely reliant upon foreign arms transfers when they have a robust defense industry. This variable attempts to take into account that the level of foreign dependence varies when a state is using arms exports to offset arms imports.

4.53 Control Variables

This study includes 7 control variables in each model. Control variables, which are commonly found in studies of conflict, are included in the model including

contiguity, defense pacts, regime type, cold war and capability, all of which have been suggested to have a significant impact on conflict dynamics.

In order to control for “geographic conflict opportunity” a variable measuring contiguity between the states in the dyad is included borrowed from the COW direct contiguity 3.1 dataset. Contiguity is a binary variable being coded as 1 if the two states in the MID are closer than 24 miles. Previous empirical studies have suggested that the likelihood of conflict increases with the number of contiguous borders it shares Johnson and Leeds (2011). Major power presence is a binary variable coded as 1 if at least one of the states in the dispute is a major power. This variable is borrowed from the COW 4.1 coding for major power states. A variable for neither state being a democracy is included. Previous research by Gibler (2013) suggest that non-democracies prolong disputes. This variable is borrowed from the PRIO polity IV dataset (Pettersson & Wallensteen, 2015).

Cold war is a dichotomous variable delineating the time period before 1990. Scholars have suggested that the way in which countries trade and produce arms has shifted since the end of the cold war. Primary motive for the transfers of weapons has shifted from primarily foreign policy considerations to market driven dynamics (Bitzinger, 2011; Brzoska, 2004; Kinsella, 2008; Laurance, 1992). Moreover, this shift may have also affected whether countries choose to invest in a domestic military industry since there are now a plethora of arms productions to purchase from.

In order to control for the capability of one state relative to the other *capability ratio* is computed by dividing State A's CINC score by state B's CINC score. In order to control for possible influence of defense pacts on a dispute the variable *defense pact* is included which is borrowed from the Alliance Treaty Obligations and Provisions (ATOP) dataset (Leeds, Ritter, Mitchell, and Long, 2002)

4.54 Methods

A cox proportional hazards model is used to examine the effect of the primary independent variables on conflict duration. Recent articles have criticized political science empirical research using cox proportional hazards models as invalid due to the violation of the assumption of proportionality within the model (Box-Steffensmeier & Zorn, 2001; Keele, 2010). In order to ensure valid static results a test is run on the model to look for any time varying covariates. The results of the TVC showed that no variable was significant at the .01 level, suggesting there is no problem of proportionality in the models.⁵²

⁵² See the appendix for the TVC output.

4.6 Results

Table IV: MID Duration by Type; Cox Proportional Hazard Model

VARIABLES	All MIDS 1	Fatal MIDS 2	Non-Fatal MIDS 3
All Posses Military Industry	-0.0979	-0.197	-0.259**
Neither Posses Military Industry	-0.0898	-0.206	-0.200*
High Diversity	-0.169**	-0.268*	-0.118
High Depend	-0.184**	-0.0663	-0.194*
Major Power Presence	-0.0439	-0.056	-0.0271
Defense Pact Presence	-0.0133	0.209	-0.191*
Neither Democracy	0.104	0.301*	-0.0714
Contiguity	-0.155*	-0.322	0.0817
Capability Ratio	7.57E-05	-0.00343	-0.000816
Cold War	0.208**	0.352**	0.203*
Observations	1,147	322	673

** p<0.01, * p<0.05

Results are presented in the percentage of time reduced or lengthened

Table IV displays the results of the cox proportional hazard models which seek to measure the impact of the independent variables on the duration of dispute which is measured in months. The results are presented in percentage change of the duration of the dispute.

According to the theory and hypothesis present in this chapter we should expect that increased military independence, measured by the first 4 independent variables, should result in the shorter length disputes. However, the results give mixed, and ultimately weak findings. We find that when all state possess a military industry

the dispute duration only significantly decreases the dispute duration of non-fatalMIDs. In non-fatal MIDs the possession of a defense industry decreases the mid by 25% and is significant at the .01 level. However, the presence of a defense industry has no effect on dispute duration in fatal MIDS although it is in the negative direction. We find similar results regarding a dispute in which no state possess a military industry. The lack of military industry in a dispute significantly decreases the duration of a non-fatal dispute by 20% at the .01 significance level. These results lend only partial support for hypothesis 1 and no support for hypothesis 2.

For the other two primary independent variables of interest we find mixed results which only lend partial support to the hypotheses. High supplier diversification is significant in all MIDs and fatal MIDs. However higher supplier diversification is not a significant indicator in non-fatal MIDs. These results could suggest that the uncertainty of the resolve of the suppliers may only be mitigated when the MIDS turns deadly and matters little to MIDs which do not escalate to violence. The results of the suppliers would only be fully understood when the state calls on the suppliers for military hardware to mitigate losses in conflict. High foreign dependency is significant when we consider all MIDS and non-fatal MIDS. In both of these models (model 1 and 3) we find that high foreign dependence leads to shorter dispute durations of 18% and 19% respectively. These results are opposite of the predictions, and do not support hypothesis 4. However, these results possibly echo the findings in previous literature

are linking. It could be that exporting states are exerting pressure on those importing states to end disputes (Catrina, 1988; Kinsella, 1998a).

The control variables do not perform as expected. Variables such as capability ratio and regime type have a mixed impact on dispute duration. These variables have traditionally been used in dispute duration studies and shown to be consistently in one direction. Consequently, the lack of consistency leaves the substantive results with little comparison to other duration studies. Although the results are intriguing, it seems that generalization of these findings should, at best, be made cautiously. The dataset is such a small subsample of the entire MID dataset that very few conclusions reached here could be extended to the larger group of MIDS. Moreover, in the base model we find very little support for traditional variables used in studies of dispute duration.⁵³ This lack of evidence for traditional explanations of dispute duration makes any findings in the subsequent models suspect. However, there does seem to exist some relationship between duration and military dependence and this relationship should be explored in future research concerning military capability.

The issue of resupply may be of great importance to the strategic and tactical considerations of states in non-fatal disputes. However, this importance seems to wane when we examine MIDs that result in fatalities. The reason for this effect is unclear. Although high supplier diversification is significant in fatal MIDs this may not be

⁵³ See Appendix for Base Model

enough to support the argument that military resources are important in these MIDs. If resource and supply of military equipment was indeed important we would expect to see the ability to produce weaponry also having a significant effect alongside the ability to import. If a state has little regard for the ability to produce arms domestically why would it care about the ability of a state to arms itself through foreign sources?

4.7 Conclusion

It seems that when significant, every primary independent variable has a negative effect on dispute duration. The results are surprising in that they seem to lay converse to many commonly held assumptions when it comes to arms and dispute duration. Previous scholarship has suggested that arms provide longer duration disputes during civil wars (Baliga & Sjoström, 2004; Elbadawi & Sambanis, 2000; Hegre, 2004; Marsh, 2007) but this result does not seem to hold when we examine the role of arms in interstate disputes. Moreover, the results bolster previous studies linking military dependence to dispute behavior. Although the results are not robust they do give insight into the effect of military independence into dispute behavior which has yet to be studied empirically. It is hoped that this research serves as a stepping stone for further research concerning the effect of both arms industry and arms transfers on state behavior and dispute dynamics.

This chapter helps contribute to the conflict literature by suggesting that long held measures of military capability or military expenditure may not be adequate in addressing the hard power of a state. The possession of a military industry as well as other indicators of military independence have a measurable effect on decision making behavior of states before and during a dispute. This research has also helped bolster previous research concerning arms transfers and their effect on state behavior. It is also hoped that this chapter has contributed to the understanding of how uncertainty may affect the duration of a dispute through the prolongation of bargaining and how rational choice bargaining theory can be extended to explanations of dispute duration, instead of only cases of dispute onset and settlement.

It is also hoped that this chapter also has a profound effect on the policy literature concerning arms control. For many years concerned states and international institutions have pushed for arms control and disarmament. Claims that arms increase conflict duration, no matter how obvious or logical, have not been supported empirically. The results in this study give little credence to those seeking to control exports and military industrialization on the grounds that arms prolong conflict.

However, there are weaknesses in this study. The inability of the base model to provide any support for variables which have been found to affect dispute duration makes me cautious to infer any strong results from the models. The lack of a common base model or commonly accepted variables to explain duration is a weakness of the

literature and scholarship as a whole and represents a problem that needs to be mitigated. However, the results are nonetheless interesting and support the fact that we know little about what makes disputes last and how traditional factors may affect MIDs of different sizes and severity. Moreover, the exemption of mixed dyads from this study also proves to be a weakness. However, the complexity of how to code diversity, and dependence in these dyads and how uncertainty operates between mixed states supports this exclusion as defensible.

By no means has this study exhaustive or perfect by any stretch of the imagination. However, it is hoped that these results spur further research and understanding of the effect of arms and dispute behavior. What I hope to have demonstrated is the need for further investigation into the role that arms industries and arms transfers play on state behavior before and during conflict. The sheer amount of arms being transferred coupled with the increasing number of states pursuing defense independence makes this topic not only salient but also vital to understanding state behavior and dispute dynamics.

Chapter 5: Conclusion

5.1 Summary Conclusion

It is hoped that this dissertation provides results which give credence to the importance of military independence. The way in which a state acquires its military capability does indeed have an effect of traditional variables for military capability. By focusing solely on the amount to which a state spends on its military gives us a limited understanding of the effect that military capability may have upon state behavior. The fact that every major power throughout history has possessed, and possess, a military industry should not be understated. The ability to produce your own arms not only provides a measure of status (Eyre, 1992; Suchman & Eyre, 1995), but also the ability to alter military capability whenever the state may require it. The ability to expand the production during times of conflict has allowed powers to expand their reach, and maintain military capability across vast stretches of earth. It has allowed states to mitigate supply cutoff during unpopular conflicts, and to pursue foreign policy interests more freely than states that are entirely dependent upon other nations for military equipment.

However, what was once only the purview of a few powerful nations, military industrialization is now being pursued by a greater number of states. Nations such as Brazil, India, and Turkey represent states that are pursuing industrialization to further their regional interests. However, unlike in years past, states are now becoming niche

suppliers, only producing a certain type of military equipment. By only focusing on a limited production smaller states may pursue domestic production without having to bankrupt their economies. The market for defense goods is also lucrative and attracting states to produce weaponry for economic profit. Further complicating future studies on military dependence is the rise of multinational ventures to produce military goods. This is largely the result of increasing costs of developing high technology weaponry. The joint European aerospace company, Airbus, illustrates this phenomena with 6 different European states represented in various business ventures.⁵⁴ Joint venture contracts involving India and Russia on the T-50 project as well as the Brahmos supersonic cruise missile also provide further examples of the increasing number of joint cooperation in developing and producing defense technology. The problem that naturally flows from these ventures is the problem of the classification of transfers. If both countries produce the weaponry how should we classify a transfer of the produced good? Questions such as these will need to be addressed in future studies on military independence.

The boom in producers and suppliers has attracted the attention of international organizations seeking to curtail the sale and production of weapons. The importance of supplier diversification cannot be understated. As a consequence of the boom in suppliers, a state can now import weaponry from a multitude of suppliers.

⁵⁴ Defense corporations based in Germany, United Kingdom, Spain, France, Italy and Finland have all cooperated in Airbus headed ventures.

The ability of a state to coerce an importing state through the use of arms transfers seems less applicable since the state can turn towards other suppliers to fill its military equipment needs. This may have the effect of lessening the importance of arms transfers as a tool of foreign policy coercion and changing how scholars view the motivating factors of transferring arms. It is feared that arms transfers guided by economic profit will end up further destabilizing delicate regions. On the other hand, producers of military equipment continue contend that arms transfers are pivotal in keeping stability and peace. Empirical literature has given little attention to issue of military independence, and has primarily focused on the role arms transfers have played in regional rivalries and super-power dynamics. With little empirical research done on both arms transfers, suppliers, and military industrialization we are left with little understanding of the actual effect of these variables. Issues of military independence are undervalued by empirical scholarship and overblown by policy makers.

Chapter one presented the motivating factors that influenced the creation of this dissertation. Commonly used composite indicators of state capability primarily measures military capability through military expenditure. The more a state spent on its military, the more capability a state was perceived to possess. However, research concerning military industrialization and arms transfers has shown that the way in which a state acquires its arms can influence the behavior of the state in a myriad of

ways. Yet, even with these studies, empirical scholarship on militarized disputes has continued to use these composite indicators which underspecify military capability. This under specification coupled with the lack of scholarly convergence concerning military independence provided the impetus for further understanding of how military independence may affect state behavior, especially concerning disputes.

The purpose of chapter two was to give the reader an overview of the extant literature concerning military independence. Much of the literature is concerned with arms transfers focusing primarily on the recipient state rather than the state which is producing arms. Much of the qualitative literature is primarily concerned with issues of US foreign policies and how arms transfers affect US political interests. Other qualitative literature which suggested a link between conflict and arms transfers failed to provide any empirical evidence to support their assertions (Katz, 1984; Wulf, 1993). The empirical literature failed to address the complex relationship between the state and its arms industries even when earlier qualitative scholarship suggested that military industrialization has a profound effect on the state through its relationship to military capability. Research concerning different aspects of military independence such as arms transfers and industrialization were being explored as mutually exclusive topics by different scholars in different fields. Military industrialization was primarily studied by those in international political economy, and issues of arms transfers were investigated by those within international relations. However, both have failed to

speaking to empirically speaking to each other ignoring the fact that importing weaponry and exporting weaponry are two sides of the same coin.

Chapter three presents the first empirical results concerning military independence and its effect on state behavior regarding dispute onset and initiation. The link between military independence and dispute involvement was placed into a larger theoretical framework by utilizing prospect theory. States may be more willing to engage in conflict because of the affect military independence has on a state's perceptions of cost. A state that is able to replace its battlefield losses may perceive the loss of a unit as a lesser problem than a state which cannot afford to replace a lost unit. However, this advantage is lost when the state faces another state with the ability to resupply its forces.

The results from chapter 3 suggested that arms industry presence increases the likelihood of both onset and initiation of disputes in all but 1 model. Moreover, a state that possesses a military industry is less likely to initiate a dispute against another military industry state. However, military industry was not found to be a deterring factor as it was a significant and positive indicator of being a target in a dispute. In summary, these results suggest that the presence of a military industry increases the likelihood of being involved, as well as being the initiator and target of a dispute, yet states which possess an industry are unlikely to fight each other.

Other strategies to decrease military dependence showed less robust results. Although supplier diversification was found to increase the likelihood of being involved and initiating a dispute, it did not provide any deterrent effects. Increased supplier diversification made all states, no matter the initiator or target, more likely to experience a dispute.

Interestingly military dependence provided a mediating effect to military industry when testing for dispute onset. This result, which was counter to the hypothesis, could be explained by the vast number of smaller military industry states which do possess large production capacity. It could be that the results are trying to tell us that large military industry makes dispute involvement less likely, but for the majority of states with a military industry, which produce much less than the few large suppliers, a military industry makes dispute onset more likely. Military dependence did make the state a more likely to be the initiator and target of a dispute. Having uncovered a clear effect of military independence on dispute onset and initiation I moved on to examining the role that independence may have upon the duration of disputes.

Chapter 4, the second empirical chapter, sought to examine the role that military independence may have upon the duration of a dispute. This chapter utilized rational choice bargaining theory to explain that military independence decreases uncertainty resulting in decreased dispute duration. This chapter only examined dyadic

disputes where there was only one initiating state and one challenging state thereby significantly constraining the ability to generalize the results. However, dyadic disputes were chosen because they most purely represent the bargaining framework. Moreover, this dataset was utilized also so as to include directional variables that allow comparisons between the two states involved in the dyadic dispute.

Results from this chapter suggested that military industry, and supplier diversification have a negative effect in different stages during a dispute. For non-fatal MIDs the possession of a military industry in both states was significant and negative suggesting that military industry reduced dispute duration in these cases. However, military industry failed to have any effect in fatal MIDs, whereas high supplier diversity has a significant negative effect on duration. These results are interesting but puzzling. If increased military independence truly had an effect on dispute duration, we would have expected to find evidence that Military Industry and supplier diversification would be a significant indicator in both non-fatal and fatal MIDs. However, the results may suggest that issues of resupply and military resources are less salient for states which choose to engage in fatal MIDs.

In summary, the results have painted a complex picture of the effect that military independence may have upon dispute behavior. The presence of a military industry has been found to increase the likelihood of both onset and initiation of disputes, and have a mediating effect on dispute duration. Moreover, this dissertation

has also found evidence suggesting that states which possess military industry are less likely to go into disputes with each other and when they do the duration of the dispute is significantly shorter than other disputes.

Results have suggested that increased supplier diversification have the effect of increasing the likelihood of dispute onset and initiation. However, disputes with high diversification have also been found to be significantly shorter than other disputes. Increased foreign dependence has been shown to increase the likelihood of dispute onset and initiation but also have a depressing effect on dispute duration. However, confusing the results may one thing is certain. These results suggest that the way in which states procure arms, as well as mitigate dependence, has different effects on dispute behavior than we once thought.

5.2 Limitations

The availability of valid and accurate data concerning arms transfers has long been a problem faced by arms transfer scholars. States have an incentive to withhold information regarding arms transfers which may not be politically attractive leading to a problem of data accuracy. This problem will be further compounded in the future by the rise of multinational corporations and joint ventures in the production of weaponry which will make it difficult to discern what state is transferring what military good. All of these problems may not be fully avoided but any future scholarship must understand the inherent problems of data collection and utilization.

This dissertation found 96 states possessed a domestic defense industry. These states were coded as possessing a defense industry if the state exported an indigenously produced good. An examination of this list posed important questions of validity. However, this is a first step in empirically researching domestic defense industry presence and although some states may seem suspect, all are in the dataset per coding rules put forward in the dissertation. Future research utilizing this dataset may find it more appropriate to exclude states which may produce at a very low rate such as Tanzania. Moreover, while it may be easy to code if a country is an active exporter it is much more difficult to discern when a state no longer possesses the industry. The dataset utilized in this dissertation does not exclude a state from the dataset once it has been included. In future research it is hoped that a much more in depth study of the entry and exit of states in the defense industry group is practiced.

The inclusion of variables which have been found to effect dispute likelihood, such as previous dispute involvement, would be included. However, the inclusion of these variables does present a theoretical problem. Although the involvement in previous disputes has been found to be a strong indicator of dispute involvement, the possession of an industry may also be confounded in these findings. Nevertheless, the inclusion of these variables would provide a stronger understanding of the effect that military independence has upon state behavior.

5.3 Directions for Future Research

The second purpose of this concluding chapter is to offer some paths for future research which. In the sections below I identify a number of future directions of study that are motivated by the work contained in this dissertation.

5.31 Cold War Post/Cold War Differences

In the majority of the models included in this dissertation the cold war variable has remained significant, suggesting that there has been a change in state behavior and military independence since the end of the cold war. Much of the previous research conducted on arms transfers was done in the Cold War era with the primary emphasis on arms races and the importance of arms transfers as a form of foreign policy coercion. However, recent scholarship has suggested a fundamental shift in the way states transfer and produce arms. The commonly accepted explanation for arms transfers as “tools of foreign policy”(Pierre, 1982) may not be salient anymore. Kinsella (2009) found that the structure of the arms transfer subsystem has fundamentally shifted and is no longer divided by political ideology. The consequence of this shift is that states may not be as discriminating to where they might export their weaponry, possibly exacerbating regional tensions. It may also have the consequence of making arms cheaper for the importers because exporting states will now have to compete with each other. Moreover, other author have suggested that arms transfers and production have been increasingly motivated by economic rather than political concerns (Bitzinger, 2003; Brzoska, 1999; Laurance, 1992). With the

dissolution of the bi-polar world and the rise in economic motivating factors for arms production, the temporal aspect of military independence should be explored.

5.32 Identity of Supplier

Previous literature concerning arms transfers has suggested that the identity of the state exporting arms may have an effect on state behavior during disputes. Kinsella (1998) found that arms transfers from the Soviet Union served to exacerbate disputes whereas arms transfers from the United States served to deter disputes. These studies have largely been conducted in the cold war era with very few extending their timeline to include the post-Cold War period. Research conducted by Kinsella (2009) found that the arms transfer system has changed dramatically, shifting away from cold war alliances to a more integrated system. Surely this radical change has also had an effect on those states which import arms. With the SIPRI database it would be very easy to categorize and examine if arms transfers from different nations have different effects.

5.33 Classification of Military Industry

In order to more directly approach the problem of whether military industry affects state behavior it would be helpful to be able to differentiate the level or capacity of a state's military industry. Military Industry is a very difficult category to code and with much dismay I must admit that even the coding present in this dissertation does little to illustrate the multitude of differences present within "military

industry”. Very few states have the ability to produce all of their defense equipment because of how expensive new defense technology is becoming. One also has to take into account the size of the market to which a domestic defense industry would be able to market. Large states such as the United States and Russia have a large domestic military willing to order a large amount of military equipment which allows domestic defense industries to thrive when the international demand for military equipment dwindles. Smaller states such as Brazil and Turkey have found niche’s in defense production and only produce a certain type of military good. Attempts have been made to classify the different levels of defense producers into tiers depending on their capacity and level to which they produce (Bitzinger, 2003). I believe that taking into account the levels at which states produce will take into account much of the variance present in the catch all “military industry” variable.

5.34 Settlement of Dispute and Defense Industry Presence

After researching the effect that military independence may have upon dispute onset, initiation and duration the next logical step would be to find if. Christopher Gelpi (2003) found evidence suggesting that military capability plays a large role dispute settlement with states of high military capability exerting increased concession from militarily weaker states. A state that produces its own weaponry may be able to further coerce weaker states into worse bargaining positions because its ability to continue fighting for a better bargaining position if it feels the need.

5.4 Concluding Remarks

Military independence is a complex concept which has multifaceted consequences for state behavior both before and during disputes. This dissertation has sought to explore how we may define and quantify military independence and then utilize these definitions to explore the effects that independence may have upon state behavior. In this respect the dissertation has been a great success. The factors of military independence have been shown to make the state more prone to dispute involvement and initiation as well as decrease the duration of disputes. Exploring and testing variables of military independence will allow us to better specify the processes and causal mechanisms cause disputes, and make them last. Furthermore, the results of this dissertation have pointed out how common assertions which suggest that military industry, or arms transfers increase conflict and make conflict last longer may not hold as true as we once thought. In fact, the actual effect of both production and importation is much more complex than many of us would like to admit. With an increasing number of states producing and transferring weaponry it is pivotal to continue research. This dissertation, although not perfect by any means, has provided a stepping stone in understanding how military independence affects state behavior and the importance in fully understanding what we as international relations scholars mean by “military capability”.

Appendix

Appendix A

Table 1: List of States Possessing a Military Industry and Their Establishment Date

State Name	Industry Establishment Date	Country Code (COW)
United States of America	1950	2
Canada	1950	20
Cuba	1975	40
Nicaragua	1989	93
Panama	1978	95
Venezuela	1969	101
Guyana	1976	110
Peru	1982	135
Brazil	1960	140
Chile	1975	155
Argentina	1962	160
Uruguay	1960	165
United Kingdom	1950	200
Ireland	1977	205
Netherlands	1956	210
Belgium	1959	211
France	1950	220
Switzerland	1958	225
Spain	1959	230
Portugal	1967	235
Germany	1956	255
German Democratic Republic	1958	265
Poland	1959	290
Austria	1962	305
Hungary	1965	310

Czechoslovakia	1950	315
Czech Republic	1991	316
Slovakia	1991	317
Italy	1955	325
Albania	1965	339
Croatia	2000	344
Greece	1964	350
Cyprus	1995	352
Bulgaria	1982	355
Moldova	1992	359
Romania	1970	360
Russia	1970	365
Estonia	1996	366
Latvia	1994	367
Ukraine	1986	369
Belarus	1993	370
Georgia	1996	372
Finland	1958	375
Sweden	1957	380
Norway	1959	385
Denmark	1958	390
Iceland	1980	395
Senegal	1974	433
Niger	1973	436
Ghana	1979	452
Nigeria	1989	475
Gabon	1973	481
Chad	1987	483
Uganda	1968	500
Kenya	1981	501
Ethiopia	1985	530
Eritrea	1998	531
Angola	1979	540
Mozambique	1976	541
Zambia	1989	551

Zimbabwe	1964	552
Malawi	1999	553
South Africa	1960	560
Morocco	1962	600
Algeria	1967	615
Libya	1971	620
Sudan	1967	625
Iran	1962	630
Turkey	1979	640
Iraq	1969	645
Egypt	1960	651
Syria	1969	652
Lebanon	1967	660
Jordan	1971	663
Israel	1963	666
Saudi Arabia	1967	670
Kuwait	1967	690
Bahrain	2000	692
Qatar	1993	694
United Arab Emirates	1973	696
Oman	1977	698
Kyrgyzstan	1994	703
Kazakhstan	1993	705
China	1956	710
Taiwan	1967	713
Japan	1956	740
India	1968	750
Pakistan	1966	770
Bangladesh	1984	771
Sri Lanka	1997	780
Cambodia	1993	811
Malaysia	1970	820
Singapore	1969	830
Indonesia	1962	850
Australia	1960	900

Appendix B

Table 2: Descriptive Statistics for All Primary Independent Variables

	Weapons Industry	Supplier Diversity	Dependency	All States Have Industry	No States Have Industry	High Dependency	Low Dependency	High Diversity	Low Diversity
mean	0.4195076	0.0468542	0.0038379	0.1831856	0.3431119	0.2168624	0.2897577	0.3136055	0.2056232
sef(mean)	0.0004243	0.0000754	0.0000111	0.0000316	0.0004068	0.0003532	0.0003888	0.0003976	0.0003463
sd	0.4934786	0.0705423	0.0110722	0.3868171	0.4747487	0.4121083	0.45365	0.4639586	0.4041564
variance	0.2435212	0.0049762	0.0001226	0.1496275	0.2253863	0.1698332	0.2057983	0.2152576	0.1633424
skewness	0.3262244	4.94611	8.721267	1.638069	0.6609312	1.374093	0.9268923	0.8034923	1.456747
kurtosis	1.106422	41.70117	121.5835	3.683269	1.43683	2.888133	1.859129	1.6456	3.122113
N	1352383	876319	998019	1361066	1361748	1361748	1361748	1361748	1361748
min	0	0	-0.0224831	0	0	0	0	0	0
max	1	1.166667	0.251781	1	1	1	1	1	1
Descriptive Statistics (Controls)									
	Defense Pact	Major Power	Democracy Score	Capability	Cold War	Capability Ratio	Contiguity		
mean	0.8769007	0.0371581	-42.16124	-0.2428843	0.5278451	132.8861	3.429574		
sef(mean)	0.0003677	0.0001627	0.043761	0.0012708	0.0004278	1.479484	0.004769		
sd	0.3285514	0.1891492	50.89058	1.477855	0.4992242	1718.456	5.546024		
variance	0.107946	0.0357774	2589.851	2.184054	0.2492248	2953091	30.75838		
skewness	-2.294319	4.893937	-0.1986451	-5.75545	-0.1115535	41.17482	-1.765565		
kurtosis	6.263901	24.95062	1.060776	34.13408	1.012444	2607.686	4.171287		
N	798599	1352383	1352383	1352383	1361748	1349138	1352383		
min	0	0	-99	-9	0	0	-9		
max	1	1	10	0.319499	1	198578	6		

Appendix C

Table 3: Correlation Table for All Variables Utilized in Chapter 3

	Military Industry	Importer Diversity	Dependency	Defense Pact	Major Power	Democracy	Capability Ratio	Contiguity	Region	Cold War	Hi Diversity	Hi Dependency	Contiguity
Military Industry	1												
Importer Diversity	-0.0829	1											
Dependency	0.0027	0.054	1										
Defense Pact	-0.0439	0.027	0.0286	1									
Major Power	0.1927	0.0734	-0.1378	0.0638	1								
Democracy	-0.0579	0.1783	0.0841	0.0992	0.0399	1							
Capability Ratio	0.0635	0.0054	-0.0313	-0.0185	0.1738	-0.0328	1						
Contiguity	-0.0016	-0.0283	-0.0042	-0.0065	-0.0441	-0.0137	0.0143	1					
Region	0.013	-0.0314	0.1783	-0.2652	-0.0985	-0.028	-0.001	-0.0082	1				
Cold War	-0.1741	0.1876	0.1332	0.118	-0.0065	0.6737	-0.0559	-0.0184	0.0144	1			
Hi Diversity	0.2361	0.0509	0.0322	-0.014	0.0753	0.0197	0.0951	-0.0238	0.0088	-0.0267	1		
Hi Dependency	-0.0215	0.1008	0.2702	0.0223	-0.1044	0.0793	-0.0196	-0.0213	0.1148	0.1169	-0.044	1	
Contiguity	-0.0016	-0.0283	-0.0042	-0.0065	-0.0441	-0.0137	0.0143	1	-0.0082	-0.0184	-0.0238	-0.0213	1

Appendix D

Table 4: Inclusion of a 1 and 3 Year Lag on the Primary Independent Variables

DV: Onset						
	1 year lag	1 year lag	1 year lag	3 year lag	3 year lag	3 year lag
Military Industry	0.0937**	0.073*	-.10**	.094**	.076*	-.104**
Import Diversity		2.73***	2.27***		2.77***	2.32***
Military Dependence			9.83***			9.82***
Defense Pact	-0.086	-0.108*	-.135*	-0.087	-.109*	-0.1357*
Major Power	0.664***	0.74***	.710***	.6614***	.738***	.7076***
Democracy	0.001*	0.0002	0.00004	.001*	0.0002	0.00001
Capability	8.652***	7.25***	7.97***	8.69***	7.27***	7.99***
Contiguity	-0.771***	-0.76***	-.744***	-.771***	-0.7611***	-.744***
Region	0.096***	0.09***	.082***	.096***	.0922***	0.082***
ColdWar	-0.0481	-0.153**	-.147**	-0.046	-.151**	-.146**
Constant	-1.83	-1.87	-1.74	-1.84	-1.87	-1.74
*.05 ** .01 *** .001						
DV: Initiation						
	1 year lag	1 year lag	1 year lag	3 year lag	3 year lag	3 year lag
Military Industry State B	0.015	0.11	0.143	-0.044	0.052	-0.052
Military Industry State A	0.184**	.1677*	0.07	0.15*	0.0416	-0.144
All Posses Military Industry	-0.125	-242*	-0.276	-0.03	-0.08	0.02
Import Diversity State A		1.72***	1.32***		1.76***	1.39***
Import Diversity State B		-0.594	-0.492		-0.65	-0.645
Military Dependence State A			13.46***			14.11***
Military Dependence State B			-6.83			-5.15
Defense Pact State A	-0.1	-0.135	-0.057	-0.1	-0.11	-0.158
Defense Pact State B	-0.834***	-0.827***	-0.72***	-0.83***	-0.85***	-.719***
Major Power State A	1.45***	1.44***	1.64***	1.45***	1.44***	1.65***
Major Power State B	1.42***	1.47***	1.59***	1.42***	1.55***	1.65***
Democracy State A	.002*	0.0009	-0.001	0.002*	0.001	0.0019
Democracy State B	-.0074***	-0.006***	-0.007***	-0.007***	-0.006***	-.007***
Capability Ratio	0.00039	0.00002	0.00001	0.00003	0.00002	0.00007
Contiguity	-7987***	-0.784***	-.761***	-0.798***	-0.77***	-748***
State A Region	0.007	-0.011	-0.021	0.007	-0.001	-0.006
State B Region	0.001	0.019	.052**	0.001	0.009	0.025
Cold War	.532***	.404***	.637***	0.531***	0.3886***	.437**
Constant	-2.07	-1.99	-2.55	-2.05	-1.96	-2.15
*.05 ** .01 *** .001						

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