Material Realism: A Systems Theory of International Politics

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ABSTRACT

MATERIAL REALISM: A SYSTEMS THEORY OF INTERNATIONAL POLITICS

by Paul Burton

May 2018

Traditionally power has played a dominant role in all realist theories of international politics and little if any room was left for actor agency. Systemic outcomes were a function of system structure. System structure was the result of the positioning of states in the system according to their power. Conflict resulted from system structure. Actor agency was not a relevant consideration because system structure was deterministic. This paper presents a new theorization of realism that it calls material realism. Material realism hypothesizes globalization as a second independent variable alongside power. A longitudinal network model using all conflict events since 1992 is constructed that hypothesizes globalization as acting to mitigate the effect of power and reduce the probability of conflict initiation. Because globalization is at root a system of resource allocation, material realism theorizes that as resources are more adequately allocated globally, scarcity is reduced. As scarcity is reduced, man (and states) fear less for their survival. When survival is not at risk the probability of conflict abates because the cost-to-benefit ratio swings decisively against conflict initiation. By using a longitudinal network model, actor agency is accounted for because conflict events are not assumed to be independent as is the case with more traditional models like logit or OLS regression. Additionally, the use of a longitudinal network model allows for the isolation of the impact of system structure versus actor behavior, thus thwarting charges of reductionism. By using a longitudinal network model to characterize the system of international politics, a true systems theory of international politics is presented. Previous attempts at presenting a systems theory of international politics fell short because they did not account for the impact of actor behavior on system behavior and vice-a-versa. Material realism represents a paradigm shift for realist thinkers because it opens the door for explicit consideration of the effect of actor agency and the undeniable effects of globalization on international political outcomes, especially conflict initiation. Ultimately the conclusion is reached that technology and innovation must continue to advance in order to achieve continuing reductions in conflict initiation over the long term.
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It has been a long journey with many twists and turns. Thank you to my committee, and especially to my advisor, without whom this would not have been completed. His sardonic wit caused me to reflect more than he knows.

For Karen . . . .
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Chapter 1

Introduction

Both Kenneth Waltz and John Mearsheimer put forward a theory of international politics which they claim to be a systems theory. Waltz claims that a state’s capabilities or power position it relative to other states, and it is the distribution of capabilities among states that determine international political outcomes. A balance of power among the great powers is a common recurring outcome according to Waltz. A stable balance of power is a desirable outcome because it implies that no state is power-maximizing. According to Waltz’s theory the security dilemma can be avoided by a state taking care to modulate its power in relation to other states so as not to provoke their insecurity. In this way the status quo is maintained and the potential for conflict is reduced. Waltz’s theory stands in contrast to that of Mearsheimer who asserts that the distribution of power among states determines international political outcomes and all great powers are power-maximizing. According to Mearsheimer, a great power is always power-maximizing because it strives to be a hegemon in its region (and indeed, the world). A great power will balance as a tactic to prevent a hegemon from arising, thus enabling it to maintain, if not increase, its relative power. According to Mearsheimer, since all great powers are power-maximizing the security dilemma is omnipresent. Both Waltz and Mearsheimer define the structure of the system of international politics in terms of the number of great powers and both find the cause of war to be the structure of the system itself. Consequently, the structure of the system of international politics is deterministic and little regard for actor agency exists. Power is the explanatory variable that allows each theory to operate.

A system is a “set of elements or parts that is coherently organized and interconnected in a pattern or structure that produces a characteristic set of behaviors” that serve to fulfill the purpose of the system itself (Meadows 2008 loc3398). All systems exist to fulfill a specific purpose. So a systems theory must identify the system’s purpose and then state how the behaviors of the system operate to fulfill it.

If the system of international politics is to be analyzed as a system, its purpose must be defined. What is its purpose? What behaviors operate to fulfill its purpose? Waltz and Mearsheimer assert that the cause of war can be found in the structure of the system
of international politics. Because war or conflict has been a quite common occurrence throughout history, are we therefore to conclude that war is an inevitable consequence of the operation of the system of international politics? Is the purpose of the system to produce war between states? What are the manifest behaviors of the system that make this so? If the purpose of the system of international politics is not to produce war or conflict, then how should war as a recurring behavior be explained? What purpose does war serve? Systems, after all, operate to produce recurrent, predictable outcomes (and behaviors). Consequently, any outcome repeatedly produced can only be properly understood in the context of the purpose of the system and the system’s behaviors that produce it. The purpose of the system necessarily provides meaning for all that is observed within its delineated domain.

What is the purpose of the system of international politics? If we take its purpose to be what we observe as a recurrent outcome, then we may assess the purpose of the system is to produce war or conflict; or, we may assess the purpose of the system is to produce a balance of power among the great powers. Both of these conclusions are problematic. If the purpose of the system is to produce war, then we need to explain how the balancing behavior of states, which has typically been theorized as a deterrent, produces war. If the purpose of the system is to produce a balance of power among the great powers, then we need to explain how war results in a parity of states evidenced by a balance of power. If the purpose of the system of international politics is something else, then we need to explain how war and the balancing behavior of states, both of which we observe recurrently, promote that particular purpose.

When we observe a system we discover regularities. The regularities must be reconciled with the fulfillment of the purpose of the system. War, a balance of power, or perhaps something else, must be reconciled with the purpose of the system of international politics. Moreover, behaviors must be distinguished from outcomes. If observed regularities cannot be reconciled with the theorized purpose of the system, or its behaviors, then the system is mis-theorized, which is to say the purpose of the system is not truly understood. The theory collapses. It explains nothing.

This paper presents a systems theory of international politics called material realism. Material realism asserts that the purpose of the international system of states is to allocate resources so that scarcity is ameliorated and fear, which results from scarcity, abates. It is theorized that fear is the driving force behind all conflict. Consequently, as fear abates, the odds of conflict among states reduce accordingly.

Material realism hypothesizes that globalization operates to increase collaboration
among states resulting in the reduction of scarcity as resources are allocated liberally. As a consequence, the odds of conflict initiation decrease because fear abates. Material realism also hypothesizes that power operates to reduce collaboration among states as powerful states are more likely to use coercion, in some form or fashion, to achieve the outcome they desire. As a consequence, the odds of conflict initiation increase because fear is stoked in those states that are subjected to the coercion. The key finding of this paper is that globalization is significant and it operates to offset the contribution of power to the odds of conflict initiation thereby reducing conflict generally. In short, material realism provides a theoretical foundation for understanding and anticipating a reduction in instances of conflict initiation as globalization takes ever deeper root. Of course, the converse is also true. If the system of globalization is interrupted or its effects reversed, incidents of conflict initiation should be anticipated to increase.

The remainder of this paper proceeds as follows:

Chapter 2 will establish the theoretical foundations for material realism through a review and analysis of the pertinent literature on realism and power. Chapter 3 establishes the requirements for a systems theory and puts forward an appropriate quantitative method to evaluate material realism as a systems theory. Power and globalization, respectively, are hypothesized to decrease and increase the odds of conflict initiation. The results are reported. Chapter 4 fully expounds material realism and then applies it to explain the behavior of the United States, China, and Japan in East Asia. Chapter 5 offers concluding remarks.
Chapter 2

Realism and Power

This paper proposes a systems theory of international politics that stands in contradistinction to Kenneth Waltz’s defensive realism and John Mearsheimer’s offensive realism. Both Waltz and Mearsheimer explain international political outcomes as the result of behavior that is the product of a single system attribute. Waltz finds the system’s distribution of capabilities drives behavior that determines system outcomes, while Mearsheimer finds that the system’s distribution of power drives behavior which determines system outcomes. Each of these concepts is explored in this chapter. However, for reasons that will become clear, this chapter starts with a theorization of fear and why it is important.

In section 1 the concept of fear is introduced. Fear is an important concept because it triggers man to act for his own survival. When man fears for his survival he becomes capable of anything. Like man, states will act to ensure their survival, and they are capable of anything when they fear for their survival. Consequently, any theorization of international politics must account for fear.

In section 2 Waltz’s defensive realism and Mearsheimer’s offensive realism are reviewed in relevant part. As will be made clear, both theories purport to transform power, a state attribute, into a system level attribute and use it to explain international political outcomes. In so doing, both Waltz and Mearsheimer fall short because their theorization of power is inadequate.

In section 3 power is introduced in two forms. First, a conception of power is borrowed from Power Transition Theory. Power Transition Theory’s conception of power is robust because it accounts not only for the wealth of a state, which is the indispensable ingredient of national power, but also because it accounts for the ability of the state’s government to extract the wealth from the people so it may be transformed into national power and directed toward a national purpose. Second, the concept of Network Power is introduced. Network Power represents a non sovereign power that emerges through the coaction of many actors. As theorized, Network Power explains the development of standards and conventions that influence and ultimately cause actor behavior to come into conformance with them. Network Power is important because it is theorized as the practical result of globalization. Network
Power is the phenomenon that drives cooperation, which is the indispensable element for any social system to scale. See also (Turchin 2016).

Chapter 2 starts to lay the theoretical foundation for a systems theory of international politics. The foundation is completed with Chapter 3. A systems theory of international politics will be articulated in full color in Chapter 4.

2.1 Fear as the Cause of War

In his *Discourse on the Origins and Foundation of Inequality among Mankind* Jean-Jaques Rousseau stated his belief that man, prior to civilization, lived harmoniously with nature. It was “[o]nly with the coming of agriculture, demographic growth, private property, division of class, and state coercion . . . did war, and all the other ills of civilization, spring up” (Gat 2006, p38). For Rousseau the state of nature was peaceful. For Thomas Hobbes, however, the state of nature was “one of endemic ‘warre’, murderous feuds for gain, safety, and reputation, a war of every man against every man, which made life ‘poore, nasty, brutish, and short’” (Gat 2006, p37). Who was correct, Hobbes or Rousseau? Why does it matter?

To determine who was correct one must examine the behavior of man in the state of nature. A state of nature exists when there is no agriculture, private property, division of class, or state coercion. For this reason, “simple hunter–gatherers, who were thinly dispersed and nomadic, and had no substantial possessions, are at the centre of the Rousseauite claim” (Gat 2006, p62). Consequently, if these hunter-gatherers fought, the scales would tip in favor of a Hobbesian view of the state of nature.

According to Azar Gat, “during most of the two million years of the Pleistocene and until about 35,000 years ago (the Upper Palaeolithic), all humans were apparently hunter–gatherers of the simple sort. . . . [Moreover,] the evidence from historical simple hunter–gatherers is that they fought, and with substantial casualties” (Gat 2006, p63). Nevertheless, Gat admits that it is difficult to determine with certainty the behavior of humans that far back for lack of written record and other documentary evidence. Consequently, Gat relies on the behavior of simple hunter-gatherers, such as the aboriginal peoples of Australia, that was observed and recounted by Europeans who arrived in Australia as recently as 1788. The strength of this record strongly suggests that even the most simple hunter-gatherers engaged regularly in fighting and “lived under constant fear of violent conflict, which shaped their ordinary daily life” (Gat 2006, p83). It appears, therefore, Rousseau was not correct. Man clearly fought enough such that the state of nature can not be described as peaceful. But
more is needed to determine whether Hobbes was correct. After all, the picture Hobbes paints is one of endemic “warre,” not one of occasional conflict. To distinguish between occasional conflict and endemic “warre,” the motivation of the actors is important. What is it that produces war with such frequency as to support Hobbes’ claim?

Why did man fight? Gat describes it this way. “An anthropological model sensibly suggests that defended territoriality and violent competition will increase in ratio to the growing predictability and density of the resources, which make the effort to monopolize them worthwhile” (Gat 2006, p69). A primary motivation for conflict, therefore, was resource scarcity. Groups would increase in size commensurate with the ability of the land they controlled to support them, or they would move to find suitable land.

Pleistocene man was nomadic and territorial within a circumscribed area. Land, or a defined territory, was jealously guarded for its life-giving resources. Violent competition ensued as different groups came into contact over the same resources. Indigenous groups would fight to keep alien groups from taking resources because their life depended on the very same resources. For them, it was a zero sum game. Fear of death from a lack of resources was the ultimate motivator.

Pleistocene man in the state of nature was violent because his fear of death made him so. Increases in population would push groups to expand their territory, bringing them into violent contact with other groups over the same resources; seasonal or other natural food supply shortages would cause migration, again bringing groups into violent contact with other groups over the same resources (Gat 2006, p98). Differences in resources between groups caused violent conflict as each group sought to survive. This was the lot of man in the state of nature (Gat 2006, p84). But when man exited the state of nature, did things change?

If a state of nature was associated with no agriculture, no private property, no division of class, and no state coercion, then as these things came about did man stop fighting? Of course the answer is well known: man continues to fight to this day. Notwithstanding the sophistication and advancement of man, and the society of his creation, he continues to fight and kill his fellow man, even if in decreasing numbers (Morris 2014, p21-2); (Harari 2017). Over the last two million years, the evidence clearly supports Hobbes’ view of “endemic warre.” But compare (Tang 2013, p64). In fact, it appears human conflict is a reliable constant.

Rousseau’s conception of the state of nature has never been supported by the reality of the facts on the ground. The reason, as alluded to above, is because it fails to understand
mans’ social behavior in the context of the primary source of all of mans’ behavior: the
primordial desire for survival is the source of all of mans’ behavior. Indeed, “[t]here is
no [evolutionary] ’reason’ for the existence of either competition or conflict, other than
that they both proved successful techniques in the struggle for survival” (Gat 2006, p122).
Survival is the one primary biologic need and man is designed and engineered to pursue it.
(Reproduction is also viewed as a primary biologic need, but, alternatively, is either omitted
or subsumed by the drive for survival as discussed here) (Gat 2006). See also (Lisle and
Goldhamer 2003 loc261).

“The bodies and minds of all creatures are designed for the same purpose—for survival.
. . .” (Lisle and Goldhamer 2003 loc258). Consequently, if survival is the “one” primary
biologic need and objective, then all human behaviors can be viewed as tactics and measured
by their usefulness in contributing to its fulfillment. Further, if this is true, it follows that
humans must be equipped with a set of tools to assist them; to let them know that their
behavior is contributing to this end. Otherwise, how would they know?

Every human (and complex animal) that has ever lived has had engineered into them a
specialized set of neural circuits that produce feedback by means of good or bad feelings.
These feelings signal the utility of their behavior, thus directing its continuation or cessation
(Lisle and Goldhamer 2003 loc-299-301). This circuitry allows for the modulation of
behavior by encouraging behaviors that produce pleasure, discouraging behaviors that
produce pain, and encouraging the conservation of energy. Consequently, this neural
circuitry forms the basis of a motivational triad that motivates man to act because of how he
expects to feel (Lisle and Goldhamer 2003 loc302). For example, according to Douglas
Lisle, “[p]leasure . . . is an intense event designed to last for a few precious moments each
day. The experience is limited, as the pleasure system quickly becomes exhausted. Pleasure
was designed as the unmistakable signal of success for reaching survival and/or reproductive
goals” (Lisle and Goldhamer 2003 loc398-400). Conversely, pain was designed as an
unmistakable signal of failure, which in this context means death.

Related to the concept of feelings is the concept of moods. Moods signal the expectation
of pleasure or pain in the future and have their own neurochemistry and mechanics. Whereas
acts of pleasure, such as sexual intercourse, cause the release of dopamine concurrent with
the act itself, a positive mood such as happiness causes the release of serotonin. Pleasure
responses signal ultimate success at reaching a primary biologic end point and, hence,
are more intense, even if much shorter in duration than moods. Positive mood responses,
on the other hand, signal that the right behaviors are being exhibited and, therefore, a
primary biologic end point, such as survival (or reproduction, in the example used) is being approached (Lisle and Goldhamer [2003, loc403-03]). Consequently, moods, particularly happiness, are important because they reinforce positive behavior that leads to a primary biologic end point. Conversely, unhappiness, as a mood sustained over time, signals poor behavior and the approach of a feeling of pain, the avoidance of which is a primary motivator of man because it directly, negatively impacts his primary objective of survival. Moods, seen as such, are a tool that guide man toward survival.

Fear in human beings is a primary emotion provoked in response to a stimulus presently occurring, or anticipated to occur, that presents a risk to body or life. Fear punctuates unhappiness and, following the discussion from immediately above, signals the eventuality, if not imminence, of pain. Because pain directly implicates man’s primary biologic need for survival, fear consumes and controls him to the exclusion of all else. “As Edmund Burke observed a century and a half ago, ‘[n]o passion so effectively robs the mind of all its powers of acting and reasoning as fear’” (Fettweis [2013, loc654]). Consequently, in this sense fear constrains man’s volition. Fear is evolutionarily useful because it directs man toward activities intended to mitigate or reduce it. Fear directs man toward survival.

Pleistocene man was a simple hunter-gatherer. It is a small, perhaps even inconsequential, simplification to assume he led a basic life whose only significant activities were foraging, hunting, and reproduction. To the extent he was aggressive and engaged in violence against others, it can be assumed he did so only to survive. Man is programmed to avoid pain, because pain signals death. Consequently, man will generally fight only to survive. Fighting for other reasons, especially when the outcome is uncertain, will generally be prevented by man’s fear of death. This is not to suggest that man is not violent and will not fight for a reason other than survival. Rather, it is to suggest that if man does fight for a reason other than survival, it will be with a favorable view toward the risk of failure, thus mitigating the fear that will prevent him from engaging in the activity in the first place (Gat [2006, p114]). In this light, aggression, or fighting, or “warre,” should be seen as an evolutionarily useful tactic employed by man because of his fear of death. It follows, therefore, if man does not fear death, he will not fight.

Hobbes understood man’s fear of death was strong enough to cause him to risk death in order to survive. This explains war in the state of nature. When Pleistocene man could not acquire sufficient food from his land to ensure his survival, he would risk his life to take it from the land of another. He did this knowingly. Hence, knowledge of an undesirable anticipated outcome produces fear that inspires action intended to redress the fear. But
knowledge also produces security because it motivates and focuses the action of man, allowing him to modulate his conduct in relation to the object of his fear, thus giving him control over his well-being. See (Blits 1989). This idea of knowledge and control is important because it broadens the definition of fear beyond the known, bringing into its orbit the unknown.

According to Hobbes, man will fear undesirable outcomes his knowledge tells him to anticipate. However, he will also have an “indeterminate fear of the unknown” (Blits 1989, p418). “Fear is a pain, and men naturally avoid pain. Men therefore seek to avoid not only the object of fear, but fear itself. But an objectless fear is an unresolvable fear. No one can fight or flee what he cannot identify or know” (Blits 1989, p425). For Hobbes, fear of fear itself, or of the unknown, was the greatest fear because lacking knowledge, man lacked control over his well-being and was, therefore, helplessly insecure. An insecure man lives in constant fear and, therefore, pain. It follows from this that man will constantly seek knowledge as a means to gain control over his well-being. Until man gains total control over his well-being, he will be insecure and live in fear and he should be expected to act accordingly.

Hobbes’ political philosophy rests on the proposition that fear must be mitigated so man can feel secure; so he can be removed from the state of nature. Hobbes’ solution is the imposition of “a common power to keep them all in awe” (Hobbes 1651, ch. 13). His Leviathan does this at the level of the state. But what performs this function at the level of the system of states? Hobbesian logic suggests man will remain insecure and live in fear, and act out of fear, until such time as a common power exists at the level of the system of states to keep all of man in awe. Is this conclusion supported by what is observed today?

Fear causes war. Mitigate fear and the occurrence of war will reduce in proportion. “If man’s evil qualities lead to wars, then one has to worry about ways to repress his evilness or to compensate for it” (Waltz 2001, p40). So if war is less frequent, as Ian Morris asserts, if violence is truly declining, is it because man is less fearful, or because his evilness has been repressed or compensated for? A first image analysis reveals fear as the root cause of the problem. It does not reveal the solution. The solution is not completely revealed by the second image, because we know war still recurs with an all too often frequency. A reduction in war, if it exists, must be explained at least in part by reference to the third image. Moreover, whatever explanation is found must operate in the context of the root cause. The two are not independent. They are interdependent. A systems theory of international politics must account for both.
2.2 Two Systems Views of Realism

Realism has been a dominant theory of international politics since the beginning of the 20th century. Two relatively recent realist theories that are particularly prominent and purport to offer a systems view of international politics are Kenneth Waltz’s defensive realism and John Mearsheimer’s offensive realism. Both theories suggest that international political outcomes result from the structure of the international system. According to these theories, it is the structure of the International system that drives state behavior.

Both theories view the system of international politics as anarchic. As a consequence, both give state power primacy since it is ultimately the only thing a state can rely on to secure its own survival in a world of potentially predatory states. Both theories ultimately rely on power directly, or indirectly, to explain the structure of the international system. Beyond this, however, the theories differ.

Because of the assumptions that offensive realism makes, it finds that states engage in patterns of behavior that give rise to a security dilemma and make escape from it impossible. Defensive realism also theorizes the existence of a security dilemma but finds that states can escape it through cooperation, a possibility that offensive realism does not allow. This is the main difference between the two theories and it makes clear the implication that offensive realist states are power maximizers while defensive realist states are not.

Neither theory is a true systems theory as contemplated here (see chapter 3). As will be shown later, a systems theory theorizes how the coaction of the actors generates system structure and how system structure then affects actor behavior. Actor behavior and system structure coevolve. The synergy of the two is what produces the outcomes of the system. Consequently, a third image analysis can never offer a complete answer. The agency of states matters.

This next two subsections will review in relevant part each theory to set the stage for a more complete systems theory of international politics to be proposed in the penultimate chapter of this paper.

2.2.1 Defensive Structural Realism

In his *Theory of International Politics* Kenneth Waltz put forward his structural theory of international politics. A structural theory of international politics is one that omits the attributes and the relations of the interacting states and focuses only on the structure of the system, which is to say the placement of the states within the system itself (Waltz
Waltz believes this to be necessary because of the repeated failure to explain international political outcomes by the examination of interacting states. According to Waltz, “if the same effects follow from different causes, then constraints must be operating on the independent variables in ways that affect outcomes” (Waltz 2010, p68). These constraints are found above the level of the state: they are found at the level of the system of states and are given expression by the structure of the system itself. For Waltz, therefore, system structure is a constraint that works to keep outcomes within specified ranges despite the variety of behaviors, strategies, or interactions of the states in the system (Waltz 2010, pp69, 72). Seen in this way, system structure explains, at least in part, the recurrence of familiar outcomes in international politics, even outcomes that are not desired (Waltz 2010, p69).

Waltz finds that the structure of the system of international politics is defined by three phenomenon. First is anarchy, the ordering principle of the system. International politics is not an hierarchically ordered realm. Each of the states interacting in the system stands equal to each of the other states, with no power over them. No state is superordinate or subordinate relative to another and there is no power to keep them in awe. Second, the interacting states are not functionally differentiated. Each state is alike in that it must perform the same functions as every other; there is no specialization that causes one state to perform one function to the exclusion of another performing the same function. Finally, third, how states are placed in the system relative to each other depends on each state’s relative capabilities. Thus, while states perform the same functions, particular states can stand apart from others by their ability to perform the same functions better. For a complete discussion on system structure, see (Waltz 2010, Ch. 5).

So for Waltz, system structure is defined by three phenomenon. But two of the three phenomenon are constant. Anarchy, the ordering principle of the system, is a constant. It is also a constant that the system is composed exclusively of functionally undifferentiated states. These two things do not change. The only variation occurring in the system is with the distribution of capabilities among the otherwise undifferentiated states. Consequently, this particular phenomenon seizes the lion’s share of the explanatory power of his theory. To the extent system structure explains anything, it is the distribution of capabilities within the system that explains it. Distribution of capabilities, therefore, must become the focus of analysis and as such requires further definition and discussion.

Waltz asserts that power is what positions states differently in the system (Waltz 2010, p97). Power is not a system level attribute. It is clearly an attribute of the state. So is Waltz failing to heed his own admonition to omit unit level attributes from system level definitions.
If power is what determines the placement of a state in the system, how does this relate to distribution of capabilities? The following thought experiment will elucidate an answer to these questions.

To understand how power positions a state in the international system and how it relates to distribution of capabilities, it is useful to think of power as being a statistic calculated from the relevant attributes of a state, with all such statistics calculated from all states being observations from a normally distributed population. This population distribution can then be described exclusively by its mean and standard deviation and can be represented graphically by a Gaussian curve. The calculated statistic will summarize the unit level attributes of the particular state and it will precisely determine the placement of the state on the Gaussian curve - in Waltzian terms, the value of the statistic determines the placement of the state in the system of states. (It also appears Waltz would equate the value of this statistic with the capability of the state). See (Waltz 2010, p131).

When Waltz refers to the distribution of capabilities, however, he is no longer referring to where the state is placed on the Gaussian curve. He is referring to the curve itself. The attributes of the curve clearly and precisely describe the distribution of capabilities in the system. The distribution of capabilities can be fully understood by referring to two population parameters: the mean and the standard deviation. Different distributions of capabilities will be represented by different Gaussian curves, with different means and/or different standard deviations. This means states can increase or decrease their power, thus changing their position on the curve. But unless the mean and standard deviation of the curve change, the distribution of capabilities remains the same. This is straightforward and is consonant with Waltz’s assertion that inconsequential changes in the number of great powers, or the replacement of one great power by another, do not result in a change in the structure of the system (Waltz 2010, p162).

For reasons that will become clear later, Waltz is not concerned with the absolute power of a state. He is concerned with how states stand in relation to one another. His concern is one of relative position, not absolute position. Indeed, if Waltz were concerned with absolute position, he would run afoul of his own admonition to pay no heed to unit level attributes. In the thought experiment above, Waltz can fully describe a state’s position in the system and its position relative to any other, without reference to unit level attributes, by specifying its distance from the mean in units of standard deviation. When this is done not only is the relative position of the state defined, but the stage is set for the grouping of relatively comparable states. This is important because it leads nicely to a discussion of
great powers.

For clarity, the above point warrants an illustration. If we assume a distribution of capabilities has the characteristics of a normal distribution with a mean of zero and a standard deviation of one, then a state that is 1.96 units of standard deviation to the right of the mean will register in the 97.5 percentile of the distribution. Putting this in Waltzian terms, this means that a state so situated, which performs the same functions as every other state (because all states are functionally undifferentiated), performs the functions better than 97.5% of the states in the population. It would be logical to group this state with others located nearby and to call them great powers. Why is this important?

“In international politics . . . the units of greatest capability set the scene of action for others as well as for themselves” (Waltz 2010, p72). “A general theory of international politics is necessarily based on the great powers” (Waltz 2010, p73). These statements are not objectionable. Indeed, the strong have always set the conditions of survival for the weak. Gat and Hobbes remind us of this. But because these statements ring true, we find it even more urgent to define what a great power is and Waltz’s guidance in this respect seems lacking.

According to Waltz, the question “what is a great power” is an empirical one that common sense can answer (Waltz 2010, p131). Waltz suggests one need only rank the states according to their capabilities and despite difficulties in comparison, general agreement will result, “with occasional doubt about marginal cases” (Waltz 2010, p131). The difficulty here lies in defining capabilities. In this regard Waltz states one must look at the combined capabilities of the state. “Their rank depends on how they score on all of the following items: size of population and territory, resource endowment, economic capability, military strength, political stability and competence[,]” probably among others not mentioned (Waltz 2010, p131). This may be true, but even if it is true, it results in an ordinal ranking of states arrived at subjectively. This is because the same ranking exercise performed by different people, each rationally emphasizing different items, will no doubt produce different results. Nevertheless, ignoring this difficulty, with such a ranking in hand where is one to draw the line that separates the great powers from the not great powers? There is no way to draw the line, except by subjective inclination, confirmed and comforted by “general agreement.”

As a theoretical concept, distribution of capabilities makes perfect sense as articulated in the thought experiment above. It is parsimonious and clear in its definition, it is theoretically rigorous, and it is repeatable. But the thought experiment above assumed power (or “capability,” which Waltz seems to use from time to time in its stead) was a statistic that could be
calculated from the relevant attributes of a state. It was this power statistic that provided a foundation from which all else was constructed. Indeed, distribution of capabilities derives directly from this statistic and, therefore, necessarily relies on it. If this statistic cannot be adequately calculated, no abstraction is possible. A distribution of capabilities does not exist, and we are left to make unit level comparisons based on our subjective, ordinal ranking of states. There is no structural theory.

This is where Waltz’s realism falls short. Power as a concept is under theorized by Waltz in his Theory of International Politics for this reason alone. But there is additional reason for concern.

For Waltz, and all realists, power is the currency states use to pay for self-help in an anarchic international system where there is no one to receive a “911” call. Power is what ensures the survival of the state, so logically a state may equate more power with more security and, therefore, seek more of it. This, as pointed out by John Herz, results in a security dilemma. A security dilemma exists when a state seeing another state increase its arms, and being unsure of the other state’s intentions, feels insecure and acts to increase its own arms in response. Each state then sees the other arming and has no choice but to continue to arm itself. A vicious cycle is created that leads to the paradoxical result that each state ends up feeling less secure because of the very actions it took to feel secure in the first place. See, (Herz 1950, p157); see also, (Waltz 2010, p186).

It is important to understand the genesis of this vicious cycle is the insecurity a state feels at seeing another state build up its arms. This leads to the conclusion that power is merely a means to an end, not an end in itself. “In anarchy, security is the highest end of the state” (Waltz 2010, p126). Consequently, while power is good, too much power can be bad if it provokes insecurity in other states, causing them to build up their arms. If a state is truly seeking security, it will not engage in arms buildups that provoke other states to respond in kind. Instead, it will offer reassurance and seek to cooperate with other states to prevent a security dilemma from arising (Tang 2008, p459). This means under Waltz’s theory states can pursue security by accumulating power, as well as through cooperation and reassurance. The end objective of these things deployed in coordination with each other is security, which is tantamount to a reduction in fear. Importantly, on this basis, how can one reasonably avoid a second image analysis if the intent is to understand international political outcomes?

To rescue Waltz’s realism, a more robust theorization of power is needed and one will be offered infra. Such a theorization of power must account for cooperation and reassurance between and among states. That these activities sound suspiciously like unit level activities
will be dealt with.

2.2.2 Offensive Structural Realism

In *The Tragedy of Great Power Politics* John Mearsheimer puts forward his structural theory of international politics (Mearsheimer 2001 loc495). Like Waltz, Mearsheimer believes great powers dominate and shape international politics and it is the structure of the international system that shapes the behavior of states (Mearsheimer 2001 loc440). However, unlike Waltz, Mearsheimer believes “the international system creates powerful incentives for states to look for opportunities to gain power at the expense of rivals, and to take advantage of those situations when the benefits outweigh the costs. A state’s ultimate goal is to be the hegemon in the system” (Mearsheimer 2001 loc504-06). Consequently, states must relentlessly pursue power; the more the better. This relentless pursuit of power, however, forecloses on the opportunity for states to cooperate, thus preventing their escape from the security dilemma. See (Tang 2008); see also (Mearsheimer 2001 loc970-74).

Mearsheimer’s theory rests on five assumptions that when married together create “powerful incentives for great powers to think and act offensively with regard to each other” (Mearsheimer 2001 loc663). For a complete discussion of Mearsheimer’s five assumptions, see (Mearsheimer 2001 loc635-63). To satisfy the purpose intended here, a brief discussion follows.

First, great powers exist in an anarchic environment. No central authority exists over the state, so each state is independent, sovereign, and must, therefore, be self-regarding. Because there is no central authority to receive a “911” call, states very quickly learn that self-help is the only reliable help. Consequently, self-help, according to Mearsheimer, is a common pattern of behavior for states (Mearsheimer 2001 loc663).

Second, all great powers have offensive capability and are capable of harming one another. This, coupled with the third assumption that states can never be certain about the intentions of another, is enough to provoke fear in them. Fear, according to Mearsheimer, represents a common pattern of behavior for states (Mearsheimer 2001 loc663).

Fourth, all great powers have survival as their primary goal. This means that feelings of insecurity, created by uncertainty about the intentions of another state, can produce fear and signal a risk to the survival of the state itself. Because the state exists in an anarchic environment, with no central authority to receive a “911” call, the state is forced to be ready at all times to act in its own defense. This leads the state to constantly engage in power maximizing behavior. According to Mearsheimer, power maximization is a common pattern
of behavior for states (Mearsheimer 2001, loc663).

Finally, fifth, great powers are rational actors. They are aware of their external environment and think strategically about how to survive in it. They consider the impact of their actions on other states and the actions of other states on themself. They adjust their strategy for survival accordingly. Their perspective is not limited to the short term, but contemplates the long term too. Consequently, they will make short term sacrifices to achieve a long term gain.

Mearsheimer believes each of the assumptions above is “a reasonably accurate representation of an important aspect of life in the international system” (Mearsheimer 2001, loc635-36). Moreover, the assumptions, as indicated above, induce states to exhibit specific patterns (self-help, fear, and power maximization) of behavior. As states exhibit these patterns of behavior, a system structure emerges as a result of the coaction of the states exhibiting the behaviors. The emergent structure is seized with its own distinct attributes that act upon the states and, therefore, influence state behavior. This explains Mearsheimer’s assertion of realists second core belief “that the behavior of great powers is influenced mainly by their external environment, not by their internal characteristics. The structure of the international system, which all states must deal with, largely shapes their foreign policies” (Mearsheimer 2001, loc442-43). Consequently, it is important to understand that it is these three behaviors that generate the system structure. These behaviors, however, do not define the system structure.

This distinction was not lost on Waltz. We know from Waltz that a structural theory of international politics is one that omits the attributes and the relations of the interacting states and focuses only on the structure of the system (Waltz 2010, p39). This explains precisely why Waltz went to great lengths to abstract away from the attributes of the state. He accomplished this by placing the state in the system according to its power and then describing the structure of the system and, indeed, the relative position of the state in the system, with reference only to distribution of capabilities which is a system level attribute. If Mearsheimer is to have a structural theory of international politics, as he purports to propose in The Tragedy of Great Power Politics, he too must abstract away from the attributes of the interacting states. As it turns out, he endeavors to do this by deploying a concept quite similar to Waltz’s distribution of capabilities. But as we will see, he ultimately fails because he relies on state level attributes where structural attributes are required.

According to Mearsheimer, “[s]tructural factors such as anarchy and the distribution of power . . . are what matter most for explaining international politics” (Mearsheimer 2001, loc
Anarchy is a constant, so it can be ignored because it cannot explain variation in outcome (Mearsheimer 2001, loc5134). Consequently, changes in the distribution of power are what is left to explain international political outcomes.

Mearsheimer’s definition of distribution of power seems to amount to nothing more than counting the number of great powers in the system and assessing the power of each in relation to the power of each of the others (Mearsheimer 2001, loc868-82). The result of this assessment is a characterization of system structure.

Mearsheimer defines a great power as a state with “sufficient military assets to put up a serious fight in an all-out conventional war against the most powerful state in the world” (Mearsheimer 2001, loc245-46). The state need not win, it just must be capable of fighting “a war of attrition that leaves the dominant state seriously weakened . . .” (Mearsheimer 2001, loc247). With this definition of a great power, the distribution of power under Mearsheimer’s theory is quite easy to determine.

Identify the dominant state in the world. Identify all states that are capable of fighting a war of attrition against the dominant state. Each member of this group of states, along with the dominant state, is a great power. Assess how power is distributed among the great powers. If there are only two great powers, then the distribution of power is bipolar. If there are more than two great powers, then the distribution of power is multipolar and one additional step is required. The distribution of power is multipolar and unbalanced if there are power asymmetries among the great powers. The distribution of power is multipolar and balanced if power is distributed more or less evenly among the great powers. See (Mearsheimer 2001, loc5139).

Mearsheimer characterizes system structure in accordance with this assessment (bipolar, balanced vs unbalanced multipolar) and it is system structure that explains international political outcomes. Nevertheless, Mearsheimer admits structure is only a “crude predictor” because sometimes nonstructural factors play a role in determining international political outcomes (Mearsheimer 2001, loc5139-45). This seems to clearly recognize the interdependence of system structure and state behavior. Much more will be said later regarding this.

From the above discussion, however, it is clear Mearsheimer is defining system structure in terms of the number of great powers and their relation to each other. The relation of each great power, each to another, is determined solely by the assessment and comparison of a single state-level attribute: power. If distribution of power is to be a structural attribute, it cannot be determined exclusively and directly by a state level attribute; the two cannot be one
in the same. To be a structural attribute, distribution of power must emerge from the coaction of states. That is simply not the case here. Hence, Waltz would scream reductionism and he would be correct. It is not even a close call.

Waltz escapes this trap through the fiction of placing each state in the system according to an assessment of its power and then defining its place in the system by reference to distribution of capabilities; Waltz dropped all references to power once the state was placed in the system. This was illustrated through the thought experiment above. The state attribute of power determined the position of the state on the Gaussian curve, but the state’s relation to any other state was specified in terms of units of standard deviation from the mean, which was a system level attribute that (along with the mean) uniquely described the distribution of capabilities - that is to say, it described the system structure itself. Waltz’s theorization of the system was sound. Waltz failed because his conception of power was inadequate in support of his theorization of the system of international politics.

We need not even reach Mearsheimer’s conception of power (which is more robust than Waltz’s) because his theorization of the system of international politics fails for lack of a structural attribute that purports to explain international political outcomes. The structural attribute Mearsheimer puts forward to explain international political outcomes is actually a state level attribute. Consequently, Mearsheimer has no structural theory because his theorization of distribution of power in the context of a structural theory of international politics is not tenable.

There is one final issue regarding Mearsheimer’s theory of offensive realism that requires discussion: the security dilemma. We know a state’s capacity for self-help is a function of its power. As states pursue power for the sake of security, other states respond in kind setting off an action-reaction cycle of power maximizing behavior (Levy and Thompson 2010, p30). This action-reaction cycle contributes to constant security competition and lies at the heart of the security dilemma “which reflects the basic logic of offensive realism” (Mearsheimer 2001, loc724). The international environment, according to Mearsheimer, is characterized by “constant security competition, where states are willing to lie, cheat, and use brute force if it helps them gain advantage over their rivals. Peace, if one defines that concept as a state of tranquility or mutual concord, is not likely to break out in this world” (Mearsheimer 2001, loc723-25). Nevertheless, and oddly, Mearsheimer elsewhere asserts that “[t]he pursuit of power stops only when hegemony is achieved” (Mearsheimer 2001, loc704-05). Does this mean that after achieving hegemony a great power stops accumulating power because they are secure? If they do, will not the other great powers who feel insecure
continue to accumulate power and eventually surpass them? Perhaps it is only a temporary pause? One is left to wonder.

The practical effect of the security dilemma is theorized differently by Waltz and Mearsheimer. We know from Waltz that too much power can be bad if it leads to a security dilemma that results in less security for each state. However, as Shiping Tang points out, because Waltz accepts the possibility that a state may have benign intentions, he leaves room for mutual trust to develop between states, thus allowing them to take actions to escape the constant power competition of the security dilemma. Mearsheimer accepts the possibility that a state’s intentions may be benign, but then renders the possibility moot with the assertion that “intentions can change quickly, so a state’s intentions can be benign one day and hostile the next. Uncertainty about intentions is unavoidable, which means that states can never be sure that other states do not have offensive intentions to go along with their offensive capabilities” (Mearsheimer [2001], loc650-52).

As already stated, supra, under Waltz’s theory states can pursue security by accumulating power, as well as through cooperation and reassurance. This is not the case under Mearsheimer’s theory. Under Mearsheimer’s theory, states can pursue security only by accumulating power. Cooperation, which could suspend power competition and allow each state to exit the security dilemma, is foreclosed because a state will always assign a hostile intention to another state. A state can never trust that another state has benign intent. For offensive realists, security competition is a way of life. A state in an offensive realist’s world can not achieve security. Fear wins!

2.3 Power

Power, directly or indirectly, is what determines outcomes in international politics, or so we are told by Waltz and Mearsheimer. For Waltz, power is what positions states in the international system and it is the basis for his concept of distribution of capabilities which he theorizes as a system level attribute. Mearsheimer speaks of a distribution of power which he intends to be a system level attribute, but in reality he is simply counting and comparing the great powers by the amount of power they possess. If power is so central to international politics, then clearly no understanding of international politics is possible without first having an understanding of power. If power is so central to a structural theory of international politics, then it must be theorized in the context of what a systems theory requires generally, before it can be properly expressed more specifically in a particular
systems theory such as offensive or defensive realism.

We know from above that a system is composed of interacting units and it is the coaction of the interacting units that establishes and gives life to the system itself. The system that emerges in this way is defined by a structure which itself is described by attributes that are different in character from, and cannot be described in terms of, the attributes of the interacting units. System structure affects unit behavior even as it is affected by the nonlinear effect of the behavior of the system’s units considered all together. The system evolves over time through the interplay of system structure and unit behavior manifest in state expressions of power. It is often, if not always, impossible to distinguish horse from cart. This explains why system behavior cannot be explained by system structure or by unit behavior, one independent of the other. To try to explain one outside the context of the other is to engage in reductionism.

If power is to be a dominant explanatory phenomenon in a system of international politics, it must be theorized at both the unit and the system level since each affects the other. Waltz and Mearsheimer both purported to theorize power at the system level, but neither did so at the unit level. Consequently, their theorization can not be complete. Power at the system and unit level must be considered together to produce a coherent explanation of outcomes in a system of international politics.

What follows next is a theorization of power at the unit and then at the system level. The interplay of the two is what will explain outcomes in international politics.

### 2.3.1 National Capabilities as Unit Level Power

For Waltz power is measured in terms of capabilities and “in a self-help system . . . [states] have to use their combined capabilities in order to serve their interests” (Waltz [2010], p131). A state’s power is based “on all of the following items: size of population and territory, resource endowment, economic capability, military strength, political stability and competence” (Waltz [2010], p131). It is the combined effect of these items that determines the power of the state as well as the position of the state in the system of international politics. Waltz’s definition of power is not objectionable, so far as it goes. But it goes not far enough because it is not actionable. It needs to be operationalized.

Waltz’s theorization of defensive realism is robust. Nevertheless, we are left uncertain as to whether it adequately explains the reality of what we observe in the system of international politics. If we are to build a model of the system of international politics, explanatory variables must be quantified, otherwise we are left with subjective evaluations to inform and
drive conceptual arguments, with cause and effect left to hang in a limbo of abstractness. How should power at the state level be quantified? To this task we now turn.

Mearsheimer argues that power is based on material capabilities and he distinguishes between military power and latent power (Mearsheimer 2001, loc1034-37). Mearsheimer’s two categories of power contemplate all of Waltz’s items, but his theory favors military power as the primus inter pares “because offensive realism emphasizes that force is the ultima ratio of international politics” (Mearsheimer 2001, loc1047-48). Moreover, “effective power,” is a function of military capability (Mearsheimer 2001, loc1042). “Latent power[, on the other hand,] refers to the socio-economic ingredients that go into building military power; it is largely based on a state’s wealth and the overall size of its population” (Mearsheimer 2001, loc1039-41). Consequently, latent power cannot be ignored and it requires special attention in two particular respects.

First, the nature and quality of a state’s latent power is important. A state’s ability to invest in military power requires a surplus of wealth. If the population of the state consumes all it produces, nothing is left over to invest in building up the military. This, according to Mearsheimer, largely described Russia in relation to the United Kingdom during the period 1815 - 1914. Russia was saddled with a large, agrarian, peasant-based economy that produced little, if any, surplus. Consequently, even though Russia’s overall level of wealth was comparable to the United Kingdom’s (because of its greater population), it was clearly less powerful than the United Kingdom. The United Kingdom during this period was industrialized and significantly more productive than Russia. This difference in productivity resulted in the United Kingdom having a comparatively much greater surplus than Russia. The United Kingdom used this surplus to build up its military power. See (Mearsheimer 2001, loc1161-75). Consequently, for Mearsheimer, the nature and quality of latent power clearly contemplate the economic development of the state (Mearsheimer 2001, loc1161).

Second, even if a surplus of wealth exists, the state must have the ability and the political courage to extract the wealth from its population and direct it toward the production of military capability and not other things like, for example, social services. This is not always a given. Germany is a productive and rich state, but invests comparatively little in military capability.

Mearsheimer explicitly recognizes the nature and quality of latent power is important, but he does not directly address the fact that the resources necessary to build military power, which is the ultima ratio of international politics, must be taken from the population of the state. In order to take the resources from the the population of the state, the state must have
the institutional capacity and the political will to do so, and the people of the state must not resist the taking.

Before Mearsheimer wrote *The Tragedy of Great Power Politics*, A.F.K Organski and Jacek Kugler addressed exactly these issues in *The War Ledger*. They framed it this way: “Do elites have the tools to extract human and material resources from their societies, aggregate the many contributions each citizen makes into national pools, and use them for national purposes” (Organski and Kugler [1980, loc1146-47])? If elites have the tools, then the state will be able to produce some measure of military capability. The measure of capability will depend on the amount of resources that can be extracted and directed toward its production, as well as the level of political mobilization that the state can direct and sustain over time. Unlike Mearsheimer, Organski and Kugler do not directly address military power. Instead they proxy state power with a measure of national capabilities.

According to Organski and Kugler, “as far as a measure of national capabilities was concerned, the three principal determinants are the number of people who can work and/or fight, their productivity, and the effectiveness of the political system in extracting, pooling, and allocating individual contributions for use in the pursuit of national goals” (Organski and Kugler [1980, loc1366-69]). The number of people who can work or fight is proxied in a “rough way” by total population and GDP per capita proxies for their productivity (Organski and Kugler [1980, loc1369]). The product of the two is simply GDP.

Organski and Kugler developed a metric for the state’s ability to extract, pool, and allocate resources from the population. It is calculated by taking the taxes actually collected by the state as a percentage of the taxes theoretically able to be collected. The taxes that are theoretically able to be collected is a value calculated in consideration of how the state’s economy produces its GDP. Hence, Organski and Kugler specifically apprehend the nature and the quality of the state’s economy with their method of calculating state extractive capacity; and, it bears mention that their discussion of the state economy in this regard is not remarkably different than Mearsheimer’s. This measure, once calculated, will represent the effectiveness of the state in mobilizing its human and material resources for national purposes (Organski and Kugler [1980, loc1142-63]).

In assessing the amount of taxes theoretically able to be collected Organski and Kugler looked at the openness of a state’s economy as a function of the portion of its GDP accounted for by exports; the development of the state’s economy as a function of the portion of its GDP accounted for by agriculture; and, the composition of the state economy’s total product as a function of the portion of its GDP accounted for by mining activities (Organski and
Kugler [1980, loc1252-62]. “The next step was to use multiple regression that allows controls for the above differences among all members of the sample and produces estimates of how much each factor added to or subtracted from tax totals in each country for every year. The regression yielded predicted values that are estimates of capacity” - the amount of taxes that could theoretically be collected based on the attributes and level of economic development of the state’s economy (Organski and Kugler [1980, loc1270-72]). The value of taxes actually collected divided by the amount theoretically available for collection represents the extractive capacity of the state and is what Organiski and Kugler refer to as Relative Political Extraction, or RPE. The product of RPE and GDP results in a national capabilities score. This score represents state power. In effect, it is nothing more than a multiplier applied to GDP. The multiplier simply gauges the states ability to mobilize the wealth (human and material) of the state for national purposes.

As examples, see Figure 2.1 and Figure 2.2 for national capabilities for the years 1980 and 2010 (Tammen and Kugler [2000]). In Figure 2.1, the United States is positioned at the far end of the curve and from the x-axis we see the United States sits at the 100th percentile of national capabilities. China sits at the 80th percentile. Figure 2.2 shows that in thirty years China significantly increased its national capabilities. China’s increase in national capabilities may be the most significant event in international politics over this period.

Interpretation of RPE can be informative. A state with an RPE score of less than 1.0 is deemed to be under performing since it is not extracting or mobilizing the human and
material resources it should given the performance and attributes of its economy. This under performance, however, may be the result of a lack of (coercive) state capacity, or it may be the result of the population’s lack of support for the state’s policy agenda. The latter suggests that if the state has the extractive capacity, then under the right political conditions the state will be able to surge its extraction, increasing significantly its mobilization of human and material resources. This is important.

Consider a state with an RPE of 0.50 and a GDP of 1.0. This state has a power score of 0.5, which is simply the product of the two. However, because the state has the capacity to extract more from its population, if it chooses to do so, and if the population cooperates, it can increase its power score from 0.5 to 1.0 simply by intensifying its efforts at extraction. Presumably, in time of national emergency a state’s population will support this effort for the national good. Note, however, a state without extractive capacity will not be able to surge its power, since the government lacks the tools to extract resources from the population. Similarly, a state with an RPE greater than 1.0 presumably will not be able to extract much more from its population since it is already over performing relative to what is predicted by RPE.

Let’s now return to the concept of latent power. Mearsheimer described latent power in terms of population and wealth, with industrialized, developed economies having an advantage because their greater productivity made for a larger surplus of wealth that could be extracted and used to produce military power. RPE tells us how the state is performing
in terms of extracting wealth, or mobilizing human and material resources for national purposes. For states extracting less than what is theoretically extractable (RPE < 1.0), the amount less than what is theoretically possible represents latent power. For states performing at high levels (RPE > 1.0), it is unclear how much, if any, latent power they have. See Table 2.1 for the RPE, GDP, and corresponding power calculations for the top ten countries in 2010 (Tammen and Kugler 2000).

<table>
<thead>
<tr>
<th>Country</th>
<th>RPE</th>
<th>GDP $T</th>
<th>Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. United States</td>
<td>0.502</td>
<td>13.623</td>
<td>6.84</td>
</tr>
<tr>
<td>2. China</td>
<td>1.128</td>
<td>3.877</td>
<td>4.37</td>
</tr>
<tr>
<td>3. Japan</td>
<td>0.489</td>
<td>4.621</td>
<td>2.26</td>
</tr>
<tr>
<td>4. United Kingdom</td>
<td>0.804</td>
<td>2.476</td>
<td>1.99</td>
</tr>
<tr>
<td>5. Germany</td>
<td>0.636</td>
<td>2.988</td>
<td>1.90</td>
</tr>
<tr>
<td>6. Brazil</td>
<td>1.539</td>
<td>1.128</td>
<td>1.74</td>
</tr>
<tr>
<td>7. France</td>
<td>0.756</td>
<td>2.217</td>
<td>1.68</td>
</tr>
<tr>
<td>8. Italy</td>
<td>0.877</td>
<td>1.835</td>
<td>1.61</td>
</tr>
<tr>
<td>9. India</td>
<td>0.988</td>
<td>1.270</td>
<td>1.25</td>
</tr>
<tr>
<td>10. Russia</td>
<td>1.264</td>
<td>0.911</td>
<td>1.15</td>
</tr>
</tbody>
</table>

Table 2.1: National Power 2010

Organiski and Kugler’s measure of national capabilities, or what is simply here being called power, is a quantification of the power of the state. The inputs to the measure are objective and the measure is susceptible to repeated calculation over time; the result of the calculation is repeatable, which means it is verifiable. If a systems theory of international politics is to be constructed with power as the explanatory variable, then a measure of power must exist at the level of the state and at the level of the system of states. The system level measure will be a nonlinear expression of power produced from the coaction of states that creates the international system. The system will be manifest in its structure. The structure will exert power on the states. The interplay of state power and system power thus drive outcomes in international politics. What is left is to theorize power at the level of the system of states.

2.3.2 Globalization as System Level Power

Globalization has been a much ballyhooed phenomenon for quite some time. Yet globalization does not appear to have a commonly accepted definition (Kacowicz and Mitrani 2016, p196). Indeed, Pankaj Ghemawat finds at least forty-two definitions of globalization
Richard Baldwin, on the other hand, has a view of globalization as simply the geographic separation of production from consumption (Baldwin 2016, loc93-102). Accepting this definition, globalization has existed since at least the origin of the Silk Road, but most probably longer. Notwithstanding its ancient origins, globalization’s modern evolution is driven by two discontinuous advances in technology, with a third advance currently an incipient stage of development.

Baldwin asserts that globalization has evolved in response to three phenomena, with each phenomenon corresponding to a specific “unbundling” of production from consumption. Each unbundling was made possible by the loosening of a specific cost constraint. The first unbundling occurred in the early 1800s when steam power decreased the cost of moving goods enough to promote economical trade at greater and greater distances (Baldwin 2016, loc58). As it became economical to produce and ship goods to distant markets, production patterns changed to reinforce comparative advantage and trade volumes grew accordingly. Greater productivity in the North “sparked a cycle of industrialization, agglomeration, and innovation” (Baldwin 2016, loc313) that produced a knowledge gap in its favor. According to Baldwin, this led to an “unprecedented divergence” in wealth between North and South, the impact of which can still be seen today.

The second unbundling occurred as corporations were able to functionally decompose and disaggregate their supply chains, geographically repositioning elements to locations of greatest cost advantage (Baldwin 2016, loc3124). It occurred “when the ICT [information, communications, technology] revolution radically lowered the cost of moving ideas” (Baldwin 2016, loc129). See also (Grewal 2008, loc200). This revolution made it possible to coordinate complex activities that were geographically separated. This is what enabled the offshoring revolution from the 1990s onward and created “[t]he contours of industrial competitiveness[,] . . . now increasingly defined by the outlines of international production networks rather than the boundaries of nations” (Baldwin 2016, loc136-38). See also (Khanna 2016).

The third unbundling is underway now. New technologies are making it increasingly feasible to separate people from the object of their work, or to separate work from people all together through automation. An example of this would be an engineer in one location operating a robot in another location to perform maintenance on a piece of machinery; or driverless cars. Robotics, artificial intelligence, virtual reality, and augmented reality are all rich domains of technology innovation that promise to reshape labor markets as they compress time and space.
Moving goods, ideas, and people, was enabled by advances in technology. In each case technology lowered cost opening up economic opportunity, even if it was manifest in more complex forms of socio-economic organization. When transportation cost decreased, new, distant markets became available; when communications cost decreased, supply chains were decomposed, disaggregated, and distributed to low cost locations; and, as new technology allows workers to be separated from the object of their work, the market for their labor becomes global, putting downward pressure on wages. Technology, in each instance, is bending the cost curve downward. To the extent globalization is an economic phenomenon, its forward momentum is driven by advances in technology, even if its inspiration is cost reduction. The question that remains is, as an economic phenomenon, how extensive is globalization and how will it impact the political organization of the international system of states?

“In 1500 CE, the world’s export-to-GDP ratio was estimated to have been only about 0.1 percent, and international trade mostly occurred within geographic regions: the costs and hazards of interregional transportation by land, for example, along the Silk Road between Europe and China, were extremely high” (Ghemawat 2017, p56). According to the World Bank, in 1960 the world’s export-to-GDP ratio was 12 percent and it was 29 percent in 2015. The world’s export-to-GDP ratio has never exceeded 30 percent (which it achieved in consecutive years 2011 - 2014). Globalization has clearly advanced, though the data suggests it may have hit a ceiling (for the time being) at 30 percent export-to-GDP ratio. This may support Ghemawat’s conclusion that the world is merely “semi-globalized,” with local activity still by far the most important. See (Ghemawat 2017). However, it may also indicate the advantages from the second unbundling have largely been realized, with little left to accrue before the next discontinuous change takes hold fully.

For the moment, Ghemawat may be correct in his conclusion that the world is semi-globalized and that local activity is still what matters most. But the evidence suggests this will not last. Globalization leapt forward with the advent of steam power and again with the ICT revolution (export-to-GDP ratio up 50 percent since 1990). Robotics, AI, and other advanced technologies are only beginning to take hold now, but it is clear that they will reduce cost leading to a further reconfiguration of global supply chains. As supply chains are reconfigured, globalization will advance even further. The picture that is coming into focus is one of a world of “perfect capitalism” (quoting Michio Kaku, Khanna 2016, p92). A world of perfect capitalism can be viewed as nothing more than an aggregation of supply chains, or what Parag Khanna calls a supply chain world (Khanna 2016).
According to Khanna, in a supply chain world the operative logic is one of supply and demand. Factors of production are organized to maximize supply and minimize cost. Productivity is the reserve currency. Geographic boundaries are meaningless, unless they obstruct, in which case they become an obstacle to be overcome. Friction, which must be ruthlessly eliminated, results from the (transaction) cost of continuously coordinating, constructing, and deconstructing supply chains for fickle purposes. To the extent government aligns itself with the interests of its people, it becomes an enabler of the supply chains that provide its people with a quality of life. To the extent that government resists supply chains, it impoverishes its people and separates them from the globalizing world. As globalization advances, the world will be divided between a globalizing Core embedded into an increasingly meshed network of supply chains, and an impoverished Gap (Barnett 2005). It will be easy to distinguish winners from losers.

According to Khanna, supply chains are the organizing principle for “humanity in the 21st century,” representing an even “deeper organizing force in the world than states themselves” (Khanna 2016, p94). For Khanna to be correct, supply chains, however configured, must present an economic, or cost advantage over the best alternative configuration available. This means two things must occur. First, government must act to reduce friction, so that the portion of the supply chain within its borders is unfettered to the maximum extent possible. Governments that fail to do this will see supply chains rerouted around them, relegating their people to the impoverished Gap. Second, there must be a means of social coordination and cooperation to facilitate transactions between and along supply chains. Since supply chains are global by definition, any means of social coordination and cooperation must be
global. How might this occur?

The foregoing discussion of globalization has been from an economic perspective. It equated globalization with the global distribution of supply chains, with “perfect capitalism” eventually resulting from a pareto optimal distribution. Nevertheless, it is clear there are two other dimensions of globalization: Social and Political. A consideration of the social dimension will lead us to an important conclusion regarding the political.

According to David Grewal, “globalization is . . . the uneven process by which . . . conventions are determined, the way in which we construct (or, in many cases, simply receive) the settled terms of access to each other that make international cooperation possible” (Grewal 2008, loc54-6). Globalization, “perfect capitalism,” a supply chain world, all require coordinated actions and cooperation on a global scale. This is the social dimension of globalization and it raises several important questions. How does the mechanism that coordinates these actions, thus reducing friction, come into existence, evolve, adapt and sustain itself on a global scale? In other words, what is the basis for international cooperation in an international system not seized with a central authority? How are conventions developed outside the authority of government? These questions are key and the answers are shaping the modern international system under a condition of increasing globalization.

Grewal’s thesis is that international cooperation emerges not from the action of government exercising its sovereign power, but from and through relations of sociability. According to Grewal, sociability is “the accumulation of decentralized, individual decisions that, taken together, nonetheless conduce to a circumstance that affects the entire group” (Grewal 2008, loc141). The “circumstance” that affects the entire group is a standard of coordination that emerges from “the accumulation of decentralized, individual decisions.” It is important to understand, however, that a standard is not born dominant. A standard becomes dominant by virtue of its attractiveness to those who want access to what it controls: standards not only facilitate coordination among group members, but they effectively control access to group members; standards delineate insiders from outsiders. Standards, thus, exert real power.

This concept is straightforward. When you coordinate with a friend a time and location to meet for lunch, you do so in a common language, perhaps English. English is what facilitates and allows the lunch date to be scheduled. Without English, another standard would have to be chosen. So assuming you and your friend can only speak English, English has real power as a standard as relates to you. If you want to have lunch with an English speaking person, you must adhere to the standard. From this fact it is also obvious that
English delineates the group you are a member of. You are a member of a group of people that speak English and, as a result, you can coordinate lunch with any other member of the group, but not members of another group that do not speak English.

If group membership is deemed particularly valuable or attractive, then the standard obtains greater power, perhaps to the point of compelling compliance. For example, many United States’ multinational corporations make English a requirement of employment for employees in countries outside the United States. If potential foreign employees adhere to a different standard exclusively, say by speaking Mandarin, they will be excluded from employment by a United States’ multinational. The power of English as a standard can be even greater if scholarship, cinema, and other arts are produced in English, yet desired by non English speakers. Non English speakers will be excluded from their enjoyment, unless they learn English. But English speakers will likewise be excluded from Chinese scholarship and cinema. Setting aside the ability to translate, or for subtitles, does this mean there is room for multiple standards?

Metcalf’s law addresses this. Metcalf’s law asserts the value of a network increases exponentially with the number of its users (Grewal 2008, loc369). As a standard attracts more and more adherents its value increases exponentially and the value of alternative standards decrease comparatively. Staying with English as an example, one would find it difficult to go to any hotel in the world that attracts international clients and be unable to communicate in English with the hotel’s client-facing staff. This is true not just of American international hotels, but of Chinese and other nationals hotels too. Maintaining multiple standards is expensive and difficult. Imagine the client-facing staff at a Chinese hotel speak only Mandarin. This is sure to limit patronage from non-Mandarin speaking people, costing the hotel wanted revenue. Conversely, asking the hotel staff to speak multiple languages beyond their native language also seems unrealistic as it would increase the skills and, therefore, the wage demands of employees. Speaking English as a second language, however, is quite valuable if all of the visitors to the hotel also speak English as a second (or first) language. In this situation, only two languages are ever necessary, a native language and English. But this raises the question, how does English (or any language) become the standard for a second language? Or, leaving English aside, more generally, how do standards develop?

Grewal suggests a standard gets an initial push from “reason, force, or chance” (Grewal 2008, loc534). “[W]e can say that whenever we enter into cooperative arrangements, we will either be pursuing our interests or values (using reason), acting under duress (being subject
to force), or doing so by accident (being subject to chance)” (Grewal 2008, loc-442-44). For a transaction to take place, there needs to be a standard that allows for coordination and cooperation. In the lunch date example above it was English. But the larger point is that for any coordination or cooperation to take place, across any domain, there must be an accepted standard that allows for the exchange of information and for expectations to be understood.

As Grewal asserts, a standard will arise by reason, force, or chance for the purpose of allowing cooperation. But for such a standard to persevere, it must be perceived as necessary and valuable because of its “inherent properties and not because it happens to unite an already large network” (Grewal 2008, loc447). When this is the case, the standard will attract adherents that want access to the members of the network established by it. As more and more adherents abide by the standard the standard achieves a “threshold of visibility” and starts to exhibit Network Power (Grewal 2008, 541). Network Power exists when non-users become aware of a standard and are attracted to it for “extrinsic reasons” (Grewal 2008, 538). “A standard is adopted for extrinsic reasons when it is selected not for its internal characteristics, but because of the size of the network it unites” (Grewal 2008, loc452-53). It is at this point that Metcalf’s law begins to take hold and the value of the standard becomes irresistible. A threshold of inevitability is reached as all non-users start to adopt the standard (Grewal 2008, loc555). Other competing standards eventually expire.

The foregoing logic suggests two standards cannot exist to fulfill the same purpose for the same network. Eventually one standard will win. This was exactly the case in the war between Betamax and VHS. VHS eventually eliminated Betamax from contention because it won the battle for the hardware device that played the cassette tapes containing the encoded media that induced the consumer to buy the device in the first place. As more and more consumers were attracted to the VHS device, primarily because of its price relative to the more expensive Betamax, more and more media content was encoded using the VHS standard. This outcome probably represented the threshold of visibility for the network of consumers of home video players. Once it occurred, more consumers were attracted to VHS which caused more media content to be produced according to its standard. The cycle accelerated and Betamax died as a commercial offering.

An important implication arising from this, however, is that two networks that fulfill the same purpose can be supported by two distinct standards, if the networks are isolated from each other. It is only when the networks compete in the same space that a winner is likely to eventually emerge. The reason for this, which is hopefully obvious, is cost. Globalization, since its inception, has always ruthlessly followed the scent that led to lowest cost, unless
obstructed by a greater power. This is the exact point that Baldwin made when he described how each “unbundling” had removed a specific cost constraint that had prevented the advance of globalization. As each cost constraint was removed, globalization advanced and the necessary social structure, which has heretofore been referred to as standards, evolved apace. Consequently, networks maintained in isolation and regulated by government fiat, as an example, cannot evolve in response to an “accumulation of decentralized, individual decisions.” This puts them at a disadvantage versus “open” networks that evolve and self-optimize based on experience. This leads us to the point Thomas Barnett makes in the *The Pentagon’s New Map: War and Peace in the Twenty-First Century*.

Speaking in the context of national security, Barnett’s thesis is that states that are connected into the system of globalization (part of the “Functioning Core”) will not be a security threat to others because they are invested and fully participatory in the advantages the system generates. It is the states in the “Gap” which are disconnected from globalization that represent the threat. Disconnectedness defines danger because it “allows bad actors to flourish by keeping entire societies detached from the global community and under their control” (Barnett 2005, p7). According to Barnett, the difference between Core and Gap is as distinct as that between a Hobbesian state of nature and a Kantian peace (Barnett 2005, p166). The Core is richer, suffers less poverty and crime, and its citizens have a greater life expectancy and quality of life. So its no wonder that global crises or, according to Barnett, “system perturbations,” are likely to emanate outward from the Gap and impact an otherwise satisfied and tranquil Core. This is all well and good, but what is missing from Barnett’s account is a theorization of how power operates in a globalizing international system of states to suppress conflict in the Core. Absent such a theorization, its not at all clear that integrating Gap states into the Core will reduce conflict. In fact, it may simply import conflict into the Core. Consequently, the question thus presented is, does globalization reduce conflict and, if so, how?

Figure 2.3 clearly shows the consistent advance of globalization as represented by international trade flows. Figure 2.4 (Dreher, Gaston, and Martens 2008), which offers a index of globalization broader than trade flows, supports the same conclusion, even suggesting that globalization accelerated in 1990, coincidentally(!) about the time Baldwin suggested the ICT revolution was taking hold. As supply chains continue to be decomposed, disaggregated, and distributed around the world commensurate with the advance of globalization, the need for more cooperation is clear and it seems likely that it will occur as standards are established, evolve and take hold. Grewal tells us “[g]lobalization works to
extend and deepen relations of sociability at a global level, but without the concomitant construction of a global sovereignty - however much some national sovereigns may be able to influence particular aspects of this process” (Grewal 2008 loc678-79). Consequently, “the accumulation of decentralized, individual decisions” that have the effect of constructing “the transnational networks that constitute what we commonly call globalization” (Grewal 2008 loc596) represent a source of power intrinsic to the system of globalization so created. Put plainly, the proliferation of a plethora of standards arising from relations of sociability, which become manifest in social structures, is a potent source of non-sovereign power that constrains human agency, both individual and collective (Grewal 2008 loc703-04). This means that any explanation of how globalization reduces conflict must be rooted in an understanding of the power that results from globalization itself.

![Figure 2.4: Globalization’s Trend 1970 - 2014](image)

“‘The problem, pitched at the highest level of generality, is how to understand the relationship between human agency and the social structures in which people find themselves” (Grewal 2008 loc703). If human agency is the focus, then an emphasis is placed on freedom of individual choice, thus ignoring the impact of social structures and other constraints because they are assumed to be fixed or subject to individual will (Grewal 2008 loc713). Context, and the meaning it provides, is lost in the process. On the other hand, a focus on social structures leaves no place for individual agency, eschewing an indispensable source of understanding. Consequently, it will not be adequate to theorize power exclusively in
the context of either individual agency or social structure. Individual agency and social structure are interdependent. An approach that understands each as constitutive of the other is required. Hence, what is required “is a theory of structuration, an integrated account of agency and structure,” with specific attention paid to how power impacts human agency (Grewal [2008] loc743-44).

The foregoing has made clear that individual choices accumulate to produce standards. Standards structure ongoing coordination and cooperation, thus giving rise to social structures that in turn affect individual choices, delineate group membership, control access, and communicate norms. How is power manifest in these things? It manifests itself through coercion that regulates the attractiveness and availability of choices.

The accumulation of free and independent choices by many individuals leads to a standard. As the standard reaches visibility and then inevitability, increasingly it forecloses on alternative means of coordination and cooperation for the domain its germane to. The costs of non-adherence escalate accordingly. As a standard reaches universality, it merges with the population and no alternative standards remain. See (Grewal [2008] loc1415). The cost of non-adherence is total exclusion from the domain. The social structures that rise concurrent with the standard transmit norms of behavior that reinforce the standard, allow for its continued evolution, and discipline deviants as they present themselves. Individuals no longer adopt the standard because of “reason” or “chance,” but because of “force.” Under such a set of circumstances, free choice is eliminated. Power is manifest.

As globalization creates a plethora of standards, with their concomitant social structures, the range of choice and, therefore, behavior narrows as standards emerge and march from visibility to universality. Consequently, “the central tension in contemporary globalization . . . is that everything except politics [is being globalized]. We live in a world in which our relations of sociability - our commerce, culture, ideas, manners - are increasingly shared, coordinated by newly global conventions in these domains, but in which our politics remains inescapably national, centered in the nation-states that are the only loci of sovereign decision-making” (Grewal [2008] loc672-4). Globalization, thus, has given rise to a non-sovereign power that answers to “the herd.” It affects individuals even as individuals affect it. No one is in control, yet it cannot be fairly described as anarchy. Paradoxically, globalization when viewed as network power destroys hierarchy without creating anarchy. See (Ferguson [2018]).

If globalization reduces conflict, it is because it touches so much, thus taking control of the range of behavior that is permissible. As global supply chains continue to proliferate, linking together more people, inspiring common purpose and interests among them,
globalization will spread and social structures will arise and transmit norms of behavior that operate to perpetuate the system of globalization itself. Social and biologic systems always operate to perpetuate them self. Globalization reduces conflict because conflict would destroy globalization.

To get a sense for the spread and intensification of globalization since 1980, see Figure 2.5 and Figure 2.6 (Dreher, Gaston, and Martens 2008).

* * *

**Figure 2.5:** Globalization 1980

**Figure 2.6:** Globalization 2010

* * *
Man is biologically engineered to survive. For better or worse, fear inexorably directs man to purpose. Survival, or fear of death, is the genesis of his violent behavior. If we want to understand why violent conflicts occur, we need to understand what produces fear.

Hobbes and Gat tell us man fights to secure resources for his survival; he fights to eliminate the fear that comes with the uncertainty and insecurity he feels for his life. A secure man is a non violent man; a man not wanting for the resources he needs to survive is a secure man. From this logic we conclude states, like men, fight to ensure their survival. Like men, states want to eliminate the fear that comes with the uncertainty and insecurity they feel for their survival. Like men, a state that does not fear does not fight. States with adequate resources do not fear.

Power is the indispensable element for states. That is what Waltz and Mearsheimer tell us in one way or another. Waltz tells us power positions a state in the international system and as all states are positioned according to their power a system structure emerges. It is this structure that determines international political outcomes. Waltz’s thinking is relational, but Mearsheimer’s is not. For Mearsheimer, international political outcomes are the direct result of state power. Power is the *ultima ratio*. For Waltz, states cooperate to escape the power competition of the security dilemma. For Mearsheimer, cooperation is transient at best, because trust among states is not possible. Consequently, under Mearsheimer’s theoretical conception the blind pursuit of power makes escape from the security dilemma impossible.

If power is so important to the understanding of international political outcomes, a theorization more robust than that offered by either Waltz or Mearsheimer is necessary. Both Waltz and Mearsheimer fall short because they are unable to rigorously quantify power. Organski and Kugler, however, are able to do so. Organski and Kugler’s conception of power is straightforward. Multiply GDP by a factor that represents the ability of the state to extract resources from its people. A measure of National Capability, or simply power, is the result. With this measure of power, can outcomes in international politics be explained? As part of a systems theory, no. More is needed because this is an actor-level attribute that, according to Waltz, is to be ignored in a systems theory.

For a systems theory to stand, a conception of power that operates at both the state level and the system level must be articulated. In a system, the coaction of the actors produces system structure which then exerts power, impacting actor behavior. Actor behavior and system structure coevolve. What is missing from both Waltz and Mearsheimer’s theories is a conception of power at the system level. Absent this, they do not have true systems theories.

Globalization here is theorized as power at the system level. The coaction of states
and non-state actors alike results in the disaggregation and dispersion of supply chains globally. Standards and conventions arise to support the (inter)operation of these supply chains and those actors who fail to conform are simply excluded - whether they be state or non-state actor. This power to exclude, which is not the power of a sovereign, is very real. In an increasingly real sense it is the hand of Leviathan acting to bring order to an international system characterized by anarchy. It is for this reason it is hypothesized herein that globalization represents power. Because it is controlled by no sovereign, it is an attribute of the system and not of any particular actor.

The remainder of this paper will aim to present a systems theory of international politics. State level power as theorized by Organski and Kugler, and system level power proxied by globalization, will be variables of interest in explaining international political outcomes, particularly conflict initiation. Fear remains relevant as it is the genesis of human conflict.
Chapter 3

Methodology

Models are simplified descriptions of reality that strip away all of its complexity except for a few features thought to be critical to the understanding of the phenomenon under study. Mathematical models are such descriptions translated into a very precise language that, unlike natural human languages, does not allow for any double (or triple) meanings. The great strength of mathematics is that, after we have framed a problem in mathematical language, we can deduce precisely what are the consequences of the assumptions we made—no more, no less. Mathematics, thus, is an indispensable tool in true science; a branch of science can lay a claim to theoretical maturity only after it has developed a body of mathematical theory, which typically consists of an interrelated set of specific, narrowly focused models (Turchin [2006], p277).

This paper introduces a systems theory of international politics that is different than that of Waltz or Mearsheimer whose work provoked this effort. Waltz and Mearsheimer’s work has been recounted and analyzed in pertinent part above and additional analysis of it will be held for the penultimate chapter of this paper. The purpose of this antepenultimate chapter is to articulate a systems view of international politics from the perspective of realism.

This chapter proceeds as follows.

In section 3.1 a definition of systems theory, generally, is offered. It is not enough to claim that a theory is a systems theory. It must first be established what a systems theory actually is so that any theory claiming to be a systems theory can be measured against the standard established by the definition. Beyond defining what a systems theory is, it will be established that a system is composed of interdependent parts, making the interrogation of any particular part outside the context of the entire system not meaningful. This has implications for the choice of techniques chosen to model a system of international politics.

In section 3.2 it is made clear that typical techniques like OLS regression or logistic regression are wholly inappropriate for modeling systems where outcomes are interdependent. Generally, it can be expected that in a system actors affect system outcomes and
system outcomes in turn affect the future behavior of actors. Consequently, the analysis of actor behavior is not analytically straightforward. A technique to model the system of international politics that addresses these concerns is needed.

In section 3.3 the Stochastic Actor-Oriented Model (SAOM) is introduced to address the concerns highlighted in section 3.2. SAOM provides for the isolation and interrogation of actor and system attributes so that behavioral outcomes can be understood in the context of the purpose of the system itself. SAOM will be used to model the system of international politics with the hope of understanding the impact of power and globalization on international political outcomes.

In section 3.4 a systems view of international politics is finally articulated. This articulation conforms to the requirements of a system as defined in section 3.1. This is important because unless the purpose of a system is defined, along with the mechanisms that allow the system to sustain itself, then observed outcomes, or behavior, cannot be explained. The purpose of a system is what gives meaning to outcomes; the explanatory power of a systems theory derives from an understanding of the purpose of the system. Specific hypotheses are presented.

In section 3.5 the data used to construct the SAOM are identified. Because a high level of parsimony was maintained in model specification, only three datasets were needed. One dataset for each of power, globalization, and conflict. These datasets were left largely un-manipulated and integrated so that each state had a power and globalization score for each period contemplated by the model. As called out in this section, each time period corresponds to a wave and 228 waves of data were modeled.

Finally, in section 3.6 the results of the SAOM are presented. As we will see, globalization operates to reduce the odds of conflict initiation by offsetting the influence of power.

### 3.1 Systems Theory

What is a systems theory? The answer must be prefaced by understanding what a system is. A system is a “set of elements or parts that is coherently organized and interconnected in a pattern or structure that produces a characteristic set of behaviors” that serve to fulfill the purpose of the system itself (Meadows 2008, loc3398). The behaviors of a system do not derive from the properties of any particular element of the system, rather they derive from system properties that emerge from the interaction of the system’s elements. Consequently,
a system cannot be understood by examining its elements or their properties. Moreover, a system’s properties “are destroyed when the system is dissected, either physically or theoretically, into isolated elements” (Capra and Luisi 2014, p65). This makes obvious the implication that a system must be viewed holistically and that the nature of a system is always more than the sum of its parts (Capra and Luisi 2014, p65).

Systems have stocks and flows. “A stock is the foundation of any system. Stocks are the . . . [parts] of the system that you can see, feel, count, or measure at any given time” (Meadows 2008, loc460-61). A flow represents an increase or decrease to the stock of a system. If the balance of dollars in your checking account is a stock, deposits and withdraws represent flows that increase or decrease the stock. Flows are regulated by feedback. Feedback is information that allows for, or induces action to be taken to control flow; in other words, feedback influences the behavior of system elements that in turn impact system behavior. See Figure 3.1. Using the checking account example, the balance in your checking account regulates the flow of interest deposits to the account. More specifically, the bank (element) pays interests (flow) in consideration (feedback) of the balance (stock) in the account.

![Figure 3.1: System Structure](image)

The purpose of any system can be deduced from its exhibited behavior (Meadows 2008, loc391). A “function of almost every system is to ensure its perpetuation” (Meadows 2008, loc391).
This means every system acts upon feedback to regulate its stock so as to maintain it at a level desired in relation to its purpose. Consequently, “[s]ystems thinkers see the world as a collection of stocks along with the mechanisms for regulating the levels in the stocks by manipulating flows” (Meadows 2008, loc580-82). When an event is recurrent, or the range of possible outcomes is constrained or predictable, this is a strong sign that feedback is operating to cause the regulation of the system. Predictable outcomes are the result. As a corollary, outcomes that are not a cognizable product of system feedback are not systemic outcomes in the sense contemplated here. They may best be described as errors, outliers, or anomalies.

System structure, importantly, is not the position or arrangement, relative or otherwise, of elements in the system. System structure is characterized simply by the system’s “interlocking stocks, flows, and feedback loops” (Meadows 2008, loc1571-78). In a social system, therefore, this implies quite directly that an actor’s behavior, to the extent it transmits information, is part and parcel of system structure. Consequently, system structure can never be adequately discerned by taking inventory of elements (or actors), or of their placement in the system. This returns us quite nicely to the proposition that a system must be viewed holistically and never as the sum of its parts, or separate from any of its parts. This also presents the implication that a system’s purpose cannot necessarily be discerned from its structure.

So what is a systems theory? Waltz suggests that theories explain laws (Waltz 2010, p6). Laws, according to Waltz, describe a relationship between variables. The relationship can be probabilistic or absolute (Waltz 2010, p5). Accepting this, and as described above, a system will exhibit recurrent or probabilistic behaviors intended to produce outcomes that fulfill the purpose for which the system exists. These behaviors are the result of laws that operate within the scope of the system and are discovered by studying the operation of the system. This means, as Waltz correctly points out, that the “realm,” or the boundaries of the system, must be delineated prior to the development of theory (Waltz 2010, p8). That being said, detailed analysis lends to making predictions about when and possibly how a system’s laws operate. It does not explain why they operate, other than to say they operate to fulfill the purpose of the system, or to perpetuate the system, which is not of much help given nothing more. Consequently, a systems theory must assert with specificity what the purpose of the system is and in so doing identify the system’s elements, stock(s), and feedback mechanisms, and how they interact to produce the behavior that fulfills the purpose of the system.

Finally, a theory cannot be inferred from laws. A theory is the product of a creative
exercise whose purpose is to explain the regularities resulting from the operation of laws in a delineated domain. A theory is neither proved nor disproved, but rather supported or not supported by how well it explains observed laws. See generally, (Waltz 2010, Ch.1). Consequently, and in light of what is asserted above, the theorized purpose of a system, particularly a social system, is less the product of an empirical investigation and more the product of an epiphany that if sufficiently bold, but not “whimsical,” will give meaning to the behaviors exhibited and explain the outcomes produced by the system. Ultimately, if properly theorized, the purpose of a system is what allows us to interpret and make sense of all else that is perceived when observing the operation of the system.

3.2 Modeling Technique

Typically, traditional quantitative techniques like OLS regression or logistic regression are used to build models in the social sciences, and in conflict studies in particular. These techniques are appropriate when the assumption of independence of events is valid. But, as will be shown below, this is rarely the case. It is easy to understand why by comparing perfect competition to oligopolistic competition in a simple thought experiment.

The market system known as perfect competition is in pertinent part characterized by many buyers, many sellers, perfect information among market participants (buyers and sellers), and a fungible product. In perfect competition each buyer and each seller is a price taker; no participant has market power. Each of these attributes is an attribute of the system that emerges as the result of the collective action of the system’s participants (or elements). Hence, each attribute is considered endogenous to the system because it is attributable to the system and not to any one participant. Indeed, if the system were dissected, or broken into pieces, the attributes would not be observable. To interrogate the attributes, the system itself must be interrogated.

To continue the thought experiment consider the effect of a seller raising the price of his product. In this instance he sells no units of his product because all buyers will fulfill their demand from the many other sellers whom they will be aware of because of their perfect information. Likewise, if a seller lowers the price of her product, buyers will flock to this seller to fulfill their demand. However, since other sellers will have knowledge of this, they will lower their price making any advantage to the first-moving seller short lived. In this instance the market price will stabilize at the lower level making all firms worse off since ultimately they will be selling the same volume as before the price decrease, but now at a
lower price. Since this outcome can be anticipated, no firm will lower its price.

Under perfect competition buyers and sellers have no discretion or power; they have no volition. Their behavior is dictated predictably by the market system; they need not even consider or even be aware of the actions of others. It is enough to understand the attributes of the market system they operate in. The behavior of buyers and sellers in the market cannot be expected to change unless the market system, which so effectively controls their behavior, changes first.

Under perfect competition the attributes of market participants are exogenous to the system and have zero impact, and confer zero advantage, on any particular participant. It is not necessary to understand participant attributes in order to make meaningful predictions about market outcomes. The system is omnipotent; it is controlled by no participant, yet it effectively controls all participants. Perfect competition is a highly deterministic market system.

Compare perfect competition to another market system known as oligopolistic competition. Oligopolistic competition is in pertinent part characterized by a few sellers and many buyers. The product sold may or may not be differentiated, the requirement of perfect information may or may not adhere, and barriers to entry into the market for sellers do exist. Like perfect competition, these attributes are attributes of the market system, which emerge as the result of the collective action of the market’s participants and, therefore, are endogenous to the system. The existence (or not) of these attributes influence the behavior of market participants. But unlike perfect competition, the behavior of market participants is not solely determined by the effect of the market system as defined by its attributes. Oligopolistic competition is not a highly deterministic market system like perfect competition.

Under oligopolistic competition sellers need to consider the actions of their competitors because each seller has market power and through their action can change the dynamics of the market thereby affecting the revenue of other firms as well as the entire industry. Consequently, in a market characterized by oligopolistic competition, sellers are interdependent.

This interdependence is perhaps most famously demonstrated by the prisoner’s dilemma that shows the (dis)benefits of cooperation. See Figure 3.2.

Figure 3.2 depicts a simple scenario involving two firms where each firm has the option of choosing a high or a low price. Neither firm knows in advance what the other firm will do. If both firms select a high price, then the synergy created by their actions and the effect of market structure, or what will simply here be called market dynamics, will allow each to generate $100B in revenue, with the industry generating $200B in revenue. But if the
firms select different pricing strategies, one selecting high while the other selects low, the resulting market dynamic will reduce total industry revenue by $10B, with the firm selecting a low price substantially increasing their revenue at the expense of the other firm that chose a high price. This is the worst case for the firm that chose a high price (while the other chose a low price), because their revenue declines to $40B, the lowest of all the scenarios.

The worst case scenario for the industry occurs if both firms select a low price. In this case the resulting market dynamic will cause a substantial reduction in overall industry revenue from $200B to $100B, with each firm generating only $50B in revenue. The best case from an industry perspective, and a scenario that often requires collusion to be established and to endure, is for both firms to choose a high price. In early iterations of the game this outcome is generally not achieved because one firm or the other defects from this arrangement in order to achieve a windfall (quadrants II or IV).

It is clear that the dilemma for each firm is whether to risk selecting a low price, betting that the other firm will chose a high price. If this strategy works, the firm will benefit substantially. But if not, the firm will be much worse off.
It is also clear from the above that each firm has substantial power over the market. Moreover, the interdependence of the firms in the market is also established. What is less clear, however, and most important, is that there are two separate forces at work. Under perfect competition no seller had market power, so their actions were irrelevant and could be ignored. Consequently, perfect competition is a one force model because actor attributes are safely ignored. On the other hand, Oligopolistic competition is a two force model because the attributes of the actors cannot be ignored; they affect market outcomes. Under oligopolistic competition a synergy is created as the behavior of the actors impacts the system and the system in turn impacts the behavior of the actors, with the result being that the product of the two contributes to the market dynamic that is asserted above.

But unlike perfect competition, the system of oligopolistic competition is not deterministic. The attributes, or behaviors, of the actors must be accounted for along with system behaviors to adequately explain outcomes. Any model of oligopolistic competition must take account of system level (endogenous) variables and actor level (exogenous) variables in order to adequately explain or predict outcomes. In other words, an oligopolistic market is dynamic because of the synergy between endogenous and exogenous attributes.

If two sellers with identical attributes behave identically, one operating in a system of perfect competition and one operating in a system of oligopolistic competition, the outcomes will be different for the reasons articulated above. This illustrates the point that “[t]he decontextualization of individuals that is characteristic of standard methodologies can severely limit the hypotheses that are tested and the knowledge that is accumulated; isolating . . . [actors] from their . . . [environments] may remove them from the source of the very behavior or characteristic we seek to understand” (Harris 2014, loc364-67). The relationship between an actor and their environment is important, yet “traditional quantitative approaches used in the social sciences are not equipped to incorporate relational information” (Harris 2014, loc330). This is because the incorporation of “relational,” “contextual,” or “environmental,” information violates one of the most fundamental assumptions of regression models that observations must be independent. From the example above we know that identical firms making identical decisions will get different results depending on their social context; which is to say depending on the market structure they operate under. A firm’s action is not independent of its environment, it is in fact dependent on it and must be explained in the context of it.

The United States went to war against Iraq in 1990 because of Saddam Hussein’s invasion and occupation of Kuwait. The United Kingdom joined the United States against
Iraq. If Iraq behaved exactly as it did, but the United States had not gone to war against Iraq, would the United Kingdom have gone to war against Iraq? Most would agree that the United Kingdom would not have done so. This means that the United Kingdom’s action was not independent, but in fact was conditioned on a decision made by the United States that in effect created the social context for joint, or collaborative, action. In other words, if the United Kingdom had a probability of “x” for going to war against Iraq, the probability of the United Kingdom going to war against Iraq given that the United States had done so would be something greater than “x”, say “x” multiplied by some value “c,” where c >1. In this example, the relation of the United States vis-a-vis the United Kingdom in the international system is just as important as any actor-level, exogenous attribute. In this particular example, the relation of the United States vis-a-vis the United Kingdom may have been disproportionately impactful on the United Kingdom’s decision to go to war against Iraq. This further illustrates the need to understand the pressures exerted on an actor by their social context. In other words, their social system matters.

All said, it is clear that the United Kingdom’s decision to go to war against Iraq was not an independent “event” in a statistical sense. Katharine Barbieri recognized the dynamic of such a situation when she said, “[a]s with ordinary least squares models, logit models assume independence of events, an assumption that is likely violated when analyzing disputes, since the occurrence of one dispute might affect the outbreak of another one” (emphasis added)(Barbieri 2005, p66). Nevertheless, and as alarming as it may be, this admission did not deter Barbieri from using a logit model to predict incidents of conflict. That said, examining Barbieri’s method, she goes to great lengths to account for system level effects. One can only wonder how effective she was, given the inappropriateness of her tool.

Any quantitative model that purports to predict a social outcome must take into account the endogenous attributes of the social system the actor participates in as well as the exogenous attributes of the actor themself. The synergy of each with the other culminates in the production of a dynamic that is descriptive of the behavior of the entire system. See also (Snijders, Bunt, and Steglich 2010). This means, notwithstanding the ridicule of Waltz, that a reductionist analysis, one that combines system-level variables with actor-level variables, is required. (See Waltz’s discussion of reductionism) (Waltz 2010). Further, the quantitative method chosen should delineate the effect of endogenous and exogenous variables so that the analyst can examine and assess the effect caused by the actor’s behavior as distinct from the influence on the actor generated by the system (a task Barbieri avoids by her choice of
method). Waltz may at least find some solace in this.

Quantitative techniques that assume the independence of events, or fail to account for the synergy between actor behavior and system are \textit{ipso facto} inadequate for explaining social outcomes in international politics. Consequently, a systems theory of international politics that purports to explain international outcomes must account for actor behavior influencing the system of international politics as well as the system of international politics influencing actor behavior. The resulting synergy between system and actor is the dynamic that must be understood and analyzed because it is what produces international political outcomes. \textit{(But see contra} Waltz, “[w]ars, hot and cold, originate in the structure of the international political system”) (Waltz 1988 p627).

With this as prologue, the question presented is straightforward. If traditional tools like OLS regression and logistic regression are not appropriate, what tool is appropriate? To that question we now turn.

3.3 Quantitative Method

A quantitative technique that can be used to model social processes constitutive of a social system, and thus help explain recurrent outcomes, is the Exponential Random Graph Model, or ERGM, and its progeny. An ERGM is a tie-based model where a tie represents a relation of interest between two actors. Visually, a relation is depicted as an edge, or a connection, between two nodes that are actors in the model. “The essence of ERGM theory is the formation of social structure through the accumulation of small local substructures and, ultimately, through the formation of individual ties into the patterns of those substructures” (Lusher 2013 loc720-22). “Social networks are often seen as emerging from various social processes or mechanisms, in which case the patterns of network ties can be revealing about the processes that give rise to them” (Lusher 2013 loc764-66). By examining network topology, hypotheses can be tested statistically and inferences can be made about the social processes giving rise to the observed network structure.

Importantly, ERGMs assume interdependence between network ties (Lusher 2013 loc587). This means that a particular network tie may be more or less likely based on the existence of another tie in the network. Taking the concept further, this means that if a network tie represents a conflict between two actors, for example the United States and Iraq, the presence of another tie, such as between the United Kingdom and Iraq, is made more or less likely because of the existence of the tie between the United States and Iraq, in light of
the relationship between the United States and the United Kingdom, as well as any attributes of the United Kingdom or the United States, which are all held constant. Being able to quantitatively assess the probability of a tie given the existence of another tie, holding all else constant, is one strength of ERGMs and it represents the impact of the system on the actors situated in it. This is the social context Harris refers to above.

Another strength of ERGMs is the ability to quantitatively model the effect of actor-level (exogenous) attributes on tie formation. The United Kingdom’s decision to join the United States in the war against Iraq was driven not only by its relation to the United States in the international political system, but also by its own capabilities. If the United Kingdom was not capable of contributing, surely it would not have joined the conflict. But because it was capable, and in light of its relation to the other actors in the conflict (Harris’s social context), particularly the United States, it did join. The United Kingdom’s capabilities are represented as actor-specific, or exogenous, variables in an ERGM model. The strength of an ERGM model is that it accounts for both endogenous and exogenous variables at the same time, allowing the effect of each to be understood and examined while holding all else constant.

All of this said, ERGMs are not appropriate for longitudinal data. Consequently, two choices emerge: the Temporal Exponential Random Graph Model (TERGM) or the Stochastic Actor-Oriented Model (SAOM) (Leifeld and Cranmer 2016, p1). “The mathematical hearts of the TERGM and SAOM are very similar and are both related to the (non-temporal) exponential random graph model (ERGM)” (Leifeld and Cranmer 2016, p3). Indeed, it is fair to say that the TERGM is a simple extension of the ERGM to a series of networks (Leifeld and Cranmer 2016, p4). Hence, the discussion of ERGMs above is wholly on point. Because SAOM and TERGM are fairly “characterized as very similar models[,]” the distinction between the two is the salient issue that requires attention (Leifeld and Cranmer 2016, p5).

As with an ERGM, outcomes of interest for both the TERGM and the SAOM are the edges (ties between actors) in the network, as well as the corresponding network topology that is theorized as the product of social processes. Likewise, network attributes (endogenous variables) and actor or dyad attributes (exogenous variables) are relevant too. However, while SAOM is “explicitly actor-centric[,]” TERGM “has little to say by virtue of its basic mathematics about the primacy of actors or their agency” (Leifeld and Cranmer 2016, p7). This difference is expressed in the “mini-step updating process of the SAOM that is absent in the TERGM” (Leifeld and Cranmer 2016, p8).

A longitudinal network analysis models the ties that form and lapse over time between
actors. As a practical matter, a snapshot of a network is taken at some time $t_0$, with a second snapshot taken at time $t_1$. A tie between two nodes at $t_0$ may exist, or it may not exist, at $t_1$. Importantly, unobserved between $t_0$ and $t_1$, a tie may form and then lapse, or lapse and then reform. Herein lies the primary distinction between a TERGM and a SAOM. A TERGM does not account for unobserved changes in network edges between times $t_0$ and $t_1$. Consequently, the only input it considers when it calculates the probability for the network state at $t_1$ is the observed network state at $t_0$. SAOM, on the other hand, considers the network state at $t_0$ as well as the unobserved ministeps that are probabilistically taken by the actors to effect the transition of the network from $t_0$ to $t_1$.

A network transition from an observed state at $t_0$ to a different observed state at $t_1$ will typically require “a large number of ministeps” (Ripley et al. 2017, p10). These ministeps represent the creation or lapse of ties that go unobserved between snapshots. Ministeps are determined probabilistically and are made sequentially (Ripley et al. 2017, p10). The cumulative effect of the ministeps taken is the evolution of the network from $t_0$ to $t_1$. Because ministeps are taken sequentially, with a new unobserved network state resulting after each ministep, actors are able to respond to the (unobserved) network and, in essence, become each others “ever changing context. This allows the model to represent the feedback process that is typical for network dynamics.” (Ripley et al. 2017, p8).

Finally, the shorter the length of time between snapshots of observed networks the more dependent the latter network state is on the former network state (Leifeld and Cranmer 2016, p8). This dependence emanates from there being fewer ministeps taken between snapshots and, hence, less opportunity for (unobserved) change between observed networks.

SAOM and TERGM may produce different results using the same model specification largely as a result of how each method accounts for change between observed network states. It is not possible to state which method is better apriori. Ideally each method will be used with the same specification. The results can then be evaluated and a judgement rendered. For the purposes of this paper, however, that is not feasible. Consequently, SAOM will be used because it is more actor-centric. The same analysis conducted with a TERGM will be postponed to a future date.

### 3.4 A System’s View of International Politics

As stated above, regression techniques are not appropriate for modeling social processes where outcomes are not independent events. SAOM is an appropriate choice because it pro-
vides for the outcome of social processes, manifest in the topology of the observed network, as described by endogenous variables. Individual actor behavior is not left unaccounted for because actor attributes are included in the model as covariates (exogenous variables). Actor behavior is explained significantly, but not exclusively, by individual actor attributes and it is the synergy of the behavior among all actors that causes specific network topologies to emerge. Hence, the aggregate effect of actors’ behavior is the emergence of a specific network topology. In turn, the extant network topology influences actor behavior (Harris’s context). This impact of topology on actor and actor on topology is the feedback mechanism that allows, or causes, the network to evolve over time. Hence, the network, or the system, is reflexive and self-aware; it is dynamic. To say there is change in the system is tantamount to saying that the system is evolving, or that it continues to evolve. It is never accurate to assert that there is a change of the system, unless it is asserted that the purpose of the system itself has changed. When this is the case, however, two distinct systems are evident and not a change from one to another. Systems do not change. They evolve and/or expire. Compare (Gilpin [1981]).

Figure 3.3: A System’s View of International Politics

States are the elements or the actors in the international political system. Because each state is concerned exclusively with its own survival, each state is primarily concerned with
having the resources it needs to survive. Consequently, resource scarcity is an existential concern for all states. States that are endowed with plentiful resources fear only the loss of their resources and will, therefore, act to protect them. States that are not endowed with plentiful resources fear for their survival because of a lack of resources and, therefore, will act to acquire the resources they require. In either case, fear animates the behavior of states.

The purpose of the international political system is the allocation of resources among states. Hence, resources are the stock of the system that is regulated by the behavior of states. States will exercise power to protect the resources they have or acquire the resources they require. States will engage in globalizing behavior to acquire the resources they require. The distinction made between the state behaviors of power and of globalization is one of coercion versus collaboration. Globalization requires states to behave interdependently; coordination and, hence, collaboration is required. When states exercise power, they seek to achieve their ends by diktat. The result of a state’s exercise of power is conflict.

Fear induced by resource scarcity, or the threat of resource scarcity, animates the state behaviors of power and globalization. States exhibit these behaviors to secure the resources they need for their survival. When states feel secure with their resource endowments, or their access to resources, their behavior reflects this. There are several implications here:

- States acquire, sustain, and exercise power for the express purpose of protecting or acquiring resources to secure their survival. Hence, some level of power is always necessary and the amount of power a state seeks or sustains is commensurate with its sense of fear.

- States that feel secure and believe that they will continue to be secure into the foreseeable future are not power maximizing states. The converse, however, is also true.

- To the extent globalization provides states with needed resources, or ensures a state’s access to needed resources, it mitigates the need for states to acquire, sustain, and exercise power. Consequently, globalization operates to mitigate fear and obviate the need for power.

This leads to two very simple hypotheses. First, does globalization reduce the probability of conflict? If globalization is significant and has a negative coefficient, as is expected, then there will be support for this proposition. Second, does power increase the probability of conflict? If power is significant and has a positive coefficient, as is expected, then there
will be support for this proposition. Stated more formally in terms of null and alternative hypotheses:

**Globalization**

- $H_0$: Globalization has no impact on the odds of conflict initiation.
- $H_1$: Globalization has an impact on the odds of conflict initiation.

**Power**

- $H_0$: Power has no impact on the odds of conflict initiation.
- $H_1$: Power has an impact on the odds of conflict initiation.

If the result of globalization is the reasonable allocation of required resources, or the making available of needed resources to states, then it acts to reduce the fear a state will have for its survival and, thus, the incentive a state has to increase its power. If a state has less power, or is not power maximizing, less conflict should be the result; indeed, this is an inference that flows logically from the security dilemma. Consequently, we should see less conflict because of globalization among states that participate adequately in globalization. For states that do not participate in globalization, or at least not adequately so, we should see more conflict relative to what we see among globalized, or globalizing, states. Compare (Turchin 2006); (Turchin 2017).

Globalization and power sit at either end of a seesaw. As the seesaw tips toward the end where power rests, conflict becomes more likely. As the seesaw tips toward the end where globalization rests, conflict becomes less likely. Fear is what tips the balance. To determine whether this interpretation is correct, and to evaluate the hypotheses above, a SAOM model will be constructed where ties between actors represent conflict and globalization and power are included in the model as actor covariates. If the above interpretation is correct, globalization will have a negative coefficient and tend to offset the effect of power which should have a positive coefficient. The strength of globalization relative to power will determine which way the seesaw tips and in so doing suggest whether conflict is more or less likely. The purpose of this paper is to assert that globalization does, or does not, reduce conflict. If it does reduce conflict, what is the theoretical basis for such a claim? This latter point is the subject of the penultimate chapter of this paper.

Much remains to be said about the concepts abstractly presented here. Globalization and power are probably more comfortable terms than “resource scarcity” and “fear” as used herein. Moreover, the implicit assumption here, alluded to in chapter 2, is that man seized
with adequate resources will avoid conflict because he fears death. Man is not naturally violent. Consequently, more color needs to be applied to these concepts, and it will be done in the penultimate chapter of this paper. Globalization and power will be defined with more specificity in the following section on Data.

### 3.5 Data

A SAOM model with globalization and power as exogenous covariates will be constructed from a dataset that derives from three data sources.

1. **Power as a covariate.** Power will be quantified using the data set produced by Kugler and Tammen (Kugler and Tammen [2012]). The calculation of power is performed in accordance with the logic outlined *supra* at section 2.3.1. Power is simply the product of RPE and GNP. However, the power covariate used in the model is a scaled power score. This is done to align with Waltz’s concept of distribution of capabilities. See the discussion *supra* at section 2.2.1.

2. **Globalization as a covariate.** Globalization will be quantified as per the *KOF Index of Globalization* (KOF) (Dreher, Gaston, and Martens [2008]). KOF provides an overall globalization score as well as scores for political, cultural, and social globalization for each state in the international system. Globalization, as a covariate, is simply the value of the overall globalization score as reported by KOF.

3. **Conflict as the dependent variable.** Data sets from the *Correlates of War Project* (COW) provide conflict events used to build the network structures for analysis.
The “Correlates of War Project” presents an inventory of conflict events between countries. For the purposes of this paper, conflict events from 1992 - 2010 are used.

SAOM requires longitudinal data. Consequently, conflict data from COW is parsed into waves, with each wave representing a snapshot of the international political system at a particular point in time. The first wave is January, 1992, with subsequent waves each month through 2010.

Each wave represents a network of 174 nodes. Each network node is a state in the international political system. The same 174 nodes are present in each wave. A state that exists in the international political system but has never been party to a conflict as defined by COW is not represented anywhere in the data.

If a state is party to a conflict then a tie, or an edge, exists between that state and the state that it is in conflict with while the conflict is ongoing. Ties represent the dependent variable for the model. In light of the chosen covariates, the purpose of the model is to assess whether an increase or decrease in the odds of a conflict result from the power and globalization behavior of states.

As for the model’s endogenous variables, these variables are descriptive of the topology of the network, or the system, at a particular point in time. These variables are identified from a visual inspection of the network. “Network ties can organize themselves into patterns because the presence of some ties encourages others to come into existence. We often refer to these as ‘purely structural’ effects because they do not involve actor attributes or other exogenous factors. They are ‘endogenous’ effects in that the network patterns arise solely from the internal processes of the system of network ties” (Lusher 2013, loc872-75). By examining network structure, hypotheses about the internal (social) processes of the system can be discovered mathematically leading to statistical inferences of how the system drives the behavior of actors. This is accomplished by selecting appropriate endogenous variables for the model after a visual inspection of the network. Importantly, this is not an exercise in putting the cart before the horse. There should be some expectation beforehand about what will be found. For example, in the system of international politics, it would be consistent with the hypotheses above that globalizing states have less conflict with other globalizing states. Consequently, we should expect to see fewer ties (incidents of conflict) between globalizing states; somewhat more ties between globalizing and non globalizing states; and even more ties between non globalizing states. Stated differently, there will be a greater degree of homophily between non globalizing states as compared to that between globalizing states.
It is important to note that the primary purpose of identifying the endogenous network variables is to control for the impact of the system on the behavior of the actors. This addresses the main objection to the method used by others, including Barbieri.

3.6 Results

It is hypothesized that globalization operates to decrease the odds of conflict and power operates to increases the odds of conflict. Because each works to oppose the influence of the other, the net impact of the two will be of interest. Does globalization fully or only partially offset the influence of power in relation to conflict initiation? Or, perhaps it has no impact at all?

To illustrate the issue at bar, it will help to consider two countries: China and the United States. The United States has been a dominant power for some time and China, certainly during the period of interest, 1992 to present, is a rapidly emerging, increasingly dominant power. See Figure 3.5 and Figure 3.6.

![Figure 3.5: United States Capabilities Dashboard 2010](image)

The top panel presents the distribution of National Capabilities for 2010. The x-axis represents the percentile ranking and the y-axis represents the probability. It is clear that China and the USA are the two dominant powers, with Japan (not depicted) a distant third. For example, the USA is in the 100th percentile, and China slightly behind in the 99th percentile. The unit of measure is National Capabilities (power) as contemplated by Kugler & Organski. However, the data is transformed into a probability distribution, or what might be called a “Waltzian” distribution (of capabilities). It is fair, therefore,
to look at this as any of: National Capabilities as contemplated by Kugler & Organski, a Distribution of Capabilities as contemplated by Waltz, or a Distribution of Power as contemplated by Mearsheimer. While there may be a technical distinction between the three at some level of pedantic detail, there is not a practical difference. The top panel of Figure 3.5 and Figure 3.6 is the same. For the National Capabilities score of the top ten countries of 2010, as well as the country’s corresponding (scaled) power score, see Table 3.1.

<table>
<thead>
<tr>
<th>Country</th>
<th>National Capabilities</th>
<th>Power (scaled)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. United States</td>
<td>1.000</td>
<td>9.678</td>
</tr>
<tr>
<td>2. China</td>
<td>0.995</td>
<td>6.093</td>
</tr>
<tr>
<td>3. Japan</td>
<td>0.989</td>
<td>3.005</td>
</tr>
<tr>
<td>4. United Kingdom</td>
<td>0.984</td>
<td>2.612</td>
</tr>
<tr>
<td>5. Germany</td>
<td>0.978</td>
<td>2.474</td>
</tr>
<tr>
<td>6. Brazil</td>
<td>0.973</td>
<td>2.238</td>
</tr>
<tr>
<td>7. France</td>
<td>0.968</td>
<td>2.151</td>
</tr>
<tr>
<td>8. Italy</td>
<td>0.962</td>
<td>2.054</td>
</tr>
<tr>
<td>9. India</td>
<td>0.957</td>
<td>1.537</td>
</tr>
<tr>
<td>10. Russia</td>
<td>0.952</td>
<td>1.387</td>
</tr>
</tbody>
</table>

Table 3.1: National Capabilities 2010

The bottom left panel is a plot of globalization versus power on a log scale. For the United States the data seems to reflect a negative correlation between power and globalization, with the exception of the 1990s where the correlation was positive. It was during this period that
the United States became embroiled in conflicts in the Middle East and Southern Europe. Since 2000, the United States remains engaged in conflicts in the Middle East and South Asia, but has been unable to increase its relative power beyond its peak in the year 2000 (see Figure 3.9). In both cases the power of the United States was clearly impacted by the willingness of its government to extract resources from its people. This is clearly shown in Figure 3.7. In Figure 3.7, the United States’ RPE has been on a clear trajectory of decline since 1970 and this is one significant factor for the decline in relative power for the United States. The other significant factor is China.

Because power is a relative measure (the United States’ absolute power continues to increase), even if the United States were to increase its absolute power it could lose ground in terms of relative power if there was another large country that was significantly and quickly increasing its power. This is exactly what has happened. The rise of China on the world stage has been remarkable. It is clear from Figure 3.6 that China has been rapidly globalizing and increasing in relative power since 1983. That this is a purposeful strategy on China’s part cannot be in doubt. Figure 3.8 clearly shows that China’s policy has been to extract more and more resources from its people. This level of extraction, along with a rapidly growing GDP, explains China’s rapid increase in relative power.

![Figure 3.7: United States RPE 1970 - 2010](image)

The bottom right panel should be read in conjunction with the bottom left panel. Power is largely a function of economic performance. Economic performance is primarily a function of the number and productivity of the economically active population. Because China has a
huge advantage over the United States in population, China can match the United States economically simply by increasing the number of its economically active population (all else held constant). Because the United States will never come close to matching China’s population, the United States will maintain its economic advantage over China only through much higher productivity. Said differently, the United States must continue to innovate and exploit technology if it is to maintain its lead over China. This being said, the lower right panel should give the United States a strong sense of foreboding. The squiggly line characterizes the velocity of the economy, while the straight line (trend line) characterizes the acceleration of the economy. China is clearly winning the battle against the United States. China’s economy is clearly accelerating (upward slope of trend line), while the United States’ economy is clearly decelerating. Importantly, China’s increased economic performance is not the result of an increase in population. It is the result of a combination of a larger economically active population and greater productivity generally. If this trajectory is maintained, it is simply a matter of time before China over takes the United States in terms of economic output and, therefore, power.

Examining this dashboard for a large number of countries would reveal how unique China’s performance actually is. China clearly has a strong positive correlation between power and globalization. Almost all major countries, however, show a performance more like that of the United States, meaning a reduction of relative power under a condition of increasing globalization. This again suggests that China is engaging in a purposeful strategy
of power maximization.

To further explore the assertion that China is engaged in a purposeful strategy of power maximization, consider Figure 3.9 and Figure 3.10. Figure 3.9 is consistent with the lower panels of Figure 3.5. It is clear that the relative power of the United States goes on a precipitous decline starting in about the year 2000 while globalization remains relatively constant. China, as can be seen from Figure 3.10, does the exact opposite. China’s relative power arcs up substantially, with globalization continuing to increase. China and the United States appear to be moving in different directions.

**Figure 3.9: United States Globalization versus Power**

**Figure 3.10: China Globalization versus Power**

For our purposes here, therefore, the question raised is this: What is the net effect of
globalization and relative power on the odds of conflict initiation? Because the United States and China are large, globalizing, powerful countries, and appear to be moving in different directions, using them in comparison may be particularly illustrative.

To answer this question we proceed as follows.

In subsection 3.61 we look specifically at the question of how a country’s level of power and level of globalization increase or decrease the odds of it initiating a conflict with another country. In other words, is the United States or China more or less likely to initiate a conflict with another country as a result of the influence of its level of power and its level of globalization when the two are considered together?

In subsection 3.62 we look specifically at the question how the odds of a country initiating a conflict with another country are influenced by the other country’s level of power and level of globalization. In other words, is the United States or China more or less likely to initiate a conflict with another country as a result of the net influence of the other country’s level of power and level of globalization when the two are considered together?

### 3.6.1 The Effect of Ego’s Power and Globalization on Conflict Initiation

As described earlier in section 3.5, a SAOM model was built with power and globalization as exogenous covariates. The output of the model is found in Table 3.2.

<table>
<thead>
<tr>
<th>Parameters:</th>
<th>Estimate</th>
<th>Error</th>
<th>t-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. eval Outdegree (density)</td>
<td>-10.2403</td>
<td>(0.0759)</td>
<td>0.0494</td>
</tr>
<tr>
<td>2. eval Reciprocity</td>
<td>13.3463</td>
<td>(0.1435)</td>
<td>0.0806</td>
</tr>
<tr>
<td>3. eval GWESP</td>
<td>1.2990</td>
<td>(0.3273)</td>
<td>-0.0046</td>
</tr>
<tr>
<td>4. eval Globalization Ego</td>
<td>-0.0254</td>
<td>(0.0022)</td>
<td>-0.0004</td>
</tr>
<tr>
<td>5. eval Power (scaled) Ego</td>
<td>0.1616</td>
<td>(0.0278)</td>
<td>-0.0528</td>
</tr>
</tbody>
</table>

Overall Maximum Convergence Ratio: 0.1448

Table 3.2: Effect of Ego’s Power and Globalization on Ego’s Conflict Initiation

Three metrics are of immediate concern. First, the overall maximum convergence ratio of the model represents the deviations of the values of the statistics simulated by the model relative to observed values. Convergence is considered excellent when the overall maximum convergence ratio is less than 0.2 (Ripley et al. 2017, p60). Here, the overall maximum convergence ratio is 0.1448, so convergence is excellent. Second, the t-ratio for convergence of the individual parameters should be less than 0.1 (Ripley et al. 2017, p60). Here, each parameter has a t-ratio less than 0.1. Finally, the significance of each parameter can be
tested by calculating t-values, where the t-value is the estimate divided by the error and is significant at the 0.05 level if it is greater in absolute value than 2.0 (Ripley et al. 2017, p70). Here, the relevant t-values are \(-0.0254/0.0022 = -11.6\), and \(0.1616/0.0278 = 5.8\). Consequently, the t-values are significant. Overall, the model is good. With respect to Ego, the null hypotheses that globalization and power, respectively, have no impact on conflict initiation are rejected.

In terms of interpreting the model, first, it is worthy to mention that as anticipated, globalization has a dampening effect on conflict initiation. This is evident from the negative coefficient for globalization. The model reports that a one unit increase in a country’s globalization score decreases the odds that the country will initiate a conflict by 2.5%. However, the model also reports that a one unit increase in a country’s power score will increase the odds that the country will initiate a conflict by 17.5%. The ratio of the two is approximately 7:1, meaning that if a country’s globalization score increases at least 7 units for every one unit increase in its power score, the odds that the country will initiate a conflict will not increase and will decrease if the ratio exceeds 7:1. This may look like a high hurdle, but it is not except in unusual cases, because on a per unit basis, countries change their power scores significantly more slowly than they change their globalization scores. See Figure 3.9 and Figure 3.10 above.

![Figure 3.11](image.png)

*Figure 3.11: United States: Velocity of Change in Odds of Conflict Initiation*

With regard to odds for conflict initiation, see Figure 3.11. The squiggly line in Figure 3.11 represents the velocity of the odds of conflict initiation attributed to the contribution...
of power and globalization for the United States. Over the time period reported, 1992 - 2010, changes in velocity due to the contribution of power and globalization caused the line to bounce about the downward sloping trend line. The salient point is that the trend line is sharply downward sloping. This means that the net impact of the contribution of power and globalization to the odds of conflict initiation for the United States during this period was negative. The odds that the United States would initiate a conflict reduced over the period 1992 - 2010.

China, however, presents the opposite case. Consider Figure 3.12. Again, the squiggly line represents the velocity of the odds of conflict initiation attributed to the contribution of power and globalization. The trend line, unlike that of the United States, however, is clearly sloped up and to the right. This means that the odds of China initiating a conflict have been increasing over the reported period. In other words, in the specific case of China, increases in power have more than offset the dampening impact of increases in globalization. This suggests that China has become a more assertive country over the reported period. This particular outcome is not unanticipated. See (Zakaria 1998).

If these two claims are correct we should see an increase in the number of conflicts initiated by China and a reduction in the number of conflicts initiated by the United States during the reporting period as compared to previous periods. Refer to Figure 3.13 and Figure 3.14.

In Figure 3.13 the mean number of conflicts per year that the United States initiated
Figure 3.13: United States: Number of Initiated Conflicts

Figure 3.14: China: Number of Initiated Conflicts

during the period 1992 - 2010 is approximately 3. During the period before 1992, the mean number of conflicts per year that the United States initiated is approximately 3.3. The reduction in conflicts supports the assertion above.

In Figure 3.14 the mean number of conflicts per year that China initiated during the period 1992 - 2010 is approximately 2.7. During the period before 1992, the mean number of conflicts per year that the China initiated is approximately 1.9. The increase in conflicts
support the assertion above.

Globalization and power as theorized here (as Ego covariates) impact the odds of conflict initiation. Whether the effect of globalization is strong enough to offset the effect of power depends on the country examined. China is an unusual case. From 1992 onward (see Figure 3.10) China’s power increases dramatically. No other country in the world posted this type of performance over the same period. Indeed, the United States, at least from 2000, posted the exact opposite performance (see Figure 3.9). Consequently, we cannot say the effect of globalization offsets the effect of power for the United States during the reporting period because the power of the United States declined during this period in relative terms. However, as will be shown infra at Table 3.4, globalization has more than offset the impact of power for some countries. Further, there is not an example of a globalizing country, other than China, where the effect of globalization has not offset the effect of power.

Next, we look specifically at the question how the odds of a country initiating a conflict with another country are influenced by the other country’s level (Alt covariates) of power and level of globalization.

### 3.6.2 The Effect of Alt’s Power and Globalization on Conflict Initiation

As described earlier in section 3.5, a SAOM model was built with power and globalization as exogenous covariates. The output of the model is found in Table 3.3.

<table>
<thead>
<tr>
<th>Parameters:</th>
<th>Estimate</th>
<th>Error</th>
<th>t-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. eval Outdegree (density)</td>
<td>-10.2196</td>
<td>( 0.0749 )</td>
<td>0.0252</td>
</tr>
<tr>
<td>2. eval Reciprocity</td>
<td>13.3231</td>
<td>( 0.1417 )</td>
<td>0.0195</td>
</tr>
<tr>
<td>3. eval GWESP</td>
<td>0.9203</td>
<td>( 0.2559 )</td>
<td>-0.0005</td>
</tr>
<tr>
<td>4. eval Globalization Alt</td>
<td>-0.0009</td>
<td>( 0.0022 )</td>
<td>-0.0224</td>
</tr>
<tr>
<td>5. eval Power (scaled) Alt</td>
<td>0.2660</td>
<td>( 0.0155 )</td>
<td>-0.0082</td>
</tr>
</tbody>
</table>

**Table 3.3:** Effect of Alt's Power and Globalization on Ego's Conflict Initiation

Paralleling the analysis from the previous section, the same three metrics are evaluated for significance. First, the overall maximum convergence ratio of the model represents the deviations of the values of the statistics simulated by the model relative to observed values. Convergence is considered excellent when the overall maximum convergence ratio is less than 0.2 (Ripley et al. 2017, p60). Here, the overall maximum convergence ratio is 0.0386, so convergence is excellent. Second, the t-ratio for convergence of the individual parameters
should be less than 0.1 (Ripley et al. 2017, p60). Here, each parameter has a t-ratio less than 0.1. Finally, the significance of each parameter can be tested by calculating t-values, where the t-value is the estimate divided by the error and is significant at the 0.05 level if it is greater in absolute value than 2.0 (Ripley et al. 2017, p70). Here, the relevant t-values are -0.0009/0.0022 = -0.41, and 0.2660/0.0155 = 17.16. Overall, the model is good. However, while power is significant, globalization is not. With respect to Alt, the null hypotheses that power has no impact on conflict initiation is rejected, but there is not sufficient evidence to reject the null hypothesis with respect to globalization.

In terms of interpreting the model, the level of globalization of a country has no impact on whether it will be the target of a conflict initiation. It is different with respect to power. A country’s level of power is significant in terms of whether it will become the target of a conflict initiation. Specifically, a one unit increase in a country’s power increases the odds that the country will be the target of a conflict initiation by 30.5%. This particular outcome, that an increase in a country’s power precipitates the operation of the security dilemma, and eventually leads to conflict, has long been theorized in the literature. See (Waltz 2010, p186); (Organski and Kugler 1980); (Tammen and Kugler 2000). This model, therefore, is consistent with theory and previous empirical findings.

Why is globalization not significant in this context? More will be said on this in the penultimate chapter of this paper. However, it may simply be that countries act out of fear. When it is evaluated that another country is increasing its power “too” much, regardless of its globalizing behavior, it is perceived as a threat and treated as such. In this sense, China’s high level of globalization is of no consequence. It is China’s rapid increase in power that is of concern. Capabilities, here proxied by power, are salient.

A systems theory of international politics requires the purpose of the system be articulated. It is through this prism that all else is made sense of. It is theorized here that the purpose of the system of international politics is to allocate resources among states. States apprehend a level of fear based on not having, or not having access to, resources they require; or they apprehend fear from a risk of loss to resources they have, or have access to. This fear animates them to modulate their power and globalizing behavior for the purpose of ensuring their own survival. It is through some combination of power and globalization that countries secure the resources they require for their survival. Survival, as it has always been, is about access to resources. Fear of death makes unnecessary conflict (adventurism) ill advised.
Like man, states are not inherently violent or predisposed toward conflict. Though, like man, they are inherently fearful. This means that, just like man, as states interact more, because they are in ever closer contact, there is more opportunity for conflict over resources. Globalization operates to mitigate this conflict over resources by establishing rules or conventions for the allocation of resources. As globalization takes hold, as resources are made available through trade, fear is mitigated, power need not be maximized, and conflict between countries reduces.

The SAOM model introduced here supports this conclusion. A unit increase in globalization reduces the odds of conflict initiation by 2.5% and a unit increase in power increases the odds of conflict initiation by 17.5%. With the exception of China, globalizing countries are increasing their level of globalization much faster than they are increasing their power. The net effect is a reduction in the odds of conflict initiation. See Table 3.4.

<table>
<thead>
<tr>
<th>Country</th>
<th>Power Change</th>
<th>Globalization Change</th>
<th>Odds Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. United States</td>
<td>-0.236</td>
<td>3.86</td>
<td>-13.8%</td>
</tr>
<tr>
<td>2. China</td>
<td>5.834</td>
<td>21.26</td>
<td>49.0%</td>
</tr>
<tr>
<td>3. Japan</td>
<td>-1.537</td>
<td>13.22</td>
<td>-59.9%</td>
</tr>
<tr>
<td>4. United Kingdom</td>
<td>0.018</td>
<td>6.40</td>
<td>-15.7%</td>
</tr>
<tr>
<td>5. Germany</td>
<td>-0.818</td>
<td>11.75</td>
<td>-43.7%</td>
</tr>
<tr>
<td>6. Brazil</td>
<td>1.217</td>
<td>9.90</td>
<td>-3.5%</td>
</tr>
<tr>
<td>7. France</td>
<td>-0.018</td>
<td>6.95</td>
<td>-17.7%</td>
</tr>
<tr>
<td>8. Italy</td>
<td>-0.512</td>
<td>11.78</td>
<td>-38.4%</td>
</tr>
<tr>
<td>9. India</td>
<td>0.962</td>
<td>17.25</td>
<td>-26.3%</td>
</tr>
<tr>
<td>10. Russia</td>
<td>-0.128</td>
<td>22.16</td>
<td>-57.6%</td>
</tr>
</tbody>
</table>

Table 3.4: Odds Change in Conflict Initiation: 1992 - 2010

Brazil and India, most remarkably, have sharp increases in power. But for each, an increase in globalization more than offsets the increase in power. So for each, the odds of conflict initiation reduce. The United Kingdom is similarly situated, but its increase in power is not as pronounced. Notwithstanding, China is the only example of a country with an increase in power that more than offsets the impact of its corresponding increase in globalization. This cannot occur by happenstance; it must be the product of a conscious policy and it suggests that China is seized with a fear that heretofore has not been mitigated by its participation in the globalizing international system.

The results of the SAOM model presented here have given good support to the proposition that globalization operates to offset the effect of power in international politics. A
systems theory of international politics has been presented in terse form. What remains, therefore, is to re-present this systems theory in full color, with due attention paid to its operation. To accomplish this we consider the behavior of the United States, China, and Japan through the prism of this theory. Do we find the behavior we anticipate? Does this theory help us explain and understand what we observe? To that task we now turn.
Chapter 4

A Systems Theory of International Politics in Operation

Chapter 3 reported globalization works to reduce the odds of conflict initiation while power works to increase the odds of conflict initiation. Fear and scarcity were explicitly left to be addressed here as part of an overall exposition of the theory of material realism. Material realism theorizes fear, induced by scarcity, causes conflict. Absent scarcity, there is no fear and, therefore, no reason for conflict. Man, if given a choice, will eschew conflict because of his fear of death. Consequently, states globalize and acquire and sustain power for the purpose of securing resources or access to resources in order to redress scarcity and mitigate their fear. Ultimately, fear drives the behavior of states in international politics.

This chapter proceeds as follows.

In section 4.1 material realism is fully articulated as a theory. A theory cannot be proved or disproved. A theory is useful, or not, because it helps explain the reality that is observed. A systems theory, therefore, explains why a system, composed of elements, stocks, and flows, operates the way it is observed to operate. Chapter 3 reported that globalization and power operate to affect the odds of conflict initiation. Section 4.1 explains why and in so doing synthesizes all of the concepts discussed in this paper: man and the state of nature, fear, scarcity, globalization and power. All of these concepts must be synthesized in the context of an overarching purpose that the system of international politics operates to fulfill. If this cannot be done, there can be no systems theory of international politics. Hence, this chapter addresses the obvious weakness of Waltz and Mearsheimer: neither Waltz nor Mearsheimer offered a theory that synthesized, in Waltz’s nomenclature, the first, second, and third images. Indeed, Waltz explicitly eschewed first and second image analysis (Waltz 2001). Material realism avoids that fatal defect.

With material realism fully articulated as a theory of international politics, section 4.2 analyses the behavior of the major powers in East Asia. Does material realism explain the behavior of the United States, China, and Japan? Material realism asserts states will engage in globalizing or power-maximizing behavior in order to mitigate scarcity and, therefore, the fear that emanates from it. So the question that arises is, what behavior is the state exhibiting? How can we know? James Fearon’s work on costly signals is useful
here. Fearon’s work is leveraged to elucidate analytically whether a state is engaging in
globalizing or power-maximizing behavior. After assessing analytically the behavior of
the United States, China, and Japan, each is then assessed empirically and appropriate
conclusions are reached about the explanatory power of material realism.

4.1 A Systems Theory of International Politics

Man, like all creatures, is engineered to survive. Survival in this context means more than
just “living.” It also means reproduction and the establishment and survival of a line of
progeny. Because man is engineered to survive, he is also engineered to fear death. It is this
fear of death that seizes his passions and directs him to action, often severe action, intended
to secure his survival. When man does not fear, his actions are often benign. But when he
fears, his actions can be quite malignant. To understand man’s disposition toward violence,
it is necessary to understand that which causes him to fear.

Man is materialistic. Not having that which he requires to survive is a source of great
fear for man. When man is seized with ample resources he does not fear for his survival so
long as his resources are secure. This makes man territorial. Man will fight to protect and
control the resources he requires to survive. Territory, resources, and security travel together
as peas in a pod.

As man prospers, he reproduces creating larger groups. As man lives in larger and larger
groups, more resources are required for the group to survive. More resources require man to
hold dominion over more territory. Thus it is inevitable that man will come into conflict with
man over territory. The conflict will be violent because control over territory is necessary
for control over the resources that man needs to survive. It is a zero sum game driven by a
fear of death.

Thus is the state of nature for man. Man reproduces to the limit of the resources he
controls. But because resources are limitless, man need only take the additional resources
he requires from others as his group grows larger and larger. Conflict is endemic. Fear is
mitigated through material acquisition that often, if not always, comes from martial success.

In a state of nature, man is self-reliant because he cannot trust. The stakes are too high.
When success means survival and failure means death, and there is no middle ground, man
will always choose first to rely solely on himself because of his fear of the unknown; and
because of the uncertainty and the risk it entails to him. Man can never be sure that another
will come to his aid, so he must always be prepared to act aggressively in his own interest.
Self-help is man’s only reliable help. So man must be strong.

When man cannot control a particular outcome of consequence, he becomes seized with fear. The only way to mitigate the fear is through knowledge or dominion. As man becomes more knowledgeable, he becomes more certain of the outcome and he can take conscious steps to mitigate its effect on him; his required action becomes clear and he understands what to do. Thus he has a semblance of control. However, lacking an adequate understanding, all man can do is dominate. In such a case, risk is mitigated, if at all, only through domination. What man cannot dominate he cannot control. Man fears what he cannot control. Fear is the genesis of all conflict.

In a state of nature man fights for control over the resources he needs to survive and he fights to reduce the uncertainty that seizes him with fear for his survival. These are the only reasons he fights: to secure resources and to reduce fear. To reduce man’s fear, give him resources and give him knowledge. To remove man from a state of nature, give him resources and give him knowledge. A state of nature is synonymous with the ubiquitous fear that dominates all men under conditions of scarcity and ignorance.

States (or government, or ruling elites) operate to remove man from the state of nature. States provide public goods that mitigate man’s fear. When each man is recognized as owning or having legitimate dominion over what is “his,” including that which he creates, uncertainty and, therefore, fear is reduced. Conflict reduces accordingly. When man is secure in his possessions, trust becomes possible because he is free to exchange what he possesses for that which is possessed by another, with each believing with certainty that what they possess after the exchange is recognized by all as legitimately theirs. Through exchange or barter, supported by property rights guaranteed by a sovereign, man no longer needs to fight to acquire what he requires to survive. He need only produce for others so that others produce for him and all get what they require for the life they live.

When each man produces for another he specializes in producing that which he is most capable of producing well. Moreover, because man desires to consume more so he may increase the quality of his life, he is motivated to produce more. Specialization advances productivity. Productivity ameliorates scarcity. Abundance ameliorates fear. When man does not fear he does not fight. Material man does not fight for non-material reasons. Property rights are the *sine qua non*. A sovereign that does not provide property rights provides nothing; and man remains in the state of nature.

States exist to provide property rights or what may simply be called public goods. It is not necessary to define exhaustively, or with specificity, what public goods are. It will
suffice to understand that public goods are those things a state must provide to enable man

to create, hold, and alienate his property for his benefit; or, in other words, for man to live

well. When a state does more than this it oppresses. When a state does less than this, it sows

insecurity and uncertainty and in so doing creates the most noxious fear. Conflict follows.

When a state succeeds, however, it establishes the conditions for the self-organization of the

economy. Specialization, productivity, and wealth creation proceed apace. The economy,

the state itself, scales and, like man in the state of nature, it must acquire new sources of

resources to secure its survival. But here, in the context of a state, what does survival mean?

A state, of course, is an abstraction; it is an artifice that obscures the countless indepen-
dent activities that give rise to and sustain its existence. Therefore, to say a state fails is to

say the state is not able to provide the public goods necessary to enable man to create, hold,

and alienate his property for his benefit. In such a situation the independent activities giving

rise to the state cease and the state in every operative and practical sense vanishes as the

primacy of nature is restored. To say a state succeeds, or survives, is to say the opposite.

In other words, the state exists to enable man to create, hold, and alienate his property so

he may accumulate wealth and live the life he wants. At first the state accomplishes this

by establishing the conditions necessary to enable intra-state trade and commerce. But

ultimately this is not wealth maximizing. As the Pareto optimal distribution of resources

within the state is approached, man’s choices are increasingly constrained. Something more

is needed. Consequently, the state must enable inter-state trade and commerce. Man is now

not resource constrained in any practical way. The resources of the world are available for

exchange. It is a long way to the Pareto frontier. Scarcity is more theoretical than practical.

Fear abates and the potential for conflict reduces accordingly.

States fear only two things. States fear their people. States are a manifestation of the

popular will of their people. It is the popular will that sustains them or not. No state long

endures that does not have the support, or at least the acquiescence, of its people. The

demise of the Soviet Union, the mightiest of all states, is adequate testimony to this assertion.

Consequently, states fear their people and seek to satisfy or, in the alternative, suppress them.

Suppression, however, is costly and in the long run always fails. So states (or governments,

or ruling elites) are always better off finding a way to advance the interests of their people.

States that are not responsive to their people ultimately fail.

States fear other states. The logical conclusion of a state scaling internally is that its

interests, which is to say the interests of its people, evolve and inevitably extend beyond its

borders. This is because no state can maximize its well-being through autarky. States must
engage in trade and commerce if they are to prosper. China over the last forty years provides ample evidence in support of this assertion. If man maximizes his well-being through his freedom to create, hold, and alienate his property, the artificiality of a state border seems an unreasonable impediment to his fulfillment. Thus the concept of public goods has come also to mean the reliable and reasonable access to resources and markets worldwide. As states act to provide this access they are brought into direct conflict with each other, with the strong imposing their terms on the weak. States are materialistic because man in materialistic. Conflict in the system of states is endemic, just as it was in the state of nature for man. As strength matters for man, so too it matters for states.

The parallel between man and state is exact. States receive an inadequate measure of security from the resources they control directly. Controlling extraterritorial resources is an experiment that failed with colonialism. Fear accompanies autarky, so autarky must fail. For man to prosper the state he constitutes must enable his material well-being through the supply of “global” public goods. But in the absence of a worldwide hegemon, what is the nature and definition of these goods and who provides them on what terms? The end of history has not arrived and the last man is not yet on station. So on behalf of their citizens states will continue to contest access to markets and resources. Strength, or power, matters because it greatly influences outcomes. Competition among states is a zero sum affair. Trust can not endure when one side must loose; the gravity of the outcome makes it so. Consequently, self-help is the only reliable help. Among states the state of nature prevails.

Like man, in a state of nature states act only to survive. States fear death just as man does. So they do not fight for trivial causes, especially when the outcome is not certain. Like man, states have only one strategy for survival: eliminate fear, which is tantamount to the amelioration of scarcity and ignorance. To this end, states have three tactics available to them.

As a hegemon, a state has the power to take what it wants. Scarcity is not an issue because all of the resources of the world are available to a hegemon. There is no example in history of a hegemon, so this tactic is theoretical, not practical. The United States at the height of its power, alternatively after World War II or after the collapse of the Soviet Union, was never able to unilaterally, with impunity, determine outcomes throughout the world. Moreover, recent history has shown that enemies, even weak ones, that refuse to surrender or behave as directed can frustrate even the mightiest state. Effective hegemony has never been witnessed in practice. Hegemony may deter physical attack for a time, but it does not
lead to security.

Weak states often collaborate to balance the power of a strong state. The aim is deterrence in pursuit of security. In the early 1800s Britain formed various coalitions against Napoleon out of fear that France would interfere with Britain’s markets and overseas possessions (a vital source of resources). Napoleon was ultimately defeated, but Britain’s fear would not dissipate so long as its markets and resources remained exposed to risk. This would be the case if, among other possibilities, there existed a continental hegemon. Consequently, Britain’s consistent policy was to join with those opposing such an outcome. Different coalitions were required at different moments. Britain’s loyalties were fickle, but Britain’s interests were not. Trust was always operationalized for the moment and the moment never lasted. In the final analysis balances of power do not prevent conflict, but merely delay or postpone it. Balances of power are effective at organizing the belligerents. The root cause is always left unaddressed.

States organize and align for collective security. Collective security often has legal characteristics. After World War II the United States promoted an international regime characterized by a political, economic, and social order. The United Nations, Bretton Woods, the World Bank, the International Monetary Fund, and other treaties and conventions, when considered all together represented an attempt to provide collective security. The attempt was holistic and comprehensive in that it sought to define rules for the political, the social, and the economic relations among all the states of the world. It clearly contemplated security as more than freedom from physical infraction or domination. Yet it is hard to imagine how it could be successful. If resource scarcity and ignorance is the cause of fear, and fear is the genesis of conflict, then no collective security scheme that fails to meet the material needs of man can succeed. These organizations established rules for resolving the public behavior of states. They were silent on the distribution of resources. This can not be a surprise since resources are private goods, not public goods. The United States has legal jurisdiction over the Standard Oil company, yet it does not tell it how, or to whom, or for what price to distribute its product. The prevailing economic organization of the world is more liberal and decentralized than centralized and state controlled. Unless the world moves dramatically away from private property rights and toward central planning, collective security cannot work. Of course, it is already established that central planning does not work. So there must be another answer. If conflict is to be reduced, something other than state action is required and it must result in man’s satiation. A satiated man does not fear.

This will be no easy task. In a state of nature man’s needs were simple: survival meant
simply that man needed to eat and reproduce. But society complicated things. With society came increasing specialization, productivity, and, therefore, wealth creation. The benefits were distributed to each according to his skill and his effort. But since all men were not equally skilled or equally hard working, the benefits were not evenly distributed. Social cleavages resulted and hard comparisons, man against man, could not be avoided. What satiated man in the state of nature became inadequate in a society of increasing riches. Man’s analytical ability to compare, evaluate, and judge is as disruptive as it is powerful. It is not a surprise that the regimes that oppress most effectively invest substantially to insulate their people from the outside world. If North Koreans understood how their lot compared to that of their brothers in the south, how long would they tolerate the North Korean regime? China wants the benefits of international society and openness. Yet China works aggressively to prevent its citizens from comparing themselves to others. How else is one to explain the great firewall and the ubiquitous controls on the free flow of information?

What man requires so that he does not fear is fixed neither in time nor place; it is ever changing. Fear is a function of scarcity, but scarcity is a relative measure arrived at through the comparison of one against another. Society makes comparison of man against man inevitable; international society makes comparison of state against state inevitable. Fear driven by scarcity remains the genesis of conflict. Inequality defines scarcity. All boats must rise with the tide.

The genie is out of the bottle and it will not be put back in, except after the most catastrophic of outcomes. As man creates and alienates his property, as states trade, as wealth is distributed, as the international system continues to evolve, integrate, and globalize along its current trajectory, man will improve his condition; his quality of life will advance inexorably. Significant reduction in levels of world poverty over the last fifty years as states have more fully participated in the world economy is clear evidence of this. Notwithstanding, not all of man will benefit equally. Some will lag and those that lag especially far behind are likely to be found in failed or failing states because that is where public goods are most often found lacking; autarkic states that eschew participation in the world economy are more likely to be involved in conflict whether it be internal or external.

The foregoing takes us to consideration of Figure 4.1 which is an enhancement of Figure 3.3. In the beginning, in a state of nature man requires only enough resources to survive and reproduce. Man lives in small groups, with each isolated from the other. There is no specialization or accumulation of wealth. Man lives and survives day to day. In the state of nature when man compares himself to another he sees himself. Fear does not result
from inequality; it results from absolute scarcity and not from comparative scarcity. In a state of nature fear of death drives man to action.

![Figure 4.1: A System’s View of International Politics: Resource Allocation](image)

As man enters society, as social organization advances and becomes more complex, as public goods are provided and property rights are established, wealth in excess of what any man needs to survive is created. This is the genesis of inequality, since inevitably some will hold more wealth than others because of their skill and effort. While some will continue to fear for their physical survival, increasingly large numbers of others will come to equate scarcity with their quality of life when it compares unfavorably to that of others. In society a fear of not living “well enough” is what drives man to purpose. It is a source of dissatisfaction, of unrest, and eventually of conflict.

In an international society of states, states are likewise driven to purpose. As an example, for China to endure, which is to say that the communist party endures, the Chinese people must have a quality of life not egregiously incomparable to others of whom they are aware. This means that the Chinese economy must produce and equitably distribute enough wealth to the Chinese people such that when the people compare their quality of life to that of others, the comparison is acceptable to them. This means that the Chinese economy must grow to
produce the wealth that is required. For the Chinese economy to grow, it requires inputs of raw materials, many of which are not indigenous to China. The Chinese can acquire these raw materials in one of two ways: they can acquire them freely through collaboration, or they can opt for conflict and simply take them. Either way, what the Chinese demand is an allocation of resources that allows the Chinese people to be satisfied with their quality of life. So long as the Chinese people evaluate unfavorably the comparison of their quality of life to others, they will perceive scarcity and this fear will move them to action.

Globalization collapses time and space. It makes each aware of the other; intimacy is unavoidable. Thus, comparison of one against another is unavoidable. States that evaluate their condition relative to another unfavorably will perceive scarcity and fear and it will drive them to seek a more equitable allocation of resources. Until its fear is mitigated, a state will continue to seek more optimal allocations of resources. If the resources are available through collaboration, a state is likely to acquire them collaboratively because the risk of taking them by force is often too great. This is an insight that Japan did not have prior to World War II as it sought to dominate Asia. If, however, the availability of required resources is put at risk, it should be expected that a state will exercise its power to ensure its access to them. This explains the United States’ behavior when it promulgated the Carter Doctrine.

Until the Pareto frontier is reached, there is no reason for conflict, because the game is not zero sum. States can take more and more of what they require without making another worse off. As each state does what is required to improve its lot, others will take notice, compare, and evaluate. As one state acts to improve its lot, it engenders fear in others that moves them to take the action required to improve their own. Until the Pareto frontier is reached, the cycle does not end and all will rise, even if some rise more slowly than others. Moreover, it is not clear that the Pareto frontier in the sense used here is anything other than theoretical. Technology continues to solve scarcity. Peak oil, once thought to have arrived, is now unmistakably absent; technology-enabled alternatives continue to emerge. See generally (Harari 2017, Ch.1). As long as resources are made available to be matched against need, as long as globalization continues to advance, conflict will reduce among those that participate in it. It is only the selfish harboring of resources, the closing of markets, or the pernicious interference of states in the operation of markets, that gives rise to conflict. Globalization operates with the enlightened self-interest of states to reduce the initiation of conflict.

Chapter 3 provided firm evidence that globalization decreases the odds of conflict
initiation. Thus far in chapter 4 a theory of how and why globalization reduces conflict initiation has been expressed. The question now at bar is whether the operation of the theory can explain the behavior of states. To that task we now turn.

4.2 The Explanatory Power of the Theory: East Asia

States fear two things: a state fears its people and it fears other states, because each can cause its demise. For a state to survive, its people must support it, or at least not resist it. This is unlikely under conditions of scarcity. Consequently, a state must act to mitigate scarcity so that its people can thrive; and, a state must not obstruct the self-interested, benign behavior of other states acting similarly for fear of becoming the target of that state’s ireful behavior. Scarcity is the problem that must be solved for. As scarcity is solved, conflict is reduced.

A state can mitigate scarcity through collaboration or diktat. If a state chooses collaboration, it provides public goods and respects the autonomy of all economic actors (intra and extra territorial). Scarcity is mitigated by the cumulative effect of the behavior of unfettered, self-interested economic actors. The potential for conflict reduces as scarcity is mitigated. If a state chooses diktat, however, it accumulates and wields the power necessary to facilitate the taking of resources under circumstances of unequal exchange. The potential for conflict is increased because the states that are subject to the prospect of an unequal exchange resist the exchange. Consequently, using power to effect an allocation of resources may mitigate scarcity in the short term, but it will always fail as a long term solution. This is a lesson that Japan learned as a result of World War II. Japan’s access to markets and resources achieved by diktat were indeed short lived. Since World War II, however, Japan has achieved much more reliable access to all the resources it requires through collaboration. As we will see, it is only Japan’s fear of losing access to resources that inspires its power-seeking behavior (if such behavior indeed exists).

Notwithstanding, all states act to accumulate power, so it is worthwhile to understand the purposes for which a state will accumulate power. First, a state will accumulate power to defend against or deter the exploitative behavior of another state. In this instance a state need only have enough power to make its exploitation by another state too costly to be undertaken. Accumulating more power than is needed for this is economically wasteful and certain to induce fear in other states. See (Waltz 2010). Second, as already stated above, a state that accumulates more power than is needed to defend against or deter another state
will use its power to exploit and effect an unequal exchange of resources. Third, a state that accumulates more power than is needed to defend against or deter another state will use its power to repress its people. This is most likely when the state accumulates power but fails to use it effectively to mitigate scarcity. In this instance, the state has no choice but to repress its people since the scarcity its people are subject to will cause them to fear and, therefore, resist the behavior of the state that prevents them from living the life they want. This, as we will see, may in part explain China’s behavior under Xi Jin Ping.

To reduce the probability of conflict, and for states (or the ruling elite) to survive, scarcity must be mitigated. States can mitigate scarcity by collaboration or, at least in the short term, states can mitigate scarcity by diktat. States can also choose to repress their people. When states solve scarcity by collaboration, they are engaging in globalization and willingly subscribing to the rules and conventions of globalization that provide for the free and liberal allocation of resources globally. We know from chapter three that globalizing behavior reduces the probability of conflict. When states act to solve scarcity by diktat they eschew the rules and conventions of globalization and seek to impose their will on others. We know from chapter three that increases in power, which logically precede the operation of a strategy premised on the exercise of power, increase the probability of conflict. Consequently, to understand a state’s behavior and whether its behavior is biased in favor of collaboration or diktat and, therefore, whether the behavior is more or less likely to lead to conflict, it is helpful to evaluate the “costly signals” the behavior of the state sends in regard to power and globalization. The objective is to classify states either as benign and status quo, or as malignant and revisionist. The later is a source of instability and conflict in the international system.

James Fearon’s work on “costly signals” is helpful here. According to Fearon, states are loathe to fight because “military operations are typically expensive and risky, obviously so for the soldiers who must be coerced or otherwise convinced to fight, but also for the leaders who order war” (Fearon 1997, p68). Since all states commonly understand war, or conflict more generally, is an undesirable outcome to be avoided, the dilemma, according to Fearon, is how to make the threat of force credible such that the behavior of the state subject to the threat can be affected (Fearon 1997, p69). To affect another state’s behavior Fearon suggests that a state will send costly signals. A costly signal is a signal a state sends at some significant cost to itself, which because of the cost it would not send unless it was determined to act. In sending the signal, the state intends to convince the other state that it will follow through on its threatened action. If the signal does not convince the other
state, the cost in sending the signal is wasted and the other state’s behavior is not positively affected. Indeed, the other state may be emboldened to act more egregiously because it perceives weakness, or a lack of resolve, from the state sending the signal. This may explain in part North Korea’s current actions, since North Korea may perceive a lack of resolve from the United States given the ineffectual actions taken by the Clinton, Bush, and Obama administrations heretofore to stop North Korea’s nuclear arms program.

Fearon specifies two types of costly signals: those intended to delineate and buttress the vital interests of a state (where vital interests are those interests that are the imperatives of a state’s grand strategy and, therefore, that the state will fight to protect) and those intended to affect the behavior of another state during a crisis (Fearon 1997, p.69). Signals sent to delineate and buttress the objectives of a state’s grand strategy typically involve large sunk costs over time. Signals sent during crisis diplomacy incur no costs, if they are effective. Signals sent during crisis diplomacy, however, can be quite expensive when they are ineffective. Moreover, costly signals sent during crisis diplomacy are made more effective if they are supported by costly signals already sent through sunk costs prior to the crisis.

The United States made substantial investments consistently over many years to build and maintain a large military capable of fighting two major conflicts in two separate theaters simultaneously. However, as Fearon suggests, quoting Clausewitz, “[t]he aggressor is always peace-loving; he would prefer to take over our country unopposed” (Fearon 1997, p.68). So building and sustaining a large military does not suggest a desire to employ it. States build large and capable militaries to deter aggression or to compel acquiescence in the case of their aggression against another. Hence, in either case the desire is not to employ military force because it is too costly and the result is never certain. Nevertheless, a substantial military investment does represent a large sunk cost. Such a sunk cost is made effective in deterring or compelling acquiescence when it is focused on the support of objectives clearly, publicly articulated. In other words, building a large military without articulating what would cause it to be employed diminishes the return on the investment and makes it more likely that it will have to be employed. Finally, when sunk costs in support of a clearly, publicly articulated objective fail to deter, or compel acquiescence, then crisis diplomacy ensues and a fresh costly signal must be sent.

President Jimmy Carter promulgated what became known as the Carter Doctrine in 1980. The Carter Doctrine stated the United States would use military force to protect its national interests in the Persian Gulf. It was understood that the interests of the United States
in the Persian Gulf included ensuring that no state achieve hegemony in the region and, therefore, dominant control over the regions resources. This doctrine, considered along with the United States sinking of significant costs, consistently over many years, into military buildup and readiness, was a costly signal that should have alerted (absent contradictory signals) Saddam Hussein that the United States would act against Iraq militarily if Iraq invaded Kuwait. When this costly signal failed to deter Iraq from invading Kuwait, crisis diplomacy ensued and fresh costly signals were needed.

Iraq invaded Kuwait on August 2, 1990. The United States did not engage Iraq militarily until January of 1991. In the intervening period any number of costly signals were sent by the United States and, indeed, by most of the world to Iraq. President George HW Bush clearly stated that Iraq’s aggression would not stand; the United States deployed significant military force to the Persian Gulf region; and, the United Nations Security Council sided with the United States, passing United Nations Security Council Resolution 678 which issued a deadline of January 15th for Iraq to withdraw from Kuwait and authorizing all necessary means to implement the resolution if Iraq did not comply. Despite a plethora of costly signals that perhaps every state in the world would recognize and heed, Iraq did not withdraw and was ultimately expelled by force of arms.

The circumstances surrounding and leading to the first Gulf War illustrate clearly how costly signals correlate with state behavior. Since at least 1980 the United States was absolutely clear that it would fight to defend its interests in the Persian Gulf. This signal should have been made particularly credible by the United States’ consistent and significant investment over many years in its military, including investments in its forward deployment. When this particular costly signal failed to deter Iraq’s behavior, the costly signals sent by the United States and the rest of the world to Iraq after its invasion and occupation of Kuwait, during the ensuing period of crisis diplomacy, should have been sufficient to convince Iraq that its occupation of Kuwait could not last. The rational action for Iraq to take, therefore, was to withdraw from Kuwait. The fact that Iraq did not get the signal, or did not act rationally is a topic others have taken up. For our purposes here it is enough to claim, hopefully in a convincing fashion, that every state in the world that was paying attention to the events as they unfolded in 1990 knew the United States would employ military force to expel Iraq from Kuwait; and that it would succeed. President Carter was clear as to the interests of the United States in the region, and President Bush and the world were clear as to what would be done if Iraq did not exit Kuwait. So in this instance while costly signals failed to deter Iraq, they did not fail to inform any state (probably even including Iraq) what
action would be taken. In this sense, costly signals are valuable.

Material realism hypothesizes that power increases the probability of conflict initiation and globalization decreases the probability of conflict initiation. Power is a function of state GDP and state extractive capability. States increase their power by growing their GDP. But this in and of itself sends no signal. What state does not want to grow its GDP? A state sends a costly signal when it chooses to extract wealth from its people, invest it in military power, and tie the application of that power to the pursuit of specific strategic imperatives. This was illustrated by the circumstances surrounding and leading up to the Gulf War. Consequently, examining a state’s military expenditures can be informative.

Figure 2.4 shows a clear trend of increasing globalization since 1970. With the exception of an extreme example and outlier like North Korea, every country in the world is touched and affected by globalization. Consequently, this makes globalization a poor signal. What is needed is a signal that shows whether a country is becoming more or less vulnerable to globalization. Waltz points out that Japan prior to 1941 had such a high value of oil trade with the East Indies that it had to attack the United States in the Philippines and at Pearl Harbor in order to reduce its vulnerability to a trade disruption (the same logic that was behind the Carter Doctrine) (Waltz [2010] p142). States that feel insecure with their access to resources perceive fear and, as Japan did, take action to decrease their vulnerability to resource disruption. States can take action to reduce their vulnerability to resource disruption by withdrawing from international trade, if they can substitute with domestic resources, or by accumulating and exerting power to secure needed resources as Japan did prior to World War II. Consequently, looking at a state’s imports plus exports as a percentage of its GDP is a good measure of its vulnerability to trade.

Military expenditures and trade vulnerability correspond to material realism’s explanatory variables of power and globalization. We know from chapter 3 that an increase in power increases the probability of conflict initiation and that an increase in globalization decreases the probability of conflict initiation. What we want to know is how to discern that a state is pursuing a conscious strategy of power maximization or a conscious strategy of globalization (or both, or neither). If we can discern this by “reading the signals,” we can classify a state as revisionist and malignant and a threat to international stability; or, we can classify a state as status quo and benign and not a threat to international stability. Such a classification result, informed at first impression analytically but then buttressed empirically, would be valuable and it would offer support to material realism as a systems theory of international politics.
In the next three subsections the behavior of the United States, China, and Japan, is examined first analytically. With regard to military expenditures, it is not the level of military expenditure that is paramount. Rather it is the change in military expenditure because that is what is most informative and descriptive of a state’s policy and intention. If China consistently spends 1.9% of GDP on its military, its military spending will ebb and flow as its GDP does and no new information is presented. But if China is biased toward increasing the percentage of its GDP spent on the military, this is informative. Consequently, looking at the changes in the percentage of GDP China spends on its military each year and plotting a trend line against these changes will tell us whether China is engaging in power maximization or not. Put simply, if the trend line has a positive slope this means that the investment China is making in its military is accelerating. It is difficult to understand how this would happen except as the result of a conscious policy of power maximization.

Trade vulnerability is treated similarly. If, as an example, China’s imports and exports represent a value equal to 50% of its GDP year after year, then the value of Chinese imports and exports will ebb and flow as China’s GDP does and no new information is presented. But if China is decreasing the value of its imports and exports as a percentage of its GDP, this is informative. Consequently, looking at the changes in the value of imports and exports as a percentage of GDP and plotting a trend line against these changes will tell us whether China is increasing or decreasing its vulnerability to trade. Put simply, if the trend line has a negative slope this means that China is making itself less vulnerable to trade disruption. It is difficult to understand how this would happen except as the result of a conscious policy.

Judgements about whether the United States, China, and Japan, are acting to maximize power and mitigate trade vulnerability are purely data driven; the judgments are analytical. The data will provide an answer to the question, “is this state malignant and revisionist, or is it something else?” The answer provided by the data needs to be confirmed by empirical analysis. In brief, if a state has an upward sloping trend line for military expenditures and a downward sloping trend line for trade vulnerability, the analytics suggest that the state is malignant and revisionist; it is power maximizing. In an era of globalization when states can achieve virtually any allocation of resources they want freely through market mechanisms, there is not a cognizable need to invest in power maximizing behavior. Consequently, if a state is doing so its reason for doing so must be rooted in a fear that can be diagnosed from a consideration of its history and the behavior of other states acting in its proximity. An empirical analysis will reveal the cause. Of course, the converse is also true. If a state has a flat or negatively sloped trend line for military expenditure and a flat or positively sloped
trend line for trade vulnerability, there is little reason to fear the behavior of the state. To the extent the state blusters, it is theatre.

The United States, China, and Japan, will be considered seriatim. First, the data will be presented and interpreted. Then an empirical analysis will confirm or not the data. If an empirical analysis confirms the data then the explanatory power of material realism will grow accordingly. Fear, resulting from scarcity, inspires states to seek more satisfactory allocations of resources. States will seek satisfactory allocations through collaboration, or by diktat. The acceleration of a state’s military spending and the acceleration of the value of a state’s imports and exports as a percentage of its GDP are the signals that considered together will tell us the policy and the intention of the state.

4.2.1 The United States in East Asia

For the United States, the signals are clear. Figure 4.2 clearly shows that through 2016 military expenditures for the United States are accelerating as evidenced by the upward sloping trend line (“World Bank Open Data” 2018). This trend, however, is under current pressure as a result of the sequestration (Budget Control Act of 2011). Consequently, it is important to understand that the trend line is not the product of a single year’s expenditures or even a few year’s expenditures. The trend line represents the bias of United States military spending policy since 1992. Generally, since 1992 the behavior of the United States has been biased toward increasing military spending. Moreover, if the Trump administration can be taken at its word, it is almost certain that the sequestration will end and military spending will increase substantially. Consequently, it seems safe to assert that the United States as a matter of policy is biased toward increasing military spending into the foreseeable future. Current United States overseas commitments also support this conclusion.

Likewise, Figure 4.2 clearly shows that the United States is becoming less dependent on, or vulnerable to, international trade and, therefore, globalization (“World Bank Open Data” 2018). This is evidenced by the downward sloping trend line. Interestingly, among all industrialized economies, indeed among just about all economies in the world other than disconnected and dysfunctional states like, North Korea and the Sudan, the United States has the lowest value of trade (imports plus exports) as a percentage of GDP. Moreover, the trade of the United States has ranged from 19.9% of GDP in 1992 to 30.9% in 2011, before descending to 26.6% in 2016 (“World Bank Open Data” 2018). The United States has never had a value of trade more than 30.9% of GDP. Relatively speaking, the United States is less dependent on international trade than any state in the world.
Figure 4.3 shows the source and destination of the imports and exports of the United States for 2014 (“World Bank Open Data” 2018). The United States imports the largest amount from China, followed by Canada, Mexico, and Japan. Combined, this volume of imports is about 53% of the total imports of the United States, with 27% coming from Canada and Mexico and 26% coming from China and Japan. In 1992 the comparable numbers were 49% of imports from these countries, with Canada and Mexico accounting for 37% and China and Japan accounting for 12%. See Figure 4.4 for regional trade for 1992. Total value of imports for the United States increased from $540B in 1992 to $2.34T in 2014.

Looking at the percentages by region, the United States has had fairly stable trade with East Asia. Imports remain at 31%, while exports at 21% in 2014 are not significantly changed as compared to their share of 20% in 1992. However, the increase in the value of imports from East Asia since 1992 is accounted for almost completely by China. In 1992 China was the fifth largest exporter to the United States, behind Canada, Mexico, Japan, and Germany. In 1992 China exported $27B to the United States and Japan exported $100B (“World Bank Open Data” 2018). In 2014 China exported $473B to the United States and Japan exported $133B (“World Bank Open Data” 2018). According to the United States Trade Representative, the top categories of exports from China to the United States are machinery, bedding, toys, and sports equipment. These categories of imports do not fulfill a
Figure 4.3: United States Regional Trade 2014

particularly critical need for the United States. The United States has the wherewithal to produce these goods itself and would probably do so but for the cost advantages of offshoring its production to China. Compare, however, this to the leading category of exports from the United States to China (again, according to the United States Trade Representative): food. A disruption in trade between the United States and China would clearly hurt China more that it would hurt the United States.

Figure 4.4: United States Regional Trade 1992

United States’ trade with Japan since 1992 has been stable, perhaps even declining slightly in real terms if inflation is accounted for ($100B growing at about 1.2% results in about $133B in 25 years). The largest categories of trade between the United States and Japan, and each with the other, are machinery, aircraft, and optical and medical instruments.
Japan also exports cars to the United States. This trade is probably not all that significant for either state since each is capable of producing these things. Unlike the United States trade with China, this trade probably results more from specialization than cost arbitrage. Overall the trade between the United States and Japan is more characteristic of trade between mature industrialized countries that choose to specialize than is the trade that is between the United States and China, though the latter is clearly evolving.

Put simply, the United States is generally not particularly vulnerable to trade in the sense that it could not reasonably and quickly adjust to a disruption. This owes to the abundant domestic resources, incredibly favorable topography and environment, current demographic trend, and skilled resources the United States possesses (Zeihan 2016). The United States is unlike any other state in the world in this regard and the result is that the United States has an advantage over every other state in the world without exception (Zeihan 2016). The United States does not and cannot suffer from scarcity. If something akin to scarcity presented itself, an analysis would no doubt quickly reclassify the issue as not one of scarcity, but one of distribution. See (Chandler 2017). The challenge the United States has, if it has one at all, is to ensure the equitable distribution of resources. This is tantamount to the reduction of inequality among its people.

With respect to East Asia, the United States is not at all vulnerable to trade disruption. There is nothing that China or Japan (or South Korea) produces that the United States requires and cannot locally produce or find an adequate substitute for. The fact is East Asia, particularly China, needs access to the consumer market of the United States; indeed, the world needs access to the consumer market of the United States. The United States is the largest importer in the world and this is clear and sufficient evidence that the United States has the largest consumer market in the world. The world needs the United States as an export market far more that the United States needs anything from the rest of the world (Zeihan 2016).

But these facts present a contradiction. If the United States is increasing its military spending and reducing its exposure to trade, these costly signals suggest that the United States is a malignant and revisionist state, especially in the face of surplus and not scarcity. How does this reconcile with material realism’s assessment that states that do not suffer from scarcity do not fear and, thus, are less likely to initiate conflicts? If the United States benefits from surplus, it should not fear and, therefore, it should not be power maximizing. Less conflict necessarily follows. This must be explained.

The questions that need to be answered are:
1. How did the United States become the world’s largest export market and why is this important?

2. How does material realism explain the fact that the United States is power maximizing, though not a malignant and revisionist state?

The answer to each question is straightforward and will be found in an analysis of the choices the United States made since World War II.

The compass and advances in ship design enabled voyages beyond the sight of land and this was all that was needed to initiate the “Age of Discovery.” The Portuguese, the Spanish, the British, the French, and ultimately most European states would venture out from the European continent to discover new lands that offered vast resources for their taking. As one state succeeded in enriching itself, others were compelled to act similarly or else fall behind. For a state, falling behind meant being less wealthy and, therefore, less powerful and less able to defend itself. What started as a scramble for wealth quickly became a scramble for national power and primacy. Asia, the Americas, and Africa would all fall victim to European states cum empires as they were carved up and their pieces distributed. Competitive economic blocs emerged as mercantilism, colonialism, and “imperial preference” became the operative policies of empires. Beggar-thy-neighbor policies were the norm with friction and conflict often the result. The system would not be dealt its death blow until the conclusion of World War II, with the last colony (Greenland) only recently (2009) achieving independence.

Even before the entry of the United States into World War II, Franklin Roosevelt was of the opinion that trade barriers and economic blocs had undermined international peace (Green 2017, p234). This belief no doubt informed United States policy as expressed in the Atlantic Charter. “The Atlantic Charter had stated that all states ‘great or small, victor or vanquished’ would have ‘access, on equal terms, to the trade and the raw materials of the world which are needed for their economic prosperity’” (Green 2017, p234). Thus, even before the United States entry into World War II, the United States surmised that international peace could only be achieved if competitive economic blocs were eliminated. According to Michael Green, quoting Alfred Eckes, nothing less than “a new world economic order based on the principles of an efficient distribution of international labor, convertible currencies, and maximum utilization of human and physical resources” was needed (Green 2017, p234). This new world economic order would be the foundation of an international security system to prevent future wars (Green 2017, p234). This vision for a new world economic order was brought to life at Bretton Woods.
In 1944 forty-four nations met at the Mount Washington hotel in Bretton Woods, New Hampshire. Ostensibly the agreements hammered out by the attendees established the International Monetary Fund and the International Bank for Reconstruction and Development (later becoming the World Bank). The practical effect, however, was to establish a system of free trade underwritten and secured by the United States. The deal the United States offered at Bretton Woods was straightforward. Allies could join the United States led system and gain access to the largest consumer market in the world, indeed the only meaningful market not devastated by the war, and they could also shelter under the security umbrella provided by the United States. The advantage of this latter benefit was twofold. First, the United States would secure maritime commerce. Second, and more generally, allied nations would have their security provided by an alliance underwritten by the United States. Without having to go it alone and make large investments in defense, particularly an expensive navy to secure commerce, allied nations were free to focus almost completely on economic reconstruction. See (Zeihan 2016, p83). This system would deliver the “greatest boom in trade and investment the world had ever seen” (Green 2017, p237). It is probably not unreasonable to say that this system effectively rebooted globalization after the ravages of two world wars and a world wide depression.

Thus the answer to the first question. The United States became the world’s largest export market because of its commitment to free trade as part of an international system of security that it stood up, supported, and perpetuated. Trade disputes leading to outright conflict could no longer be tolerated. Free trade was the answer, but to put its money where its mouth was, the United States would have to open up its domestic market.

The United States did open its domestic market, and with great effect, thus lending credibility to the system and paving the way for greater interdependence among states. Increased trade led to increased wealth, increased specialization, and capital accumulation. As capital controls fell during periods of increasing liberalization, advances in technology allowed for the decomposition, disaggregation, and dispersal of supply chains throughout the world. This was the ICT revolution that Baldwin referred to (Baldwin 2016). The practical effect of this revolution was twofold. First, interdependence increased. A conflict impacting one state could now interrupt multiple supply chains across multiple industries, thus impacting many states. In earlier eras of globalization this outcome was not as likely because trade consisted more generally of raw materials and finished goods flowing within a particular trading bloc. Mercantilist and colonial policy, and “imperial preference,” often aimed to insulate the bloc’s dominant state from trade disruption. But because of technology,
trade now consisted of services and intermediate goods that served as inputs to the supply chains of many industries. This made interdependence wholly different in character as compared to prior eras of globalization. As a consequence, the second effect was that the cost of disruption increased and would be more broadly felt among nations. Moreover, the higher a percentage of GDP of a state’s trade (imports plus exports), the more dependent (vulnerable) it would be on the system of international trade established by the United States at Bretton Woods.

Nevertheless, the system of free trade established at Bretton Woods cannot be examined in isolation from the security objectives of the United States. Removing trade as a point of friction was an explicit objective of Roosevelt because he believed that trade conflicts and competition for resources led to war. Roosevelt wanted to reduce the likelihood of war; free trade was a reasoned means to that end. In August of 1941 when the Atlantic Charter was promulgated the perceived need to contain the Soviet Union had not yet ripened, so it can not be said that Roosevelt set out to establish a western alliance in opposition to them. Indeed, the Soviet Union was invited to participate at Bretton Woods. Roosevelt believed as Woodrow Wilson had believed before him that free trade was necessary to secure international peace (Green 2017, p234). If states could acquire the resources they required through access to free and open markets then sources of conflict would be reduced accordingly. Roosevelt aspired for free trade to rid the world of conflict. That the world organized east versus west after the Soviet Union opted out of the program turned out to be of temporary importance since the Soviet Union would collapse only forty-six years after the end of World War II.

The demise of the Soviet Union coincided with the ICT revolution. With ideology and security competition sidelined, globalization fueled by advances in technology was unleashed with a vengeance. World trade and outflows of foreign direct investment accelerated perceptibly (“World Bank Open Data” 2018). No great power competition presented itself and apart from largely inconsequential regional conflicts, the world seemed to be heading toward the idyllic state that Francis Fukuyama characterized in his book “The End of History and the Last Man” (Fukuyama 2002). During this period, which corresponded exactly with the Clinton Administration, United States military spending decreased every year while United States trade vulnerability (change in imports plus exports as a percentage of GDP) increased every year except one. The United States was clearly a benign and status quo state. What changed?

States fear two things: they fear other states and they fear their own people. If the United
States executed a change in policy as evidenced by an acceleration in military expenditures and a deceleration in exposure to globalization, a source of fear should be present. However, since World War II free trade, economic liberalization, and globalization have all increased steadily and significantly and there has not been a single great power war. The wall between east and west has fallen with the demise of the Soviet Union and China, by all impressions, is joining the system. This last event alone has probably lifted hundreds of millions of Chinese from poverty since 1992. So arguably there is clear reason for optimism and not fear. This would certainly be true, unless the system itself is changing in such a way as to produce fear. Two changes seem obvious.

There is plenty of instability in the Middle East. But instability in the region does not threaten as it once did. The Carter Doctrine asserted the United States’ interest in not having a hostile hegemon monopolize the energy resources of the region for fear that the hegemon would control access to the resources to serve its parochial self-interest. This fear no longer exists as a practical matter. The shale revolution has made the United States energy independent, so it does not need the resources (Zeihan 2016). It is unlikely that other states will be denied the resources since energy is the one thing that Middle East states have that others need to buy. If Iran dominated the entire region, including Saudi Arabia, they would need to sell oil to pay for the repression that would be required to hold their “empire” together. It is just not imaginable that Middle East energy will be withheld from the market. This particular threat went away with the demise of the Soviet Union. This means that for the first time since World War II the Middle East is not a strategic region for the United States, or for the world. Europe, Japan, and China, will continue to fulfill their energy needs from the Middle East, as well as from others. Hence, investing in the stability of the region needs to be reconciled to this new reality. This is one important way the system is changing, but in this case for the better. To find a source of fear that would prompt the United States to send costly signals, something else must be lurking that threatens to upend the system the United States has perpetuated since World War II. The uncertainty surrounding the rise of China, especially its recent behavior, may be the source of fear that is driving the behavior of both the United States and Japan.

To answer the second question presented above, if the United States is power-maximizing as it was during the Cold War to support, preserve, and extend the Bretton Woods’ international system, it is not a malignant and revisionist state. It is a hegemon trying to maintain the status quo in the face of an existential threat to the system. The question that needs to be answered is this: is the rise of China changing the system in such a way as to drive the
fearful behavior of the United States and Japan? A discussion of China and then Japan may reveal the answer.

4.2.2 China in East Asia

For China the signals are clear. Figure 4.5 clearly shows that through 2016 military expenditures are accelerating as evidenced by the upward sloping trend line (“World Bank Open Data” 2018). The acceleration in Chinese military spending is more pronounced than that of the United States. This is easily discerned by comparing the steepness of the slope of the trend lines for the United States and China. In absolute terms, China’s military spending is far below that of the United States. However, this comparison does not tell the story. More context is needed to properly interpret China’s military spending in comparison to that of the United States.

Figure 4.5: China: Costly Signals

In 2016 China’s military spending was $215B, while the United States’ military spending was $611B (“World Bank Open Data” 2018). Before comparing these numbers, several issues should be accounted for.

- Purchasing power parity. According to the World Bank, China has the largest economy in the world when measured in terms of purchasing power parity. Adjusting for this, China’s military spending in 2016 was $412B, or approximately 67% of that of the United States (“World Bank Open Data” 2018).
• Research and development. According to Peter Navarro, China benefits from significantly lower research and development costs because it has been able to steal defense-related intellectual property, as well as reverse engineer licensed technology (Navarro [2015] loc553-60).

• Scope of deployment and operation. While the United States deploys and operates military forces globally, China’s concerns thus far are regional (Navarro [2015] loc545).

• Current operational expense. The United States is currently engaged in significant conflicts in the Middle East and South Asia, as well as other active operations around the world. The United States is incurring significant operational expense while China is not.

Accounting for these issues, it is probably fair to say that China is spending more to build its military capabilities than the United States is. Indeed, because China is not involved in any active conflicts, this level of military spending seems high, especially for a “status quo” power.

Figure 4.5 also clearly shows that China is reducing its vulnerability to trade and, therefore, to globalization. Since 2006, imports plus exports as a percentage of GDP for China has decreased every year except for 2010 and 2011. Imports plus exports as a percentage of GDP peaked for China in 2006 at 65.6% of GDP. As of 2016, imports plus exports as a percentage of GDP for China is 37%. During this period (2006 - 2016) Chinese GDP increased from $2.75T to $11.2T, a fourfold increase (“World Bank Open Data” [2018]). Since the proportion of trade to GDP has decreased substantially, a reasonable inference is that China has increased domestic consumption. This is consistent with what would be expected from a developing country as it becomes wealthier. However, at 37%, China is already less exposed to trade than most developed states. Consequently, it seems unlikely that China will be able to reduce its exposure to trade too much more. The comparable metric for the United States is 26.6%, but the United States has much richer local resource endowments than China. (Zeihan [2016]).

Figure 4.6 shows China’s regional trade for 2014. China’s largest export markets were the United States, Japan, South Korea, and Germany, with the United States consuming 21.0%, Japan 8.1%, South Korea 4.1%, and Germany 3.6% respectively of China’s exports (“World Bank Open Data” [2018]).

Figure 4.7 shows China’s regional trade for 1992. China’s largest export markets were the United States, Japan, South Korea, and Germany, with the United States consuming
Figure 4.6: China Regional Trade 2014

30.3%, Japan 18.8%, South Korea 4.1%, and Germany 8.3% respectively of China’s exports ("World Bank Open Data" 2018).

Figure 4.7: China Regional Trade 1992

The same trading partners, plus Taiwan, were the largest exporters to China in 2014. In 2014 the United States, Japan, South Korea, Germany, and Taiwan provided 8.9%, 9.7%, 10.3%, 5.4%, and 9.2% respectively of China’s imports ("World Bank Open Data" 2018). For 1992 these states provided 15.0%, 23.0%, 4.4%, 6.8%, and 9.9% respectively of China’s imports ("World Bank Open Data" 2018).

The character of China’s imports and exports is also revealing. In 1992 84% of China’s exports were to North America, Europe, and East Asia. The largest categories of exports were toys and games, footwear, knitted outerwear, and luggage ("Observatory of Economic Complexity"). By 2014 these markets accounted for 64% of China’s exports, with the largest
categories of exports being personal computers, TV and radio transmitters, and vehicle parts and accessories. Between 1992 and 2014 China moved from exporting primarily low value goods to exporting high value goods and in so doing became more dependent on the mature markets it served. The market for sophisticated manufactured goods is East Asia, North America, and Europe. China needs access to these markets to support its export industries and its export led growth.

China’s imports tell a similar story. In 1992 84% of China’s imports came from North America, Europe, and East Asia. By 2014 this number reduced to 60%. In 1992 the largest categories of imports for China were machinery, cars, aircraft, and fertilizers. By 2014, the categories were cars, microcircuits, vehicle parts and accessories, optical instruments, and machinery for specialized industries. China can only source these items from mature markets like North America, East Asia, and Europe.

The pattern depicted immediately above is straightforward and predictable. Mao Zedong left China an impoverished country when he died in 1976. After Mao’s death, Deng Xiaoping made the decision to open China to the world. When China opened its major, and perhaps only, competitive advantage was a large quantity of inexpensive, unskilled labor. The result was that low-skilled, labor intensive tasks moved to China. The product of these tasks was low value-add, commodity exports - toys, luggage, outerwear. China advanced economically on this basis, but this profile of exports could not create sufficient excess capital to modernize the Chinese economy unless Chinese living standards were suppressed. In other words, if Chinese workers consumed all of the wealth they created, there would be nothing left to invest in the development of the Chinese economy. Mearsheimer made this exact point with respect to Russia when he compared the nature of the Russian economy to that of the United Kingdom during the period 1815 - 1914. See (Mearsheimer 2001, loc1161-75).

The Chinese government would suppress Chinese living standards while enticing companies from the major economies of North America, Europe and East Asia (especially Japan) to invest in China. Low labor costs and a large Chinese market were ample reasons for companies to invest. But investment came at a cost. The Chinese government required companies to make technology transfers to local entities as they entered the Chinese market (Navarro [2015], loc3704). As the Chinese economy consumed more and more of the technology brought by foreign companies it was inevitable that Chinese productivity would rise. As Chinese productivity increased, living standards did not rise commensurately and the surplus capital was invested in the economy. As this process has played out since Mao’s death the Chinese economy has advanced tremendously, recently surpassing the United
States economy in size when measured in terms of purchasing power parity.

The Chinese have succeeded because they have been relentless in consuming technology and climbing the value chain as evidenced by the change in their trade profile during the period 1992 - 2014. The downside of this, however, is that the Chinese have built a modern economy that is particularly reliant on trade (imports and exports) with a small handful of countries that are capable of providing the imports they require and consuming the exports they produce. China’s consumer market is not yet rich enough or sophisticated enough to wean China from its export driven growth, though it is advancing and transforming. Consequently, an interruption to trade would likely ripple through the Chinese economy. Workers would be displaced and social unrest stoked; surplus capital would dry up and China’s economic advancement would stall.

Material realism asserts that states fear two things: they fear their people and they fear other states. China has ample reason to fear its people. According to the New York Times, “As China’s economy slows after more than two decades of breakneck growth, strikes and labor protests have erupted across the country. Factories, mines and other businesses are withholding wages and benefits, laying off staff or shutting down altogether. Worried about their prospects in a gloomy job market, workers are fighting back with unusual ferocity” (Hernandez). But compare (Fisher). If the Chinese government cannot continue to advance the economy and provide jobs, it risks losing the support of the Chinese people. If the Chinese government cannot continue to increase the standard of living of the Chinese people, which the people have come to expect, it risks losing the support of the Chinese people. The objective of the communist party rulers in China is to stay in power. To stay in power they know they need either the support or the acquiescence of the Chinese people.

For the Chinese communist party to stay in power it must increase the standard of living of the Chinese people. Only this will earn the communist party leaders the support or the acquiescence of the people. This is the expectation that has resulted from “two decades of breakneck growth.” The Chinese people want more, not less. They will not be satisfied with stasis if they perceive their lot in life compares unfavorably to others, especially others among themselves which makes inequality in China a real problem too. This means that the government must continue to grow the economy to provide jobs for the Chinese people. In order to grow the economy, the government must have access to markets and resources, which means greater connectivity, not less. China needs to import raw materials and other inputs to support its consumption and export trade. China needs access to export markets. The Chinese government’s fear is that access to markets and resources will be closed, or
sufficiently constrained, resulting in a crisis of scarcity that diminishes the credibility of the communist party and brings its ability to rule in to question.

Unreliable access to resources and markets is an existential threat to the Chinese communist party. This is the source of all their fear. States that contribute to this fear are states that have the ability to close Chinese access to resources and markets. Because these states are a source of fear, China builds its power to deter these states or, if necessary, successfully confront them. How is it that China fears a loss of access to resources and markets in an era when globalization operates to guarantee such access? Is China’s fear rational? Three sources of concern for China are readily apparent.

First, China’s maritime geography is especially precarious. China abuts the Western Pacific Ocean, yet it does not have unfettered access to it. South Korea, Japan, Taiwan, the Philippines, and Indonesia run from China’s north east to its south and form a first island chain that contains China to the East and the South China Seas. Forty percent of the world’s commerce transit these seas gaining egress and ingress through the Strait of Malacca (Reuters). Energy exports from the Middle East, including 80% of China’s crude oil imports, travel through the Arabian Sea around the southern tip of India and across the Bay of Bengal before entering the Strait of Malacca on their way to East Asia (Reuters). Chinese (and Japanese) exports travel south through the South China Sea passing through the Strait of Malacca before crossing the Indian Ocean and passing through the Red Sea and the Suez Canal to access the Mediterranean and ultimately the Atlantic Ocean where European markets are accessible. All of China’s trade with the Middle East and Europe can be choked off by closing the Strait of Malacca, which at its narrowest point is only 1.7 miles wide (Reuters). Beyond this, however, If China wants access to the Pacific, and assuming it can break out of the first island chain, it will run squarely into United States military bases at Guam and then Hawaii. China’s geography, unlike the Geography that the United States enjoys, lends to its insecurity.

Second, China is an immature maritime power. China does not yet have the capability to stop the United States from choking off its trade; China does not have a blue water navy. South Korea, Japan, Taiwan, and the Philippines all have defense relationships with the United States and each hosts a United States military presence. Singapore hosts a large logistical base for the United States Navy. The United States is forward deployed in East and South East Asia in a significant manner and it is hard to imagine how the United States would not be able to stop the flow of commerce to China, including vital energy imports, if the United States wanted to (Navarro 2015). Indeed, there is a vivid memory in East Asia
of the United States doing exactly this. The United States executed an embargo against Japan in 1941 that contributed to Japan’s decision to attack the United States at Pearl Harbor. Also, and importantly, “President Harry Truman imposed a complete trade embargo on China that would last for more than twenty years and inflict considerable damage before President Richard Nixon’s ‘Ping-Pong diplomacy’ ended the embargo in 1971” (Navarro 2015, loc369-71). China is more dependent on trade now than it was in 1950, so the pain of an embargo would no doubt be severe and an almost certain casus belli. Consequently, China has good reason to fear this potentiality.

Finally, while China’s resource insecurity can be established objectively, it must be evaluated subjectively in light of China’s peculiar historical experience. Only in this way can China’s national behavior be understood. From 1839 until the founding of the People’s Republic of China on October 1, 1949 (China’s century of humiliation), China was attacked, invaded, and occupied at various times and for various purposes by European powers, the United States, Japan, and Russia. China was the victim of unequal and onerous treaties that resulted in the loss of territory. This history is not a distant memory for the Chinese. All Chinese children are taught this history and it serves as a national rallying cry of “never again.” China believes weakness made it susceptible to the depredations it suffered at the hands of stronger, more industrially advanced states. For this reason, weakness is reviled. China must be strong and strong means industrially advanced, independent, and self-reliant, with a world class military. Consequently, “[i]n his report to the 19th CPC National Congress, Xi, also general secretary of the CPC Central Committee and the nation’s president, pledged to make sure that by 2020, the PLA will basically achieve its mechanization, make big strides in informatization, and gain substantial improvement in strategic capabilities. He also set a midterm goal for the Chinese military — to turn itself into a modernized power by 2035 — as well as a long-term one — to become a top-tier military by 2050” (Zhao).

All of this being said, China is committed to actions it believes will result in its independence and prosperity. Toward this end, China’s overarching strategy may be found in the “One Belt, One Road” (OBOR) initiative. One Belt, One Road is intended to subsidize and construct the infrastructure necessary to more fruitfully connect China with Asia, the Middle East, Europe, and Africa. It envisions over land routes and maritime routes. According to Jacob Shapiro, “China’s main purpose in pushing for OBOR is . . . to alleviate . . . its own domestic economic pressures. OBOR is one small part of Xi’s attempt to accomplish what successive Chinese leaders have failed to do: distribute the wealth of the coast to the impoverished parts of China’s interior without causing crippling levels of social instability.
The most concrete part of the OBOR action plan is how Chinese provinces will profit from infrastructure development and increases in trade that are supposed to accompany OBOR. The goal is to enrich interior provinces, which despite preternatural growth rates China has seen in the last three decades, remain woefully impoverished compared to the richer coastal regions” (Shapiro).

Material realism suggests a state will increase its power to a level that is necessary to secure (acquire and protect) the resources needed for its survival. China’s actions can be construed in this light. China’s communist party must increase the quality of life of the Chinese generally, but especially those living in the interior of the country, because they fear the social instability that will be created if they fail. Chinese citizens living in the interior of the country greatly outnumber those living in the coastal regions. Mao’s peasant army was filled with recruits from the hinterland. Pacification of this population is an imperative for the communist party’s survival. Consequently, the quality of life of the Chinese living in the interior of the country must improve. Trade and economic development enabled through OBOR-enabled connectivity is the answer.

As for China’s increasing military expenditures, this phenomenon makes sense in light of China’s historical experience and should be construed in that light. China has been the subject of great depredations in the recent past, including a trade embargo. Consequently, China will invest to build military capability to confront all threats. The United States is the only state capable of disrupting China’s access to markets and resources, so it makes sense that the military capabilities of the United States inform China’s military designs. Until China feels secure with its capability vis-a-vis the United States, it will continue to build its military. This no doubt ensures the United States will respond by building its military to an even greater capability. The resulting arms race does not necessarily lead to conflict. The United States and the Soviet Union avoided direct military conflict despite a fully joined arms race. The result can be the same as between China and the United States as long as markets and resources are not used as weapons.

China is a malignant and revisionist state. History, geography, and weakness explain the actions China is taking to secure access to markets and resources and in so doing reset the rules of the system, especially in East Asia, if not worldwide. Can the same explain the behavior of Japan? To that question we now turn.
4.2.3 Japan in East Asia

For Japan the signals are clear. Figure 4.8 clearly shows that through 2016 Japanese military spending is decelerating as evidenced by the downward sloping trend line. According to the World Bank, Japanese military spending as a percentage of GDP has been below 1% since 1960. Since 1960 Japanese military spending reached its apex of 0.99% of GDP in 2011 ("World Bank Open Data" 2018), but has declined modestly since then as a percentage of GDP. Japanese military spending has not needed to be high since World War II because there has not been a threat to Japan in East Asia, Japan has been able to shelter under the security umbrella provided by the United States, and Japanese access to markets and resources has been secure. These circumstances allowed Japan to recover economically from the war so quickly and effectively that Japan now has the world’s third largest economy (only recently being overtaken by China).

Nevertheless, public pronouncements coming from the Japanese government belie the data.

- Japanese Prime Minister Shinzo Abe led the effort to reinterpret Article 9 of the Japanese constitution. Article 9 of the Japanese constitution asserted that Japan renounced “war as a sovereign right of the nation and the threat or use of force as means of settling international disputes.” Under the reinterpretation of Article 9
Japanese Self-Defense forces are now allowed to participate in collective self-defense, meaning they can come to the aid of an ally that is attacked (Ford).

- It is widely believed that Prime Minister Abe wants to formally revise Article 9, not merely reinterpret it, so that the Japanese Diet can make decisions about what military policies to pursue. The “goal is to increase the focus of debates on the substance of policies, as opposed to ‘abstract’ debates about ‘constitutionality’ insulated from changes to Japan’s strategic environment over the past 70 years” (Liff).

- In December, 2017, CNN reported that Japan had agreed to purchase Long Range Anti-Ship Missiles and Joint Air-to-Surface Standoff Missiles from Lockheed Martin (Berlinger and Enjoji). Additionally, Japan launched what it calls a “Helicopter-Destroyer” in 2015, which can easily support vertical take-off and landing fighter aircraft such as the F35B, that Japan is rumored to be intending to purchase (Seidel).

These facts seem to support the proposition that Japan does not feel secure. Indeed, if the circumstances that contributed to Japan’s security until only recently are critically examined, the source of Japan’s insecurity can be found. So should we expect Japanese military spending to increase? Yes, according to The Diplomat who reported that the Japanese Ministry of Defense requested “a record 5,255 billion yen ($48.1 billion) for fiscal year 2018[,] . . . a 2.5 percent increase from the initial defense budget for fiscal 2017[,]” in response to activities by the North Koreans and the Chinese in the East and South China Seas (Pollmann). Consequently, perhaps we are seeing in current events the basis of an incipient costly signal.

Japan’s exposure to trade has been stable. Imports plus exports as a percentage of GDP peaked for Japan in 2014 at 37.6%, but have since reduced to 31.2% in 2016 ("World Bank Open Data" 2018). The slope of the trend line in Figure 4.8 does not suggest a change in Japanese behavior. Indeed, Japanese trade has been remarkably consistent, even in the face of a contracting economy. The Japanese economy contracted from $6.2T in 2012 to $4.9T in 2016 ("World Bank Open Data" 2018).

Japanese regional trade from 1992 to 2014 is also fairly stable. Japan received 70% of its imports from North America, East Asia, South East Asia, and the Middle East in 1992, with 67% coming from these regions in 2014. Exports show similar stability. North America, East Asia, South East Asia, and the Middle East accounted for 68% of Japanese exports in 1992 and 63% in 2014.
In 1992 Japan’s top import categories were crude petroleum, liquified petroleum gases, lubricating petroleum oils, coal, and crustaceans and molluscs ("Observatory of Economic Complexity"). In 2014 they were liquified petroleum gases, crude petroleum, electronic microcircuits, coal, and medicaments ("Observatory of Economic Complexity"). Japan’s top export categories in 1992 were cars, computer peripherals, vehicles parts and accessories, electronic microcircuits, and video and sound recorders ("Observatory of Economic Complexity"). Japan’s top export categories in 2014 were cars, unclassified transactions, vehicles parts and accessories, machinery for specialized industries, and electronic microcircuits ("Observatory of Economic Complexity").

Two things are striking about Japanese trade. First, China. China (including Hong Kong)
has displaced the United States as Japan’s largest export market. In 1992 China received 10.25% of Japan’s exports compared to the 29% the United States received ("Observatory of Economic Complexity"). In 2014 China received 25.2% of Japan’s exports compared to the 20.5% the United States received ("Observatory of Economic Complexity"). Imports tell a similar story. In 1992 Japan received 23.4% of its imports from the United States compared to 8.5% from China ("Observatory of Economic Complexity"). By 2014 Japan received 25.3% of its imports from China with only 11.3% coming from the United States ("Observatory of Economic Complexity"). Second, a continuing reliance on the import of energy. In 2014 Japanese energy imports are 16.7% of total imports, down from 23.3% in 1992 ("Observatory of Economic Complexity"), but still significant. The net of this is Japan remains reliant on energy imports and over recent years has developed a high level of interdependence with China. China now accounts for 25% of Japanese imports and exports. This is reflected in the growth of East Asia regional trade in Figure 4.10 and Figure 4.9.

The data suggests that Japan is a benign and status quo state. Military spending is not accelerating as of 2016. With respect to trade, Japan’s level of engagement with the international system has been fairly consistent. There is not yet a clear sign that Japan is trying to limit its exposure to trade as China and the United States appear to be. Indeed, Japan remains dependent on energy imports from the Middle East and South East Asia; and, the size of Japan’s trading relationship with China no doubt increases the importance of the relationship between them that appears to be under pressure for a variety of historical reasons. Notwithstanding the above, there is evidence that Japan is pivoting to a more offensive posture, suggesting that we will see costly signals coming from Japan in the near future. The reasons specified above give us a roadmap to understand why.

In the 19th century Japan was keenly aware of China’s experience with the European powers. Japan watched as China was defeated in the Opium wars, became the subject of an onerous treaty port system, and had parts of its territory seized (Paine 2016). In 1854 Japan suffered similarly at the hands of the United States as the United States imposed the treaty port system on Japan, “establishing the principle of extraterritoriality for Americans residing in Japan, foreign control of Japan’s tariffs, and most-favored-nation treatment” (Paine 2016, p3). Observing China, and based on its own experience, Japan assessed that it was simply too weak to stand up to an industrialized power. Unlike China who sought to protect and preserve its traditional society, which had the effect of preventing her industrialization and modernization, Japan made the decision to modernize and westernize. Before the turn of the century Japan would implement the Meiji reforms that impacted every part of society. Social
hierarchy was upended with feudal reform, education was made compulsory for children, Tokyo University was founded, the Bank of Japan was founded, criminal and civil codes were revamped and westernized, civil service exams instituted, the government organized under a prime minister, the judicial system was reconstructed, and a new constitution was promulgated (Paine 2016, p7-8). Importantly, as well, a process of military modernization was started that would enable Japan to follow in what it perceived to be the footsteps of Russia and the European powers.

Japan had “observed that the great powers of the late nineteenth century possessed enormous wealth, strong militaries, and great territorial extent, usually in the form of empires. [The Japanese] saw no reason why their country should depart from the established model for economic development” (Paine 2016, p10). Moreover, Japan was not rich in resources, so there seemed to be no alternative but to seek the fruits of empire exactly as the Russians and the Europeans had done (Paine 2016). For Japan modernization was needed to achieve national power and, therefore, security. Modernization required empire, because Japan simply did not have the indigenous resources necessary to industrialize. Few states do. All considered, at the time it was quite natural for Japan to look beyond its borders for the resources required and, ultimately, to take them. This explains Japan’s actions dating from the first Sino-Japanese War until its surrender that concluded World War II. Japan sought resources in order to industrialize so that it could be secure.

Material realism asserts that a state fears only two things: its own people and other states. Ultimately, all fear is rooted in scarcity. Solve scarcity, fear will wane, and the probability of conflict will reduce. Despite the Meiji reforms, a lack of resources made Japan weak and vulnerable to predation; Japan continued to fear. The treaty port system imposed by the United States and the experience of China at the hands of the European powers was ample evidence for the Japanese of what results from weakness. For Japan not to fear, Japan needed access to resources. Prior to World War II Japan took by force what it required. Since World War II Japan has been able to trade for the resources it requires. Since World War II Article 9 of the Japanese Constitution has been of little importance because Japan has been able to gain all she requires through collaboration, making coercion unnecessary. So long as collaboration holds the promise of being effective, Article 9 is likely to rest unchanged. But there are signs that collaboration may not be effective in the future.

The rise of China has changed everything in East and South East Asia. China’s GDP has grown from $427B in 1992 to $11.2T in 2016, an increase of 2,600% (“World Bank Open Data” 2018). Yet China still has a per capita GDP that is approximately 38% of
Japan’s measured in terms of purchasing power parity ("World Bank Open Data" 2018). As already stated, China must continue to economically advance and, importantly, China must more equitably distribute wealth among its citizens. OBOR is an important part of China’s strategy because it seeks to ameliorate the inequities felt by the Chinese living in the interior of the country. But OBOR has the potential to do much more than this. “OBOR will allow China to project power across several continents. OBOR’s promise to integrate the countries of Eurasia reflects a vision in which the balance of geostrategic power shifts to Asia” (Allison 2017, p125). Moreover, when the balance of power shifts to Asia, it will shift to China, thus casting doubt on the economic relationships, access to markets, and the “rules of the system” that Japan has enjoyed profitably since World War II.

According to Graham Allison, Xi Jin Ping’s ‘‘China Dream’ combines prosperity and power. . . . It captures the intense yearning of a billion Chinese: to be rich, to be powerful, and to be respected.” (Allison 2017, p108-9). China’s foreign policy, therefore, will consist ‘‘of three key tenets: demand for regional ‘dominance,’ insistence that neighboring countries recognize and respect China’s inherent ‘superiority,’ and willingness to use this dominance and superiority to orchestrate ‘harmonious co-existence’ with its neighbors” (Allison 2017, p110). In other words, China under Xi seeks to reinstate the tribute system that prevailed until only about 200 years ago.

Under the tribute system China occupied the middle space between the heavens and the earth, above all others. This position reflected China’s inherent dominance and superiority, and, because of this position, other states were expected to defer to China in all things. Thus the tribute system was an hierarchical system with China at the top calling the shots. In exchange for their deference, states could expect China to confer benefits upon them. Not surprisingly, the idea that China will seek harmonious coexistence with others, while sitting comfortably perched above them, is, no doubt, not a source of great relief for Japan. As China pursues OBOR and tries to reinstate a tribute system in Asia, it is inevitable that Japan’s access to markets and resources will change. Consequently, Japan has ample reason for fear.

The only state to truly threaten Japan in Asia in more than 100 years has been the United States, with whom Japan now enjoys a close security and commercial relationship. The rise of China, and China’s regional assertiveness, changes that. The recent history between Japan and China, including on going territorial disputes, does little to help.

Adding to Japanese anxiety, however, is one additional circumstance. Since World War II Japan has been able to shelter reliably under the security umbrella provided by the United
States. This “safe place” allowed Japan to focus on economic development and eschew any power-maximizing behavior. However, if the United States were deemed by Japan to be an unreliable security provider, then in the face of a regional threat like China (or North Korea, because its nuclear weapons program), Japan would have no choice but to work to obviate the restrictions of Article 9 and rearm. Many, for good reason, believe that Prime Minister Abe harbors this desire currently (Seig). Consequently, Japan’s relationship with the United States is important because the quality of it will determine whether, or to what extent, Japan seeks to modify (or continue to reinterpret) Article 9 and to rearm.

The fact that no costly signal can yet be discerned from Japan’s military expenditures is explained completely by Article 9. Prime Minister Abe admitted the Japanese people are not yet willing to accept a modification to Article 9, which is why he sought to reinterpret it (Seig). See also (McGregor 2017). Until Article 9 is reinterpreted further, or modified outright, it seems unlikely that Japan’s military expenditures will change too much. So bluster will continue.

Japan’s vulnerability to trade is low relative to other advanced states. Japan’s trade profile and indigenous resource endowments make a further reduction unlikely. So Japan is not exhibiting the clear costly signals that the United States and China are exhibiting. Yet Japan is a significant player in East and South East Asia. An open conflict in Asia between Japan and China will almost certainly provoke the involvement of the United States. China’s actions with respect to OBOR more directly provoke the fear of Japan over free and liberal access to resources and markets, than they do the United States.

Japan’s evaluation of the security guarantee of the United States and China’s actions with OBOR will determine whether, or when, we will see costly signals from Japan.

* * *

Material realism asserts that states fear two things: states fear their people and they fear other states. A state will fear its people when its people suffer from a level of scarcity that prevents them from living the life they want. No state can long endure absent the support or at least the acquiescence of its people. States will fear other states when other states place in jeopardy the resources they need to mitigate scarcity. Scarcity induces fear. Fear is the cause of conflict. Mitigate scarcity and fear will wane and conflict will reduce.

The United States acted at the conclusion of World War II to establish an international order that would provide for a liberal allocation of resources. Such an order was seen by Roosevelt as a means to prevent future conflicts. Ultimately, with the demise of the Soviet
Union the entire world would embrace the order created and largely sustained by the United States. Consequently, the United States became the worldwide leader of the order it created and was thus invested in its perpetuation (so that Roosevelt’s objective could be met). This made the United States a status quo power, but it also provided ample incentive for the United States to power-maximize to the extent necessary to support the established order. The actions of the United States should be viewed in this context. The United States by building or sustaining military power acts not out of fear, but rather to support the existing order. In this sense the United States provides a public good that mitigates the fear that others would experience in its absence. To the extent that the motivation of the United States for building and sustaining power changes, it is because of a threat to the existing order that it works to sustain. China may present such a threat.

The most significant event in international politics since the end of the Cold War has been the rise of China. The rise of such a geographically large and populous state under any circumstances is significant. But the rise of China is particularly significant because of its suddenness and the assertiveness with which China now behaves. OBOR and military spending both aim to secure access to markets and resources that China needs for further economic development. Without further economic development, and particularly more balanced economic development of the interior of China versus China’s coastal regions, it is difficult to see how the government of China continues to earn the support or the acquiescence of the Chinese people. China’s history and geography suggest that it should fear both its own people and other states. China’s actions reflect this, even as they are directed at mitigating scarcity as the root cause. Importantly, however, as China acts to mitigate scarcity its actions provoke fear in others because they raise uncertainty about the settled terms of access to markets and resources that others enjoy. The question that is not answerable at this time is whether China can act to mitigate the scarcity it perceives without stoking fear in others, particularly Japan.

Japan has been a status quo power since its defeat in World War II. This largely owes to a combination of factors. Japan’s constitution prevented Japan’s remilitarization, which allowed it to focus exclusively on its own economic recovery and development. Japan’s security alliance with the United States also worked to allow and ensure this focus. But the rise of China brings into question Japan’s future actions. As China acts to shape the terms of access to markets and resources, it seems likely that China will do so in a self-regarding way. This makes resource competition between Japan and China likely and is, therefore, a significant point of friction.
For the existing international order to endure the great powers of the day must support it. It is the great powers that provide the public goods necessary for the international order to survive. If the international order breaks down, East Asia seems the most likely place where it will happen. The key to understanding East Asia is to understand what China will do to mitigate the scarcity its citizens perceive. For China to endure, the scarcity its people perceive must be redressed or they will not support the Chinese ruling elite. If this becomes true, China will devolve into chaos and anarchy as it has done many times before in its history.

As China acts Japan can be expected to respond. Japan does not fear its people as China does. The Japanese people do not perceive scarcity, so the Japanese government is secure. Only the threat of losing reasonable access to markets and resources can move Japan away from being a status quo state. That this threat is real can be discerned from the statements of Prime Minister Abe. But as of this time, Japan is not sending any costly signals.

The United States does not and cannot suffer from scarcity. This means that the United States can chose to engage in East Asia against the action of China to maintain the status quo or it can stay on the sidelines. If the United States does not act to maintain the international order of its creation by acting to maintain the status quo in East Asia, it is unclear how this will affect the interests of the United States or its allies elsewhere in the world. In other words, can the United States accept the risk of the development of an international order not of its making?

China will act to mitigate the scarcity that it perceives. The question is whether China’s actions can be channeled to fruition within the construct of the existing international order or whether the order needs to evolve or change to accommodate China. China will initiate the action and the United States will largely determine the path that is taken to achieve a new status quo. Whatever the result, the system of international politics will remain the same. States will continue to act to mitigate scarcity that is the root cause of their fear.
This paper set out to establish that globalization does or does not have an impact on the odds of conflict initiation; and, if it does, then to present a theory that accounts for both globalization and power in explaining international political outcomes. The system theories of realism from Waltz and Mearsheimer are inadequate because they under theorize power as an explanatory variable, ignore actor agency, and fail to state how the system itself evolves. Most importantly, the purpose of the system of international politics is not clear under the theory of either Waltz or Mearsheimer. Material realism addresses these concerns directly.

Theories of international politics that purport to be systems theories and explain outcomes in international politics by exploiting power as the sole explanatory variable are under theorized. This is because their conception of power is insufficiently theorized and cannot support what a systems theory requires. A systems theory of international politics necessarily presupposes that the attributes of a state affect the behavior of the state and that the coaction of all states results in the emergence of a behavior that is exhibited by the system of states that in turn affects the behavior of each individual state. Distinguishing the cart from the horse is often impossible. Breaking the system into pieces so that each can be interrogated is not fruitful because a system is always more than the sum of its parts. Systems must be examined holistically. Waltz and Mearsheimer fail because they conceive of power only at the system level or only at the unit level, but not both as is required for a realist system theory of international politics.

Material realism addresses this shortcoming by theorizing power at the unit and at the system level; and, offers a more robust conception of power. Power at the unit level is straightforward. The work of Organski, et al., on Power Transition Theory is quite helpful because it supplies a robust theorization of power at the unit level. The work of Grewal on Network Power operationalizes globalization as a system behavior (a manifestation of power by the system of international politics) that acts to impose a conformity of behavior on states as actors in international politics. What is borrowed and applied from Power Transition Theory and Network Power provide a robust conception of power as a phenomenon *writ large* in international politics.
Material realism establishes that man in a state of nature is not violent unless his survival is brought into question. When man is endowed with ample resources, he is not violent; indeed, he is often quite peaceful. But when man is afflicted by a scarcity of resource, he becomes seized with a fear for his survival and he acts, often violently, to acquire the resources he needs to survive. Man does not engage in violence for trivial reasons because he knows that violence often leads to what he fears more than anything else: death. Consequently, man only fights in order to survive. This leads to the conclusion that when man is amply endowed with resources he does not fear for his survival and, therefore, he does not fight. As it is with man, it is with states. States fight only to ensure their survival. As scarcity reduces, so does conflict among states. To reduce the instances of conflict solve scarcity. Scarcity lies at the root of all conflict.

Material realism addresses actor agency explicitly by recognizing that states can mitigate scarcity through collaboration or coercion. When states exhibit globalizing behavior they are engaging in collaboration to obtain the resources they require. However, when states take the resources they require through an unfair exchange, they are engaging in coercion. The latter results in conflict. In either case, however, actor agency is made central to the issue of reducing scarcity.

The SAOM model presented provides firm support for the proposition that globalization operates to reduce incidents of conflict initiation. Material realism suggests this is because states eschew violent conflict because they fear the uncertainty that always accompanies such endeavors. As the United States knows all too well, victory in any conflict is never certain, even when the combatants are mismatched. Consequently, states will opt to collaborate to gain the resources they require. To the extent that collaboration is effective, states have no need to exercise their power to coerce. The effect of globalization, therefore, is to obviate the need to exercise power to obtain resources. The net effect of globalization and power when considered together is to reduce conflict initiation. Indeed, in almost all cases the effect of globalization has been strong enough to more than fully offset the effect of power, thus explaining the reduction in odds for conflict initiation that has been witnessed. This result is consistent with the reduction in instances of conflict observed by, among others, Morris and Harari.

Material realism establishes the implication that the system of international politics evolves as globalization takes deeper root. As more states become more enmeshed in globalization and, therefore, subject to the power that globalization imposes on them, incidents of conflict initiation reduce. It can be said, therefore, that the system and globalization coe-
volve. This means that any phenomenon that accelerates globalization will also accelerate the evolution of the system of international politics. This is addressed further below.

Empirical support for material realism was found by examining the behavior of the United States, China, and Japan in East Asia. The costly signals exhibited by the United States suggest that the United States is a malignant and revisionist state, unless and until the role of the United States in supporting the extant international system is considered (see Figure 4.2). In light of such a consideration, the behavior of the United States should be viewed as benign and supportive of the status quo (see also Figure 3.11). Moreover, because, as Zeihan suggests, the United States does not suffer from scarcity, nor even the possibility of scarcity, there is no reason for the United States to exhibit costly signals except to fulfill the role of caretaker of the status quo. The costly signals exhibited by Japan clearly suggest that Japan is a benign and status quo state, though there is reason to believe this will change (see Figure 4.8). Finally, China is clearly a malignant and revisionist state (see Figure 4.5). The costly signals exhibited by China are clear and the behavior of China, as articulated above, is consistent with this interpretation. China perceives scarcity and will act out until the scarcity it perceives is sufficiently mitigated. This result follows from the logic of material realism.

Two important conclusions flow from material realism.

First, scarcity, as perceived, promotes a fear that moves states to strong, often violent action. To reduce the odds of conflict initiation, scarcity must be mitigated. But as described above, scarcity can be either absolute, as man experienced in the state of nature, or it can be comparative as China, and other states, experience today. To say that a state suffers from comparative scarcity is to say the state is not satisfied with how, and/or on what terms, the international system allocates and distributes resources. Indeed, this may characterize China’s belief today as to how the international system operates. Consequently, it is important to understand whether scarcity as an extant phenomenon is best characterized as an issue of allocation or distribution of resources, or as resulting from the state system operating at or near the Pareto frontier where any allocation or distribution of resources to one state has the potential to materially and negatively impact the well-being of another. Material realism suggests that globalization operates to mitigate scarcity and, therefore, reduce the odds of conflict initiation when the cause of scarcity is the allocation or distribution of resources. Material realism also suggests that conflict becomes increasingly unavoidable as states are afflicted by a condition of absolute scarcity that occurs as the Pareto frontier is approached. So it is important to know what the root cause of scarcity is, since policy
prescriptions should necessarily derive from the particular cause.

Second, the avoidance of scarcity requires positive, thoughtful, and synergistic action among government and non-government actors alike because scarcity is unavoidable absent such action. Why is this so? To understand it is necessary to understand how man’s consumption of resources scales with increases in population.

Data from the World Bank is quite illustrative. Figure 5.1 is a log-log plot of world consumption against world population for the period 1960 - 2016 (“World Bank Open Data” 2018). The tightness of fit of the actual data to the trend line (R-squared = 0.9855) suggests that world consumption scales as a power law. In this case, the slope of the trend line is 4.6 which means that consumption is scaling superlinearly. This presents a significant problem.

In Scale: The Universal Laws of Growth, Innovation, Sustainability, and the Pace of Life in Organisms, Cities, Economies, and Companies Geoffrey West points out that phenomena that scale superlinearly exhibit an “unexpectedly curious property technically known as a finite time singularity” (West 2017, p413). “A finite time singularity simply means that the mathematical solution to the growth equation . . . becomes infinitely large at some finite time. . . .” (emphasis original) (West 2017, p413). Conceptually, this is illustrated in Figure 5.2.

In Figure 5.2 as the curve approaches the black dashed line it arcs up significantly and approaches complete verticality. As the curve approaches the black dashed line this is where according to West, “the mathematical solution to the growth equation . . . becomes infinitely large.” Growth breaks down as an infinite amount of resource (measured along the y-axis) is
correlated with a finite amount of resource (measured along the x-axis). Such a situation is obviously nonsensical.

If world consumption scales superlinearly against population growth then this exact situation will present itself in “finite time.” Using the scaling factor derived from Figure 5.1 we can discern what world consumption would look like relative to hypothetical world population levels. Figure 5.3 shows how consumption scales as world population increases from approximately 7.5B people today to 40B at “some point” in the future.

Figure 5.2: Finite Time Singularity

Figure 5.3: Extrapolated World Consumption: Finite Time Singularity
“Some point” in the future needs further explanation. Today world population is approximately 7.5B ("World Bank Open Data" [2018]). Estimates on population growth vary, but assuming *arguendo* that world population grows at 1% per year in to the future, then world population will double approximately every 72 years. This means that a world population of 7.5B today will become 15B in 72 years and 30B in 144 years. Referring back to Figure 5.3, the slope of the consumption curve clearly starts to arc upward at a population of 15B (in 72 years) and by 30B (in 144 years) the trend is quite pronounced. This means that for the world to maintain its *current* consumption trajectory as population increases, *ceteris paribus*, exponentially more resources will be required in finite time (certainly in the next 144 years). Moreover, it is not at all speculative to say that growth will break down. As the slope of the consumption curve accelerates toward complete verticality in “finite time” this outcome is inevitable (if population continues to grow).

Nevertheless, it is not clear when exactly growth will break down, nor is it important for our purposes here. It is enough to understand that as the slope of the consumption curve increases scarcity approaches. At some point the issue becomes one of absolute scarcity and not comparative scarcity. When this happens globalization will cease to operate as a dampening force on conflict initiation; power, coercion, and diktat will operate wantonly. Put simply, as population increases, *ceteris paribus*, it is inevitable that man’s standard of living will come under increasing pressure as insufficient resources will be available to support it. Moreover, it should also be noted that what is being stated here is not a simple rehashing of Malthusian scarcity. Malthus assumed exponential scaling whereas here superlinear (e.g., superexponential) scaling is taking place (West 2017, p413). (West reaches a similar conclusion with respect to cities that is analogous to what is presented here).

Figure 5.3 suggests that the world will not become resource constrained relative to population until the world population approaches at least 15B (probably at least 72 years from now). Consequently, in the resource unconstrained world in which we live *today* we can expect that globalization will operate to allocate and distribute resources and thereby reduce scarcity for those states that participate in globalization. *See* (Barnett 2005). Conflict will reduce accordingly. But the world of tomorrow promises a different outcome unless action is taken to hold scarcity at a distance. There are only two options. First, population growth can be limited and globalization allowed to operate to allocate and redistribute resources to ameliorate existing scarcity. But it seems unlikely that population growth will be controlled in any meaningful way by a sovereign power (even if it were desirable), so this outcome is not likely. Second, as West suggests, the world can innovate (West 2017).
p417). This, however, sounds strikingly similar to what we learned from Baldwin (supra at ch. 2, s 3.2). See also (Kilcullen 2013). Consequently, in the final analysis further “unbundlings” will be needed to lessen the burden that population growth necessarily places on resources. Continuous advances in technology and continuous innovation are the only answer to scarcity long term when population is unconstrained.

In Out of the Mountains: The Coming Age of the Urban Guerrilla David Kilcullen, relying on data from the United Nations, reports that world population will level off somewhat below 9.5 billion people in 2050 (Kilcullen 2013, p29). Referencing Figure 5.3 it is clear that at a population of 9.5 billion world resources will not be under much more stress than is the case today. The slope of the curve remains relatively the same. This suggests that scarcity in the world will be characterized as comparative and not absolute. Consequently, the salient issue will be the allocation and distribution of resources. This means that globalization, which operates to allocate and distribute resources, can be expected to continue to reduce conflict; perhaps even more so than today, as it continues to evolve and take even deeper root. Therefore, any state action or policy that supports globalization will also serve to support conflict reduction. See (Barnett 2005).

Nevertheless, it is worth mentioning that heretofore the focus has been on inter state conflict. In Out of the Mountains Kilcullen identifies four macro trends: population growth, urbanization, littoralization, and connectedness (Kilcullen 2013, p28). These trends, according to Kilcullen, will result in 75% of the world’s population living in cities by 2050 (Kilcullen 2013, p29). In Scale West makes a persuasive case for cities not being able to scale to support increases in population. Kilcullen makes the same point in Out of the Mountains and suggests that urban conflict is likely to increase as cities become overpopulated and competition for resources escalates, particularly in the developing world (Kilcullen 2013, p29). So while world population may not be an issue, the increasing population of cities will be, especially since it can be expected that scarcity will be a collateral result. Moreover, to the extent that urban conflict makes cities, which are nodes in the global supply chain according to Khanna, unstable, globalization falters and the potential for conflict among states increases. In the future, the stability of cities will likely determine the stability of the international system. Politics will remain local.

* * *

Material realism holds that globalization, by allocating and distributing resources, reduces scarcity and, therefore, conflict. Material realism also holds that continuous advances
in technology are needed to keep scarcity at a distance, assuming that population continues to increase and consumption increases commensurately. But even if population does not continue to increase, living standards are based on current consumption. If current consumption worldwide is held constant, then resources will have to be redistributed or else inequality maintained. In this situation, scarcity again is at issue. Consequently, until the last man arrives on station, technology and innovation is the only answer. Only technology and innovation will allow us to solve scarcity and reduce the odds of conflict initiation. Policy prescriptions should be issued accordingly. To this end, policies that promote technology and innovation leading to an increase in energy and food production, along with a means of broad distribution, are likely to pay the largest dividends in terms of reducing scarcity.
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