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Economic Interests in the Domestic Politics of War: Evidence from U.S. Decisions to Go to War with Iraq in 1991 and 2003

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by

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The Dissertation of Samuel Sierra Seljan is approved, and it is acceptable in quality and form for publication on microfilm and electronically:

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ABSTRACT OF THE DISSERTATION

Economic Interests in the Domestic Politics of War: Evidence from U.S. Decisions to Go to War with Iraq in 1991 and 2003

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Samuel Sierra Seljan

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Professor David A. Lake, Chair

Do a nation's commercial interests promote peace? Do those that stand to profit from war support aggressive state behavior? Or, do heterogeneous economic actors share similar preferences over the use of force? This dissertation reexamines these classic issues with rigorous theory, modern methods, and innovative data.

In particular, each chapter of the dissertation uses an initiation of military action by the U.S. government to evaluate key links in the causal chain connecting individual

economic interests with state behavior. I show that, in the U.S.-Iraq Wars of 1991 and 2003, war had strong distributional consequences that varied by economic sector, that these consequences affected individual preferences, and that the economic interests of constituents influenced congressional voting—through the activity of political organizations.

In order to explain how and why actors from the same country have different economic interests in interstate disputes, I weave together international trade theory, an asset theory of individual interests, and the bargaining model of war. That is, I use insights from trade theory to explain why wars typically affect sectors differently, asset theory to explain why sectoral outcomes are translated to individuals; and the bargaining model to show that economic interests matter for individuals and politicians even if they may face strategic incentives to misrepresent their resolve.

Each of my key claims is supported by careful empirical analysis. I conduct event studies of the 1991 Gulf War and the Iraq War of 2003 using stock market data to provide detailed information about how the consequences of war differ across sectors. In addition, I show that the results of my event studies are also politically relevant. Specifically, the sector-level variation in the costs and benefits of war that I identify helps explain public support for the war with Iraq in 2003. And, campaign contributions from political action committees representing "winning" and "losing" sectors, classified by the event study—predict congressional votes authorizing the use of force in 1991. Taken together, the results demonstrate that economic interests matter in the formulation of security policy preferences in at least two major U.S. wars, and, I argue, others as well.

INTRODUCTION

A. Overview

Do a nation's commercial interests promote peace? Do those that stand to profit from war support aggressive state behavior? Or, do heterogeneous economic actors share similar preferences over the use of force, regardless of the economic sector in which they conduct business? And, are politicians responsive to narrow interests in matters of war and peace? Answers to these questions lie at the heart of several competing theories of interstate conflict. This dissertation reexamines these classic issues with rigorous theory, modern methods, and innovative data.

Each chapter of the dissertation uses an initiation of military action by the U.S. government to evaluate key links in the causal chain connecting individual economic interests with state behavior. I show that, in these cases, war had strong distributional consequences that varied by economic sector, that these consequences affected individual preferences, and that the economic interests of constituents influenced political behavior—though political organizations were necessary for them to do so. In sum, I find that economic incentives motivate *both* dovish and hawkish security policy preferences and that organized interests are able to make these societal interests politically relevant.

In order to explain how and why actors from the same country have different economic interests in interstate disputes, I weave together international trade theory, an asset theory of individual interests, and a bargaining model of war. In particular, I explain why wars typically affect sectors differently, how and why sectoral outcomes are translated to individuals, and why variation in economic interests produces polarization in preferences over the use of force. In addition, I explain why economic interests matter for

individuals and politicians even though they may face similar strategic incentives to misrepresent their resolve or doubt the credibility of foreign states.

Each of these claims is supported by careful empirical analysis. I conduct event studies of the 1991 Gulf War and the Iraq War of 2003 using stock market data to provide detailed information about how the consequences of war differ across economic sectors. While the use of event studies is becoming increasingly common in conflict studies, I show that the results of event studies are also politically relevant. Specifically, the sector-level variation in the costs and benefits of war that I identify helps explain public support for the war with Iraq in 2003. And, campaign contributions from political action committees representing "winning" and "losing" sectors—as identified in my event study—predict congressional votes authorizing the use of force in 1991.

More generally, the analysis of public opinion validates my asset theory of security policy preferences, while the analysis of congressional behavior indicates that organized interests are far more influential than the diffuse interest of the public at large. Taken together, the results demonstrate conclusively that economic interests matter in the formulation of security policy preferences in at least two major wars and, I would argue, others as well. At the same time, for as precisely as I measured the economic effect of conflict, the relative influence of economic factors in these analyses is moderate. My findings would certainly not support the contention that wars are fought *primarily* to satisfy private economic interests. Such a view not only ignores the importance of strategic interaction in interstate conflict, but probably overstates the relative influence of economic interests in determining national interests.

B. Research Question

International security is a classic example of a public good, and obtaining security is typically considered to be a matter of collective or national interest. Political disputes over security policy, nonetheless, are quite common. In many countries, at many times, the prospect, onset, and end of international conflict has been occasioned by considerable public debate, with some citizens fervently supporting military action and others calling for peace. Though it is by no means unique, the United States has seen a variety of political cleavages over national security policy: isolationists and interventionists waged a great debate about the proper role of the U.S. in world affairs at the beginning of the 20th century; opposition to involvement in World War II was strongest among farmers in the rural and mountain west, while support was greatest in the East and South; and the split between "Hawks" and "Doves" has been one of the defining features of the American political landscape since the Vietnam War. Why individuals and politicians have the security policy preferences that they do, however, is a largely unanswered question in international relations theory (IR).

This question is important because underlying all domestic theories of war is some type of principal-agent model. The only reason to have a domestic theory of war is if individuals have different payoffs from war or systematically different beliefs. If they have the same payoffs and beliefs, then the unitary actor assumption that has governed much of the analysis of international politics would suffice. Nonetheless, most explorations of the domestic politics of war proceed with little discussion, much less justification, for the variance in security preferences that motivate their analysis.

That individual preferences are a fundamental building-block of any theory of international politics has long been appreciated in the study of international trade and finance, but largely ignored in security studies. Whereas studies of the political economy of trade and investment have the Stolper-Samuelson (SS) and Ricardo-Viner (RV) models as rationale for domestic preference heterogeneity, studies of the domestic politics of war have nothing comparable. As a result, we understand surprisingly little about the societal interests motivating the use of violence in international affairs.[1] In short, understanding how disputes arise and the intensity of preferences over issues would provide a more complete understanding of why wars occur.

C. Answers in the Existing Literature

The now canonical bargaining model of war largely brackets preferences and attributes war to private information with incentives to misrepresent or problems of credible commitment. In the standard setup, owed to James Fearon (1995) and Robert Powell (1999, 2006), issues in a dispute between countries are arrayed across a zero-one space, and can represent any possible issue on which countries disagree. Although the bargaining model demonstrates that conflicting interests are not a sufficient condition for war, an additional implication of the model is that a necessary condition for war is that the expected value of war must be positive for at least one side. Unfortunately, too often the model has been mistakenly interpreted to imply that interests are unimportant. This is despite the fact that the more intensely interests conflict (relative to the costs of war), the less severe information asymmetries and changes in the distribution of power need to be for misrepresentation and commitment problems to lead to war (Powell 1999).

[1] Reed (2000) makes a similar argument based on evaluation of quantitative evidence in IR.

Unfortunately, why countries disagree, how groups in each country might differ on the issue in contention, and how domestic institutions aggregate those preferences are left unexamined in many applications of bargaining theory.

There is, of course, a large literature on domestic interests and war separate from the literature that has grown out of the bargaining model of war that attempts to explain the origins of interstate disputes. Unfortunately, this literature has separated itself into competing schools and produced few consensus findings. One school emphasizes conflicting social identities, especially religious and ethnic ones. In the most famous articulation of this perspective, Samuel Huntington (1993) predicts that conflict between states with different religious traditions would predominate after the Cold War. Though scholars have rejected Huntington's claims on both theoretical and empirical grounds, research continues to investigate the role of social identities in interstate war. A second school, by contrast, argues that the incentives facing bureaucrats and politicians are more important in understanding interstate conflict. For example, diversionary theories of war hold that leaders have an interest in starting war if it distracts the public from economic or political problems. The theoretical and empirical status of diversionary theory is unclear, however, with a large number of distinguished proponents (e.g. Downs and Rocke 1994, Fordham 1998a, Blomberg and Hess 2002) and an equal number of distinguished critics (e.g. Smith 1998, Chiozza and Goemans 2004, Tarar 2006).

A third tradition of scholarship contends that economic motivations drive domestic interests in interstate conflict. Perhaps the most prominent claim from this tradition is that commercial interests promote peace (e.g. Doyle 1983, Russet and Oneal 2001). Others, however, argue that economic actors sometimes have expansionist

interests and can form influential coalitions supporting aggressive foreign policy (e.g. Lenin 1917, Snyder 1991). Recently, Brooks (2005) and McDonald (2009) have offered syntheses of these competing views of economic interests. McDonald argues that trade only promotes peace if trading interests are sufficiently influential. Brooks, by contrast, argues that the globalization of production, rather than trade, promotes peace. Nonetheless, the status of claims about the relationship between interdependence or other economic variables and conflict is unsettled.

I do not try settle the competition between these schools, as I believe there are multiple pathways through which domestic politics can affect interstate conflict. In addition, I see little value added in providing another analysis of conventional conflict data that suggests that domestic politics matter—since surely they do. Instead, what is needed is a closer examination of the internal mechanisms of these theoretical traditions.

Thus, this dissertation contributes to the political economy tradition by providing theoretically and empirically rigorous answers to five foundational questions: What, exactly, are the economic consequences of war? How are they distributed across the economy? What are individuals' economic interests in war? Are those interests, in fact, important enough to influence their preferences over the use of force abroad? If so, whose preferences influence the behavior of politicians? Unfortunately, these basic questions are often overlooked or assumed away. As a result, there is little hard evidence that material self-interest systematically affects individual attitudes towards conflict. In addition, though many casual critics argue that economic interests "drive" attitudes about war, they rarely provide an explanation for why war delivers greater economic benefits

than costs. Indeed, discussions of how and why economic interests in war differ, are often ad hoc or contradicted by the evidence.

The muddled state of scholarship on economic interests in war is especially evident in historical accounts of their role in American foreign policy. With respect to the role of trading interests in the politics of war, farmers in export sectors such as cotton, sugar, and tobacco opposed expansion into Latin American and the Pacific Islands throughout the 1890s, which conforms to the idea that economic interdependence leads to pacific relations between states (LaFeber 1998). By the 1930s, however, these same exporters were one of the main constituencies supporting lend-lease and advocating early involvement in World War II (Trubowitz 1998). Although a plausible economic story can be produced to explain this change in policy preferences among exporters, without stronger theory and harder empirical evidence of war's effect in each case, any such stories read as an unpersuasive attempt to defend an academic paradigm.

A similar problem exists in accounts of the role of American investments abroad in U.S. politics. The lobbying efforts of multinational corporations, such as those of UNIDA and ITT to overthrow leftist regimes in Guatemala and Chile, are often cited as evidence that international capital is at the forefront of interventionist foreign policy (Gilpin 1975). Yet, Standard Oil and American Metal Climax (AMAX) opposed the use force to prevent the nationalization of their assets in Venezuela and Zambia, respectively. In addition, even within the same dispute, American companies with investments abroad have been on different sides of a dispute; U.S. oil companies favored greater intervention during the Mexican revolution than U.S. banks. Krasner (1979) uses this pattern of lobbying effort as his primary evidence that economic interests *do not* influence the

preferences of economic actors and, by extension, the national interests of the U.S. government. While a plausible conclusion, it rests on the assumption that war is equally beneficial (or deleterious) to all companies with foreign investments. By contrast, the theory and evidence in this dissertation indicate substantial variation in the effect of war on foreign investments, reopening a role for investors in the politics of war.

More generally, I address weaknesses in the existing political economy literature by providing precise and systematic evidence that war has sharply divergent consequences across economic sectors, which produce economically based coalitions of support and opposition to war. In addition, I derive my key claims using well-established models of interests and strategic interaction. Thus, the dissertation provides firm support for key mechanisms driving political economy theories of war, mechanisms which have previously been either vaguely specified or unexamined.

Rather than solely verifying existing traditions, however, my findings enhance our understanding of economic interests in war. In terms of the basic economics of war, my results show that the sectors that are harmed and benefit from war change even across disputes as seemingly similar as the wars with Iraq in 1991 and 2003. For example, the construction sector was expected to suffer from the war in 1991, but was one of the biggest beneficiaries of the invasion in 2003. With regard to individual preferences, I find that only individuals with sector-specific assets are influenced by the sectoral effects of war. On the congressional level, I show that lobbies from "winning" and "losing" sectors have very similar levels of political influence, while the aggregate economic make-up of constituencies is largely unrelated to how members of congress vote on war.

A second core contribution of the dissertation is methodological: most tests of domestic theories of international conflict face strong threats to internal validity because it is difficult to measure many elements of the strategic environment that affect behavior in international relations. Indeed, when faced with evidence that states' economic relationships or social preferences are associated with conflict behavior, skeptics typically point to strategic factors, such as the balance of power, threats and opportunities, information asymmetries, or shifts in the distribution of power, which were the real cause of war. Unfortunately, given the imprecise way in which these concepts can be measured and that measurement error is likely to be correlated across variables, extant empirical studies can, at best, provide provisional support to domestic theories of conflict.[2] Hence, this kind of evidence can only partially answer the counterfactual question at the heart of domestic theories of conflict: if the leaders that initiated wars had different norms or economic interests, how would they have behaved?

By contrast, within-country variation in public opinion and about war and congressional votes on war provide an alternative way to build and evaluate theories of political violence, as well as a more straightforward interpretation of the results. Since individuals within the same country share the same strategic environment, if they want to adopt or vote for different security policies, then they have different policy preferences, by definition. Comparing the preferences and behavior of actors within the same state at the same time controls for both observable and unobservable features of the strategic environment, whether these are external threats and opportunities, military and non-

[2] In the jargon of research design, *unobservable* features of the strategic environment severely limit the validity of causal inferences made from these types of studies.

military capabilities for dealing with those threats and opportunities, or changes in the distribution of power. This is, it should be noted, the same logic used to motivate the use of time-series analysis in quasi-experiments (see Cook and Campbell 1979) or the use of fixed effects or difference in difference estimators in panel data (Woodbridge 2001). Thus, a theory that can explain cross-sectional variation in security policy preferences and political behavior should improve our understanding of incentives in war.[3]

D. Outline of the Dissertation

In Chapter 1, I investigate a fundamental assumption in political economy theories of war: that conflict has variegated economic consequences, producing economically important winners and losers at home. In particular, I investigate how the Persian Gulf War was expected to affect different industrial sectors in the United States. Given that access to oil was a central motivation for the initial dispute between Iraq and Kuwait, I develop a set of predictions about the distributional consequences of the conflict from a well established literature on oil shocks (Hamilton 2003, Killian 2008).

To asses these predictions, I identify key events in the initial stages of the conflict and then use the event study methodology to determine the effect of the crisis on 45 S&P 500 sectoral stock indices. I find that the market expected the initial conflict between Iraq and Kuwait to be especially detrimental to sectors dependent on consumer spending and transportation-related sectors, but relatively beneficial to energy-related industries. I find that the Bush administration's decision to intervene on behalf of Kuwait has relatively similar effects, except that it benefited the defense industry and was far more damaging

[3] Of course, this is the approach adopted by Scheve and Slaughter (2001) and Iversen and Soskice (2001), in their influential efforts to test and develop theories about trade and social policy preferences, respectively.

to the insurance and airline industries. Compared to previous studies, my analysis provides a far more complete picture of how the consequences of war vary by industry. Interestingly, the results support claims made by both traditional liberal political theorists and left-leaning critics of U.S. foreign policy. The war was very damaging to the banking industry, commercial industries such as retail and hotels and restaurants, and industries requiring new investment, like information technology, as liberal theories hold. At the same time, it was relatively beneficial for the defense and oil industries, as critics on the left contended.

Of course, the heterogeneity of the economic consequences of war are only relevant for interstate conflict if they influence political preferences over the use of force abroad. Thus, in Chapter 2, I analyze how the expected economic effects of the U.S. decision to remove Iraq from Kuwait influenced congressional votes authorizing the use of force. I do so by using the estimates of the expected effect of intervention across sectors that I obtain in chapter 1 in two ways. One, I calculate the proportion of workers in each district that work in "winning" and "losing" sectors. Two, I determine the amount of campaign contributions coming from political action committees representing winning and losing interests. I then use these variables to predict congressional votes on war authorization bills in multivariate probit models, as well as an instrumental variables regression. While politicians' partisanship and ideology were highly related to votes, the campaign contributions of political action committees from winning and losing sectors was nearly equally important. By contrast, the diffuse interests of district as a whole were only weakly related to congressional behavior. Although Fordham (1998b, 2008) and Trubowitz (1998) have provided evidence of a relationship between economic interests,

defense spending, and institutional commitments during the Cold War, this is the first systematic demonstration that private economic interests influence congressional behavior directly concerning the decision to use force abroad. This explanation of congressional behavior is substantively significant as scholars uncover the ways in which congressional behavior affects the president. For example, Baum and Groeling (2009) find that congressional opposition to military action substantial limits the rally-around the flag effect, while Howell and Peevehouse (2007) show that such opposition also constrains presidential discretion during international crises.

That constituencies of economic winners and losers influence congressional votes raises the question of how war affects individuals opinions. Do ordinary members of the general public care about the economic effects of war or does it only matter to elites? In Chapter 3, I address this question by conducting an analysis of public support for the war with Iraq in 2003. In this chapter, I embed an asset theory of policy preferences within the bargaining model of war to generate expectations about how sector-level economic outcomes affect individual security policy preferences. Fortunately, during the run-up to the invasion of Iraq, Tradesports.com allowed traders to buy and sell a "Saddam Security" whose value reflected the market's belief about the probability of invasion. Wolfers and Zitzewitz (2009) have used changes in the value of the Saddam Security to assess Wall Street's expectations about the consequence of war with Iraq. I expand their analysis with much finer-grained sectoral data to estimate the relative winners and losers of war at home. These estimates show that the market believed the war was relatively good for the defense, construction, and oil sectors, but disastrous for airlines, information technology, insurance, and consumer discretionary sectors.

I match these estimates to respondents' industries of occupation in the ANES 2000-2002 opinion survey. I show that respondents working in sectors that the market expected to suffer from the use of force were most likely to oppose it, while those working in sectors expected to benefit from war were more supportive of the intervention. Moreover, the panel nature of the ANES data allows me to construct "pre-test" measures of the respondents support for war as well as several other potential determinants of opinion, greatly reducing concerns that selection into "pro-war" industries drives the results. In addition, I show that the relationship between industry of occupation and opinions about war is driven entirely by respondents whose jobs skills are specific to their industry of employment, consistent with an asset theory of preferences.

E. Conclusions: Larger Implications and Directions for Future Research

Broadly speaking, my theory and evidence support many of the foundational assumptions of political economy theories of war. At the same time, the perspective of this dissertation is more inclusive than most theories of the commercial peace (e.g. Rosecrance 1986 and Russet and O'Neal 2001). While commercial interests tended to oppose conflict in both the wars analyzed in this dissertation, there were exceptions, such as the telecommunication sector in 1991 and consumer staples in 2003. In addition, the results suggest that interest groups and political parties are more important in the politics of war than usually conceded in the political economy tradition.

For many scholars of IR, the results of this dissertation are most important for what they imply about state behavior. They suggest that economic interests may shape state behavior in international crises, though surely less than starkly materialist theories of IR imply. Moreover, exactly how economic interests shapes state behavior requires an

additional layer of theorizing and research. It would be inappropriate to assume that causal relationships at the individual or congressional level of analysis map directly onto state-level behavior. A seemingly intuitive interpretation of these results is that when the U.S. government is heavily influenced by "winning" interests it will adopt a more belligerent or expansionistic foreign policy. The bargaining model of war, however, implies that economic interests should sometimes matter, though not always in obvious ways. Indeed, the observable consequence of a more belligerent foreign policy may be that the U.S. receives more favorable concessions or faces fewer challenges as suggested in some assessments of the diversionary use of force hypothesis (e.g. Fordham 2005). On the other hand, it is also plausible that aggressive U.S. leaders are more likely to fight "resolved" states, especially if leaders in those states also have diversionary incentives.

Taken together, the results of Chapter 2 and Chapter 3 imply that there is an elite—or organized—bias in the politics of war in the United States. Taken further, the results of Chapter 2 raise the issue of why scholars should care about public opinion at all. I see three main reasons that they should. One, public opinion data provides useful information for analytical purposes. Even if public opinion is not ultimately an important driver of state behavior, patterns of support and opposition can be investigated to understand how the economic consequences of war are translated to the individual, regional, or sectoral level. Two, in order to know that the diffuse interests of the public are underrepresented in the congressional politics of war, it is necessary to know what those interests are. Indeed, in previous research the consensus view of public opinion had been that partisan cues and social preferences drive attitudes about war. If this were true, then bias I identify would not exist. Three, it is likely that the general public primarily

influences state behavior through presidential elections and simply do not make security policy a priority when selecting a member of congress. If so, then the public would make their economic interests in war relevant by selecting certain types of presidents and punishing ineffective leadership in international disputes. Though perhaps less readily observable or amenable to quantitative analysis, such a contention is plausible and worth additional attention in future research.

Lastly, since this dissertation focuses heavily on two wars involving the United States and Iraq, it would be unwise to use its results to draw firm conclusions about the relative importance of economic factors in war, in general. Rather, I view this dissertation as a starting point of larger research agenda focused on the origins of preferences over the use of force and their relevance in interstate war. The next steps in this agenda include expanding the investigation of the distributional effects of war to other conflicts and other countries and developing a model of the aggregation of preferences. In terms of the former goal, recent studies of terrorism in Israel (Berrebi and Klor 2005), and civil war in Angola (Guidolin and La Ferrar 2007) already exist. New studies of the consequences of the conflicts in Korea, and the former Yugoslavia on the U.S. economy as well as the impact of the Iraq War on the British and Spanish economies could produce additional insights into how the economic effects of war vary. With regard to a deeper understanding of the mechanisms by which societal preferences influence state behavior, both theoretical and empirical developments are necessary but achievable in the future.

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CHAPTER 1

THE ECONOMIC WINNERS AND LOSERS OF WAR: EVDIENCE FROM AN EVENT STUDY OF THE PERSIAN GULF WAR

A. Introduction

What are the economic consequences of international disputes? How are the effects of war distributed across the economy? These questions are fundamental to political economy theories of war, yet existing answers are theoretically and empirically limited. In this paper, I investigate these questions with a case study of the Persian Gulf War. In particular, I conduct a series of event studies on stock market data that answer three specific questions: (1) Did the crisis affect the American economy in a relatively similar way across economic sectors or was there a broad distribution of effects? (2) Which economic sectors were most hurt and helped by the crisis? (3) How did the set of winning and losing sectors vary when comparing the threat to the world oil market, the decision of the U.S. to intervene, and the outcome of the military confrontation between the United States and Iraq?

In order to answer these questions, I develop a set of predictions about the distributional consequences of the conflict by weaving together international trade theory, the economic theory of oil shocks, and the bargaining theory of war. I argue that event studies that use data from financial markets provide a more theoretically meaningful measure of the economic consequences of war than traditional cross-sectional studies. I then identify key events in the conflict and estimate the effect of those events on 45 S&P 500 sectoral stock indices. Contrary to the widespread presumption that foreign crises have a unified effect, my analysis demonstrates that there was greater variance in returns across sectors on days in which there was significant news about the Persian Gulf Crisis than on non-crisis days. I then find that the market expected the initial conflict between Iraq and Kuwait to be especially detrimental to transportation-related sectors, but

relatively beneficial to energy-related industries. I find that the Bush administration's decision to intervene on behalf of Kuwait largely mirrored these initial effects, helping energy-related industries, including oil, and hurting transportation-related sectors, but also boosting the fortunes of the defense industry.[4] The market also expected that U.S. military action would benefit the defense industry and harm sectors related to consumer discretionary spending. Compared to previous studies, my analysis provides a far more complete picture of how the consequences of war vary by industry.

Interestingly, the findings support claims made by *both* traditional liberal political theorists and left-leaning critics of U.S. foreign policy. That the war was damaging to the financial industry and some industries requiring new investment, like information technology, software, and construction, supports the intuition of behind the commercial peace hypothesis. At the same time, that it was relatively beneficial for the oil, defense, and some other high tech industries, supports the view of left-leaning opponents of U.S. military action.

Moreover, the results provide strong support for a key assumption driving political economy theories of war: that war creates winners and losers. Rather than solely verifying existing assumptions, however, my findings enhance our understanding of the distributional consequences of war. In addition, the results here provide information necessary to determine if economic interests affected support for U.S. intervention among

[4] This pattern of results is broadly similar to studies of the effect oil shocks on the real economy (rather than stock prices, Davis, et al. 1997, Lee and Ni 2000, Davis and Haltiwanger 2001, Edelstein and Killian 2007, Killan 2008). More generally, the results conform to an emerging consensus in empirical and theoretical economics that exogenous oil price changes affect the U.S. economy primarily through aggregate demand (Killian 2008). The main contributions of this study in relation to the economic literature are that it demonstrates that U.S. intervention was expected to mirror the consequences of the initial oil shocks and it provides an assessment of the economic consequences of military coercion itself.

the American public and Congress, which is another key assumption in political economy theories of war and the subject of additional portions of this project (Seljan 2010a, Seljan 2010b).

The paper proceeds as follows. First, I briefly discuss the major claims about the role of economic factors in war in the theoretical literature. Second, I discuss the methodological strengths and weaknesses of extant empirical analyses of the economic effects of war. Third, I develop a set of testable hypotheses about how the consequences of international events vary by sector from international trade theory and economic theory of oil shocks, and the bargaining theory of war. Fourth, I explain the event study methodology as it pertains to the Persian Gulf War. Fifth, I present my evidence, which includes comparisons of the distribution of stock returns on event and non-event days, tests of the effect of individual "crisis days" across economic sectors, and an instrumental variables regression, which measures the effect of Gulf Crisis oil shocks across sectors. Sixth, I conclude with a discussion of the implications of this study for our understanding of war and avenues for future research.

B. Literature Review : Theories of the Distributional Consequences of War

Economic considerations are a pervasive feature of theories of war, but their purported role varies considerably across and within major scholarly traditions in the study of international relations (IR). Indeed, perhaps the only idea shared throughout IR is that war affects the economy, which influences actors' calculations about whether or not to start or end war. Theorists differ greatly, however, in their assumptions about both

the magnitude and distribution of the economic costs and benefits of war.[5] As discussed below, some scholars see the effects of war as large, others emphasize the effects of winning; some theories seek to explain how the effects of war vary by state or within the economy, others focus on the same types of variation across regime types and cultures.

Perhaps most notably, several prominent accounts of the democratic peace are founded on assumptions about the economic costs of war. In particular, Doyle (1983), Lake (1992), and Russet and O'Neal (2001) assume that citizens are more burdened by war than leaders and, thus, more likely to oppose it, ceteris paribus. The pacific behavior of democratic states then follows rather simply from the greater influence of citizens in democracies than non-democracies. The underlying economic assumption seems reasonable enough when states mobilize for war by drafting soldiers from the general public, increasing taxes, and/or various types of economic coercion. On the other hand, it is also plausible that some wars are relatively benign for the median voter or, as discussed below, beneficial for some constituents.

Of course, Doyle and Russet and O'Neal's variant of the democratic peace, as well as a voluminous literature on interdependence and conflict (e.g. Rosecrance 1986) share an additional claim about economic effect of war that has distributional implications. They argue that states that more extensively economic ties with one another are less likely to go to war. This claim rests on the belief that violence impedes international trade

[5] In the literature review and analysis that follows, the economic costs of war are shorthand for the economic consequence of political violence itself. These include the disruption of economic activity and the destruction of economic resources caused by political violence. The production of military coercion may create profits as well as costs, but these profits will be discussed along with the costs of war, for analytical purposes. The policy effects of war refer to the rewards of winning a war in comparison to losing or giving into the demands of another state. These exist, it is supposed, because the victorious state acquires valuable territory or resources or gets to impose a set of policies that benefits it materially.

or that the opportunity costs of war are higher among partners that trade extensively. If so, it follows that war is especially bad for pro-trade (commercial) interests within any domestic economy. While economists are virtually unanimous in their belief that trade is welfare improving for domestic economies on aggregate, they also typically agree that trade creates winners and losers, as this is the primary economic explanation of political cleavages over trade policy. Though Fordham (1998), Trubowitz (1998), and McDonald (2009) have noted this implication, there have been few empirical investigations of it.

Those concerned about the influence of the military, defense industry, and multinational corporations on security policy also emphasize the economic effects of war, but they focus on the potential profits to be had in war. In particular, a diverse group of critics including, President Eisenhower, Schumpeter (1951 [1919], and Trubowitz (1998) have formulated what can be called the military-industrial complex hypothesis: that states with an influential military-industrial complex are more likely to fight war than other states. Its fundamental assumption is, to be sure, opposed to that of the democratic and commercial peace: that the production of military coercion is economically beneficial for some individuals and groups. Again, the economic rationale behind this belief is reasonable, but scholars have not specified the conditions under which the profits from war outweigh its economic costs or investigated the question with any empirical rigor.

By contrast, the *policy effects* of war are a critical motivation in classic theories of imperialism. According to Lenin (1963 [1916]) and Schumpeter (1951 [1919]), imperial expansion and war can benefit domestic firms by opening new markets or preventing competition from third-parties. Such imperial expansions may be especially beneficial to firms in protected sectors since more competitive, unprotected firms do not need

regulatory assistance to remain profitable (McDonald 2009). By contrast, the economic costs of war are physical and human and borne by the working class. Such a perspective has been adopted to explain the expansionists interests of "Iron and Rye" in Germany (Sndyer 1991, Papayoanou 1999) and manufacturing and big business in the United States at the turn of the 20th century (Blake 1948, Williamson 1959, LaFeber 1998 [1963]). Similarly, once domestic firms have acquired a foothold abroad through exports or direct investment, international policy can be of great importance to them. Thus, to the extent that victory or defeat in war could influence whether or not foreign states close markets or nationalize their assets, international oriented firms would have a much greater stake in war than domestically oriented firms (Gilpin 1975, Frieden 1994, Papayoanou 1999, Trubowitz 1998).

Although, in general, these traditions have conflicting claims about the effect of war, some scholars have used insights from each in constructing influential theories about war. For example, Snyder's (1991) theory of expansionist empires directly addresses the fact that war is costly for most members. What matters for Snyder is the political influence of winners and losers in war, which depends on a variety of societal conditions. Similarly, McDonald (2009) argues the level of trade protection afforded by a state indicates the revealed preference of the state with respect to the economic effects of war: states with few trade barriers tend to have influential "pacific" interests, while states with high levels of protection tend to have influential "hawkish" interests. Both scholars offer sophisticated and nuanced political theories of how the economic effects of war are channeled, but they do not provide a compelling defense of their assumptions about when war is costly or profitable.

C. Literature Review: Empirical Studies of Effects of War.

Given such diversity in the core assumptions in theories of war, it is not surprising that scholarly consensus in this literature remains elusive. A firmer understanding of the economic costs of war would redirect the focus of this literature in more fruitful directions. Though such an understanding would not definitively answer the larger questions about the effect of economic interests on war, it would be a useful starting point for developing new theories and hypotheses. Thus far, unfortunately, empirical investigations of the economic effects of war are rather limited. The most common type of studies are those that explore the aggregate affect of war on national economies. For example, Anderton and Carter (2001) and Bloomberg and Hess (2006) use time-series cross-national data to show that violence reduces international trade, in the sense that states have traded less in years in which wars occur than in other years. Collier et al. (2003) use similar data to show that Civil War disrupts normal economic activity and investment, especially in poor countries. As noted repeatedly, investigations of the distributional effects of war are relatively rare. Interestingly, there are also no aggregate, cross-national studies that investigate the beneficial effects of winning war for the economy as a whole. This points to a limitation in these types of studies: they do not provide a way to determine what trade or economic development *would have been if a state had not fought a war*. Given that all rational choice theories of conflict involve a comparison of the costs and benefits of war, the implications of this type of research is necessarily limited.

Event studies, analyses of the response of stock prices to international events, in contrast, provide more information about the potential benefits of winning and losing

war. Several scholars, for instance, have investigated "war rallies" in stock markets in the 20th century. Stock prices have both risen and dropped sharply at the outset of war, which some commentators have taken as evidence that war does not affect the economy greatly or that markets do not reliably estimate the consequences of war. Guidolin and La Ferrara (2005), however, found that rallies were more likely to occur when the initial stages of a war are more favorable for a nation's economy than expected, and Schneider and Troeger show that escalation has a negative effect (2006). Frey and Waldenström (2007) conducted a complementary study of German securities during World War II and found that their prices rose on good news and declined soon after significant military losses, including the Battle of the Bulge and Stalingrad.

Event studies are especially useful because they can yield a more precise estimate of the distribution and location of the costs and benefits of conflict. Abadie Gardeazabal (2003), for example, studied the response of Spanish stock prices to terrorism in the Basque region. They found that companies with a significant presence in Basque country dropped much more severely than companies located elsewhere in Spain. Similarly, Guidolin and La Ferrar (2007) compared the stocks of diamond companies with operations in Angola and diamond companies elsewhere. They show that firms operating in Angola saw their stock prices fall following the assassination of Angolan rebel leader Jonas Savimbi and the signing of a peace accord, while diamond companies operating in other parts of the world remained the same or rose. Their findings suggest that violence was beneficial for existing companies, most likely because it created barriers to entry into the diamond business in Angola. Despite the usefulness of this type of study, investigations of the divergent effects of war across the economy remain rare. With the

exception of Berrebi et al. (2005) and Wolfers and Zitzewitz (2009), financial markets have not been used to determine whether or not some types of economic activity are more sensitive to violence than others, if there are other types of firms that benefit from violence itself, or how the consequences of wars vary across industries or regions.

D. Case Selection and Theoretical Expectations: The Persian Gulf Crisis

This paper address these issues by using the event study methodology to analyze the effects of the Persian Gulf Crisis and War. The conflict is an appropriate and useful case for investigating and understanding *how* international crises can affect economic conditions for a number reasons.[6] One, economic considerations were central to the dispute between Iraq and Kuwait and certainly played at least a minor role in the response of the United States to the invasion of Kuwait. Two, financial markets watched the crisis closely and learned of events on a daily and sometimes hourly basis. Traders and analysts told the New York Times that events in the Middle East were the primary determinants of oil futures from July 1990 through March 1991. Rumors about events in the Middle East were said to be reflected in commodity markets within minutes. In addition, the New York Times wrote several stories discussing the apparent effect of the crisis across a number of different sectors in the financial markets.[7] Though such reports are neither necessary nor sufficient evidence, they provide reassurance that a closer econometric analysis is warranted. Three, the U.S. government initially gave no indication that it would become involved in conflict between Kuwait and Iraq, yet the

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[6] It would not be an appropriate case to select if the goal of the paper were to determine what the economic consequences of war "are" in general. Indeed, any single case is useless in addressing that question. Instead, it is useful in understanding how those consequences can be structured and distributed.

[7] See, for example, "Economic Scene: Mideast Standoff's Effect on Business," January 11, 1991. *New York Times*. : Section D; Page 2; Column 1; Financial Desk by Leonard Silk. Or "Market's Day of Wide Swings" January 9, 1991. *New York Times.* Section D; Page 1; Column 4; Financial Desk by Matthew L. Wald.

crisis was a big enough story--the front page of the New York Times and Washington Post--that its possible to compare the expected effects of policy crisis to the effects of U.S. decision to go to war.

Although it may be self-evident that a crisis in the Persian Gulf would have important consequences for the economy of the United States, the finer details of those consequences are not. Should the crisis have a broad distribution of consequences for the economy or relatively homogenous effect? Which sectors of the economy should be winners and losers? How would the winners and losers change across phases of the crisis? Indeed, in order to develop hypotheses for each of these questions, in this section I (1) describe the economic relevance of the region to the U.S. economy as a whole, (2) explain, using economic theory, how international policies affect the domestic economy and (3) explain how violence affects the domestic economy.

1) Economic relevance of the Persian Gulf to the United States

The preoccupation with oil in the American popular press during the Persian Gulf Crisis was relatively well-founded. Oil accounted for over 99% of the value of U.S. imports from Iraq, Kuwait, and Saudi Arabia, the primary states involved in the initial stages of the dispute. In addition, U.S. exports to Kuwait and Iraq at the time were minimal. The total value of U.S. exports to Iraq in 1989 were $1.3 billion, less than 1% of all U.S. exports that year. As result, there was little interest in maintaining normal trade relations with Iraq--the supply and price of oil dwarfed all other considerations. The U.S. had more extensive exports to Saudi Arabia ($13 billion in 1989), but when Saudi oil fields on the Saudi-Iraq border were threatened, this simply intensified danger to world

oil supplies since Saudi Arabia was the world's largest produce of crude oil and had the world's largest proven reserves.

The economic relevance of the region to the U.S. economy was grounded in historical experience as well as a theoretical understanding of oil markets. Oil prices had spiked during previous crisis in the region, and economic recessions followed the major crises. In 1973, after the Yom-Kippur War between Egypt, Syria, and Israel, Arab states restricted oil sales to the United States because of its support for Israel and the price of oil rose as much as 300%. The real GDP growth rate in the U.S. fell from an average of about 3.6% from 1970 to 1973 to an average of -0.35% in 1974 and 1975. Then, between 1979 and 1981, as a result of the Iranian Revolution and the Iran-Iraq War, the price of oil in the U.S. rose 170%. Again, real GDP growth in the United States fell from an average of 5.17% from 1976 to 1979 to average of 0.12% between 1980 and 1982. In addition, by 1990, all five years of negative economic growth in the U.S. in 20 years had followed oil price spikes related to political crises in the Middle East. To be sure, the business cycle and interest rate fluctuations contributed to these trends and the exact amount of economic hardship attributable to oil crises is a thorny econometric question, but concerns about the implications of another conflict in the Middle East were widespread.

2) Economic theory and oil shocks

It is less widely understood *how* oil price shocks affect an economy and how their effects are distributed. Indeed, the exact mechanism connecting oil prices increases to recessions remains somewhat disputed in the economics literature (Hamilton 2005, Kilian 2008). Nonetheless, the basic economics of oil shocks are relatively straightforward: an

increase in the price of oil due to events in the Middle East constitute an exogenous increase in energy prices, an important factor of production in most industries. A change in factor prices is the key mechanism in both the Stolper-Samuelson (1941) and Ricardo-Viner (1951) theories of the distributional effects of trade. Stolper-Samuelson, assuming that factors are mobile, holds that the owners of a factor whose price increases, will see their income rise. In other words, increases in oil prices should increase the income of energy producers relative to that of energy consumers (so long as assets they own are not threatened or destroyed). Ricardo-Viner assumes that factors or assets are specific to the industry in which they are employed and thus the income effects are tied to industries or sectors. Since there is ample evidence of asset specificity in the U.S. economy (Hiscox 2001) and sectoral differences in oil shocks (Davis and Haltiwanger 2001, Lee and Ni 2002, Killian 2008, Nandaha and Faff 2008) and since stock data is easily aggregated by sector, I primarily consider a Ricardo-Viner view of the economy.

The magnitude of the effect of a change in energy prices in each sector depends on 1) whether the industry is an energy owner or buyer, 2) its energy intensity in production and 3) its energy intensity in consumption. The sharpest difference in the effect of an oil shock is between buyers and sellers: energy owners or net producers, like oil companies (drilling and refining) and utilities, should benefit from an increase in oil prices, as the factors that they own exogenously increase in value.[8] By contrast, most industries are net energy consumers and they should see their profits decline relative to energy producers since increases in energy costs increase their production costs.

[8] The benefits to government-regulated utilities were be limited, of course.

It follows that the magnitude of the change in profits should depend on the ratio of energy costs relative the selling price of a good. Since sectors differ in the intensity with which energy is used in the production process, this is a second reason oil shocks could have distributional consequences. For example, according to the 1984 Survey of Current Business, industrial chemical companies paid 18 cents in oil costs for each dollar of revenue, while makers of office computers paid only 2 cents in oil costs for each dollar of revenue (Lee and Ni 2002). Similarly, according Department of Energy data, in 1988 aluminum producers total energy costs were 30% of revenue, while energy costs were less 0.5% of revenue for sectors such as periodicals, audio visual equipment, and tobacco.

Lastly, the energy costs paid directly by consumers in the use of a good or service, known as *operation costs*, also vary by sector. Hence, as oil prices increase, consumer demand should decline more in sectors with high oil-related operation costs. Although no major agency measures energy operation costs across each sector, the Energy Information Administration reports that 70% of petroleum consumed in the United States is used for transportation, by cars, trucks, and airplanes. To the extent that consumers can choose less energy intensive forms of transportation or forgo using transportation altogether, this can have a large effect on consumer demand. Similarly, the effect of an oil price shock may differ by sector because the income elasticity of demand differs by sector. The elasticity of demand depends, in turn, on the availability of substitutes and whether spending is on discretionary items or staples.

Empirically speaking, it appears that this demand channel creates more pronounced negative consequences than production costs (Killian 2008, Hamilton 2003). In addition, because foreign automobiles tended to be more fuel efficient than domestic

automobiles and because there are a variety transportation alternatives, large increases in the price of oil have cut demand for automobile, airline, and travel related industries the most during oil crises (Killian 2008).[9]

3) Expectations about the economic consequences of violence

While oil prices were the primary economic implication of the crisis from the perspective of the United States, a complete understanding of the economic effects of the U.S. decision to intervene requires a consideration of the economic consequences of violence itself. These consequences are sometimes referred to as the costs of war, though this term is misleading to the extent that the production of military force may have some positive economic consequences. Indeed, the "costs" of U.S. intervention in the Persian Gulf can be divided into two distinct components. One, violence should increase the risk of the destruction of oil extraction facilities, pipelines, and tankers in the gulf. That is, it would increase the risk of the disruption of oil production and distribution in the Gulf region. As a result, knowledge of the U.S. intention to intervene should create an additional oil shock, an anticipatory shock that increases short-term demand for oil.[10] More generally, consumers confidence typically declines prior to war, and consumers are typically leery of travel during international wars, even if the increase in risk of a terrorist attack is minimal (CRS 2002). This tends to affect companies that rely on consumer discretionary spending more so than other industries. Likewise, markets typically see war

[9] Indeed, Killian argues that the effect on the auto industry is so important that the main reason the U.S. macro economy has become less sensitive to oil shocks in recent years is that the U.S. auto fleet has become less grossly energy inefficient relative to foreign producers.

[10] Killian (2008) has shown that these types of anticipatory short-term spikes in the demand for oil have had as large an impact on oil prices as actual disruptions in the production of oil.

as a risk for companies that insure travel and international businesses (Blomberg and Hess 2006).

Two, in producing military coercion, the U.S. government taxes citizens and buys military goods. An unanticipated increase in military spending should increase the demand and profits in defense related sectors. Assuming taxes are evenly distributed across sectors, increased defense spending due to war results in a net transfer of wealth to the defense sector, with the size of the transfer increasing with the size of the war. According to the U.S. Department of defense, Operations Dessert Shield and Dessert Storm together cost $61 billion. This was not enough, however, to prevent the defense budget from being cut following the end of the cold war. Indeed, cuts of the B-2 bomber program and other programs were major stories in July of 1990. Fortunately, it is possible to separate the economic effects of Cold War related budget cuts from the effects of the Persian Gulf Crisis using daily financial market data. Therefore, I expect the Persian Gulf crisis itself to produce moderate increases in profits for the defense industry.[11] Military spending, in turn, can be financed by borrowing money or cutting domestic spending. Although U.S. allies eventually paid for about 90% of the military operations during the Persian Gulf War, this high level of support could not have been predicted through the entirety of the crisis. Many allies pledged money and sent troops to the region in the fall of 1990, but the eventual rate of allied financing is at least partially the result of the relatively quick U.S. victory and exit from the region. Thus, it was reasonable for

[11]That the cold war-related budget cuts and the Persian Gulf Crisis happened in the same year, may have interesting political economy implications. Since *job losses* may be more politically meaningful than margin wage gains, policies that would prevent those losses may be especially important.

financial market traders to be concerned about the effect of spending on the deficit and interest rates.

The Heterogeneity of the Effect of War Across Sectors

Given these descriptive and theoretical priors, should the Persian Gulf Crisis have a broad distribution of consequences for the U.S. economy or a relatively homogenous effect? In order to address this question empirically, it is necessary to define heterogeneity more precisely. For the reasons cited above, this paper investigates the distribution of consequences across sectors (rather than classes or regions). Almost all events and policies, however, produce some winning sectors and some losing sectors; perfect homogeneity does not exist. Thus, only a continuous measure of heterogeneity is useful. I define heterogeneity in terms of variance. Following the definition of variance in probability and statistics, I measure variance as the average squared deviation from the mean effect of an event, with sectors as the unit of observation.

In the context of the political economy of war, variance is a conceptually appropriate measure of heterogeneity because it increases with both the magnitude of the difference in the effect of an event across sectors and the breadth of the distribution of sectors across that range. The magnitude of the difference across sectors is an indicator of how strongly divergent are the economic interests of winners and losers. This is important because substantively larger differences in effects are likely to be required to motivate political action. The distribution of sectors, particularly the percentage of sectors near each extreme, is an indicator of how "polarizing" an event is. Abstractly speaking, for a given number of sectors, the highest variance on a given trading-day would exist if there were one group of extreme winners and one of extreme losers, each

with the same number of sectors. By contrast, a distribution with one sector with high returns and the rest with low returns would have less variance, and be considered less politically polarizing, even if the magnitude of the difference between the most extreme winning and losers sectors was just as large.

Based on the reasoning above, on trading days following significant events of the Persian Gulf Crisis, I expect oil and energy producing stocks to lie at one extreme, automobile and other transportation related stocks at the other end, and most sectors somewhere in between, depending on the precise nature of the event. It follows that the Persian Gulf Crisis should have created greater heterogeneity than the events that usually move the market: earnings reports from firms, which affects a small number of sectors, and news about aggregate demand and inflation and speculation about Federal Reserve policy, which should be less sharply divergent. Indeed, comparisons of the effect of oil shocks to the effect of inflation or interest rates across sectors in the real economy suggest this is typically the case (Davis and Haltiwanger 2001, Hamilton 2004). This comparison provides the first testable hypothesis:

> Hypothesis 1: The variance in returns across sectors on days of major events of the Persian Gulf War should be greater than the variance in returns on non-event days.

Winners and Losers by the Phases of the Conflict

The analysis above leads rather directly to predictions about *which* sectors were expected to be winners and losers during the Persian Gulf Crisis. The configuration of winners and losers, however, should depend critically on the phase of the conflict. Though the crisis lasted about 6 months and a wide variety of events occurred, there were three main stages:

1. The initial policy dispute between Kuwait and Iraq, which ended with Iraq's invasion of Kuwait.

2. The standoff between the U.S. and Iraq, which ended with U.S. decision to use military force.

3. The actual military conflict between the U.S. and Iraq.

The first stage of the crisis began on July 17, 1990 and ended August 2 (inclusively). It included Saddam Hussein's demand that Kuwait restrict its sale of oil, his threat to invade if they did not, and the invasion of Kuwait. Hussein's primary economic goal in the dispute with Kuwait was to limit the production of oil and, thereby, increase its price.[12] During this phase, there was little serious talk of U.S. military involvement in the crisis. As late as August 2nd, American officials described military action as "inappropriate." The U.S. Congress voted to impose limited economic sanctions on Iraq on July 27th, but the vote was symbolic, as the U.S. called for broader economic sanctions through the U.N. after Iraq's occupation of Kuwait. In the language used in this paper, the first phase primarily had policy consequences for the U.S. economy. That is, investigating the first stage of the conflict provides a measure of the effect of allowing Saddam Hussein to change the status quo with respect to Persian Gulf oil production, since it reflects the expected economic outcome if the United States did not intervene.

Who should have been the winners and losers of the first stage, based on the political and economic conditions at the time and economic theory? Because of the

[12] In the summer of 1990, Iraq and Iran were still recovering from their 8 year war, a war that cost Iraq more than $500 billion and as many as 500,000 casualties. Iraq faced a particular stiff foreign debt as a result of the conflict, totaling $80 billion including $14 billion owed to Kuwait. In addition, international oil prices had declined significantly, closing as low as $15 a barrel on June 20th 1990, after trading at $23 a barrel at the beginning of the year. Oil exports produced 95% of Iraq's government revenue and Iraq had no excess production capacity, thus Iraq was essential bankrupt with a large army to fund and a fractionalized society to hold together.

limited and asymmetric trade relations between the U.S. and the region, the primary channel through which the crisis would affect the U.S. economy was oil prices. A cut in the supply of oil from the Gulf or a spike in short term demand for oil in anticipation of such a war would be expected to increase world oil prices. An increase in the price of oil would, for the reasons explained above, increase the profits of oil companies and competing sources of energy, and, thereby, utilities relative to other sectors.[13] An increase in the price of oil would, by contrast, decrease the profits in other sectors by increasing production costs and operation costs associated with consumption (i.e. higher gas prices increase the operation costs of automobiles). Industries in which such costs are especially high include transportation related sectors, including automobiles, airlines, trucking and travel related sectors, including hotels and restaurants.[14] In addition, since a large increase in oil prices represents an unexpected decrease in consumer income, the consumer discretionary sector should be one of the biggest losers.

> H2a: Significant events in the first phase of the conflict should increase the expected profits of companies in energy producing sectors, especially oil production and drilling sectors.
>
> H2b: Significant events the first phase of the conflict should most sharply decrease the expected profits in transportation related sectors and consumer discretionary sectors.

The second stage of the conflict began on August 3rd with reports that a military response was being considered. It ended on January 16th, 1991, the last day before the

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[13] Coal is an importing competing sector in that the import of foreign oil decreases the domestic consumption of coal. The importance of this relationship depends on how easy it is to substitute from one form of energy to another. The empirical evidence suggests that oil and coal are not substitutes in the short-run for most industries, but are in the long-run. To the extent that stock prices reflect the present discounted value of the firm, the long-term consequences of higher oil prices will be reflected in utility stocks.

[14] If I have described the nature of this event correctly, defense stocks should not increase during this phase. Indeed, to the extent that the defense sector is an energy intensive sector, and is connected to the airline industry, it should be hurt more than most.

U.S. began its air campaign against Iraq. The analysis here focuses on days in which there was news that revealed the U.S. would use force to drive the Iraqi army out of Kuwait, since this is the event that most closely corresponds to conventional definitions of interstate war. One may be tempted to see these events as useful in attempting to assess solely the economic "costs" of war. Any increase in the probability of U.S. intervention, however, should increase the chance that the policy dispute is resolved in the favor of the U.S. government, since a U.S. victory was always considered likely. Because of the history of large negative effects of oil price increases on the U.S. economy, and the pronouncement by the Bush Administration that "aggression would not stand," it is reasonable to predict that the U.S. would seek to return the political situation to the pre-war status quo, which means stable oil production and lower oil prices. On the other hand, the main economic cost of U.S. military intervention is the disruption of economic activity in the Gulf, which should push oil prices higher, as in the first stage. In particular, U.S. intervention should heighten the short-term threat to Gulf oil production and disruption. Intervention, in this case, however, was also expected to eventually return Gulf oil production back to its prewar status quo, which implies lower, long-term oil prices. Such a positive outcome was likely, but not certain and was worse than a peaceful resolution of the conflict. In addition, markets typically dislike risk. Furthermore, signs of U.S. intervention were typically connected with Iraq's refusal to concede to U.S. demands, so the difference between the policy effects of U.S. victory and Iraqi capitulation were probably modest. As a result, an increase in the probability of U.S. intervention should have a similar effect on energy-related sectors as described in Hypothesis 2a and 2b, but *a smaller magnitude*. In sum, U.S. military intervention should

increase the risk to Gulf oil production and, thus, oil prices in the short run, but decrease them in the long run, with the net effect being to increase oil prices in the short-run (though the magnitude of the effect should be smaller than the original oil shock). U.S. military action should, therefore, have a similar pattern to the initial stages of the conflict, with a positive effect on energy related sectors, a negative effect on transportation related sectors.

Unique to this stage of the crisis is that because of war-related anxieties about travel, terrorism, and destruction second-stage events should decrease the stock valuations of the airline and insurance industries. Additionally, as mentioned above, U.S. intervention moderately increased the demand for military goods and other products and services related to the war effort (e.g. Air Freight, Road and Rail), so it should increase the expected profits of defense and defense related sectors by a discernable, though modest amount. At the same time, the effect on consumer discretionary spending, in general, is ambiguous since war typically increases uncertainty, while the long-run effect of intervention would appear to be positive. This reasoning yields three hypotheses.

> H3a: News that implies an increased chance of U.S. intervention should *increase* the expected profits of companies in energy related sectors, especially oil and oil competing companies.
>
> H3b: News that implies an increased chance of U.S. intervention should decrease expected profits in transportation related sectors, especially airlines.
>
> H3c: News that implies an increased chance of U.S. intervention should increase the expected profits of defense related sectors.

The third stage of the conflict, the U.S. military campaign, began on January 17th and ended February 28th. Like any war, the campaign contained a mixture of

unexpectedly successful, unexpectedly unsuccessful, and expected results. The analysis here focuses on days in which there was news that the war was going unexpectedly well from the perspective of the United States. In contrast to news during the second stage of the conflict, the implications of good news for expectations about the costs and benefits of the war push in the same direction. They should decrease the short-term risk to Gulf oil production and the budgetary expenditure of the war, thereby reducing the "costs" of war and increasing the chance that the dispute would be resolved in the favor of the U.S. at an early date. The results should, thus, be the opposite of those in the second stage, but stronger and unambiguously favorable to sectors related to consumer discretionary spending. By contrast, a shorter war would presumably mean less military spending, which would reduce profits in the defense sector:

> H4a: News that implies a more likely and expedient U.S. victory should decrease the expected profits of companies in the energy sector, especially oil and oil competing companies.
>
> H4b: News that implies a more likely and expedient U.S. victory should increase expected profits in transportation related sectors and consumer discretionary sectors.
>
> H4c: News that implies a more likely and expedient U.S. victory should decrease the expected profits of defense related sectors.[15]

E. Methodology

As noted above, these hypotheses will be tested using the event study methodology. Event studies are widely used by economists and investment analysts to estimate the effect of earning reports, dividends, management changes, and economic news on stock prices. Political scientists and economists have also used event studies to

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[15] Note that none of these hypotheses imply that events in the crisis will not affect other sectors. Rather, the hypotheses are predictions about the biggest winners and losers of each stage of the conflict.

investigate the economic consequences of political decisions and elections (e.g. Jayachandran 2006, Snowberg et al. 2007). The general design of event studies is similar; they identify the date on which a key event became known to the market and then calculate the change in relevant stock prices following the event. The duration of time used in calculating the change in price varies from study to study, but one to three trading days following the event has become standard. The main theoretical justification for event studies as a methodology comes from the efficient market hypothesis, which holds that financial markets quickly incorporate new information about the value of a company or commodity such that prices reflect all well known information. As a result, future stock prices cannot be predicted by their history and only unexpected news events affect stock prices.

The efficient market hypothesis is not, however, universally accepted by economists, financial analysts, or political scientists. Behavioral economists have documented a variety of inefficiencies including a bias towards growth stocks and overreaction (for a survey of the financial literature, see Beechey 2000). Doubts about the validity of the efficient market hypothesis has led some to question the validity of event studies. In addition, there are doubts that analysts can identify exactly what was learned by the market on a given date (Wolfers and Zitzewtiz 2004). Both of these concerns are important for those trying to measure precisely the true economic effect of an event. The ambition in this study is far more modest: the quantity of theoretical interest here is the *distribution* of the *expected effect* of war. This is a more easily measured quantity for two reasons. The first reason is that financial markets only, in fact, provide information about expected returns rather than the real returns; the market is

inherently prospective. Why are expected values the quantity of interest? In understanding why states decide to go to war or why individuals support that decision, theories make claims about what they expect its effect will be before it started. Beliefs about the consequences of war are even a driving mechanism of war in theories that do not specify the origins of those beliefs, like the bargaining theory of war (Fearon 1995). Thus, the true effect of war is irrelevant and even misleading in understanding its cause. Indeed, an advantage of event studies over traditional cross-sectional studies of the effects of war is that the later are biased by hindsight. A study that determines that the German occupation of Europe during World War II was in fact unprofitable is irrelevant to understanding the decision of Germany to expand *if leaders before occupation believed it would be profitable*. Thus, a purported weakness of event studies in the financial literature is a strength in answering the questions that motivate this paper.

The second reason is that relative effects are easier to measure than absolute effects. Measuring the absolute effect requires needing to know the probability of war occurring before and after an event. If, for example, stocks decline 3% after the president announces plans to deploy troops, this could be interpreted to mean that the market thinks the war will cost the economy 6% of GDP if the probability of war rose from 25% to 75%. Alternatively, it could mean that the market thinks the war will cost 12% of GDP if the probability of war rose from 50% to 75%. By contrast, whether the increase in the probability of war is 25% or 50% after the event, *the relative winners and losers of the war across sectors should be the same*.

Thus, one does not have to believe the efficient market hypothesis to believe the results in this study. Instead, there are four important, less demanding, assumptions: The

first is that I identify days on which news becomes public that affects the market's expectations about future events. The second is that inefficiencies in financial market prices are constant across sectors. That is, the core findings of my analysis are valid even if oil futures rise more sharply than is warranted by the situation due to "overreaction," *as long as* this overreaction affects all sectors proportionately. The third is that the S&P 500 Sectoral indices are a reasonable approximation for the expected effect of the war on sectors as a whole. Although the S&P index only represents publicly traded firms, they represent a majority of employment in most sectors. In addition, economists have used the S&P index to represent shocks on the real economy, preferring it over output and price data because it more accurately reflects the long term implications of events (e.g. Davis et al. 1997). The fourth is that events (or news about events) are exogenous to expected changes in stock prices caused by other factors. Exogeneity, in this context, implies that leaders do not act or leak news about a conflict because they know that news about a sector will also be released on the same day. Although none of these assumptions can be proved to be true unequivocally, the description of the data and methodology are meant to show that they are reasonable.

Data

This study contains two main types of data, daily stock indices and commodity prices and event data. The index and commodity data comes from Standard and Poor's (by way of the Global Financial Database). Standard and Poor's has compiled sectoral indices of a variety of types since 1871. Each sectoral index is composed of the 10 largest publicly traded companies in each sector, measured by market capitalization. The indices are capitalization weighted averages of those companies. Though the companies in each

index regularly change, no major changes to the index occurred during the Gulf crisis. The S&P indices divide sectors at numerous levels of specificity (or aggregation). In the analysis below, I do separate analyses on their 10 top-level (or major) sectors as well as 35 major sub-sectors. A list of both groups of indices is in the appendix. An advantage of using S&P sectoral indices over one created specifically for this paper is that using the S&P indices eliminates the possibility that I have chosen firms from each sector based on their performance. A drawback of this approach is that the S&P taxonomy of firms does not always match the constructs of interest in this paper. For example, some firms that produce goods used for national defense are in the information tech sector rather than the aerospace and defense. Fortunately, this should create a bias *against* finding results that support my hypotheses.

In order to identify days of significant news for the crisis I coded news paper articles from the Washington Post and New York Times. To identify potentially relevant stories, I used Lexis-Nexis to search for articles mentioning Iraq and Kuwait from January 1990 through June 1991. Next, I read those articles to determine if significant news occurred, where significant is defined as an unexpected event that changed threat to oil supplies, the probability of U.S. military action, or U.S. victory. I used two main criteria to determine the significance of an event. The first was whether or not the event made the front page of either newspaper. The second was whether or not words indicating that something unexpected had occurred, including words like shocking, surprising, unexpected. On days in which stories meeting both criteria appeared, I coded what type of event occurred--that is whether the news implied an increased or decreased threat to Gulf oil distribution, increased or decreased chances of U.S. military action, and

increased or decreased chances that the U.S. would win the war. In addition, on days with significant news, I also read the financial report on the market in the interest of knowing if other major news with a bearing on markets occurred on that day.

F. Results

The Heterogeneity of Returns Across Sectors

To evaluate hypothesis 1, I compared the distribution of returns on 10 major event-days during the crisis to the distribution of returns on 150 non-event-days before the crisis. On 5 of the event days the news was primarily about threats to the distribution of oil; on the other 5, the news was about U.S. military operations. The days and events are listed in Table 1.1. The 150 non-event days occurred on trading days between November 6th 1989 to July 11th, 1990.[16] A sample of 150 non-event days balances the chances of making type I and type II errors in hypothesis test, though I draw the same conclusions with non-event samples as small as 50 and as large as 600.[17] To check if the level of aggregation in sectors affected the results, I did two such comparisons. In the first, heterogeneity is measured by the standard deviation of returns across ten "top-level" indices, the broadest level of aggregation, in the second by the standard deviation of returns across 35 sub-indices.

[Insert Table 1.1 Here]

On the10 event days, the average standard deviation of returns across the 10 top level sectors was .88 percent. By contrast, on the 150 non-event days, the average standard deviation was .44. In other words, event days were about twice as heterogeneous as non-

[16] The daily return is the percentage change in the close price of a stock or index from the close price of the previous day.

[17] In addition, comparison using selections of 150 days after the crisis produces essentially identical results.

event across sectors. More revealingly, Figure 1.1 displays the distribution of standard deviations on event and non-event days, with the event days in the lower row; it shows that four of the days in the event sample had a larger spread of returns than any of the 150 days in the comparison sample. In addition, the other six days were all above the non-event median.

A comparison of heterogeneity across 35 sub indices produces similar results. In this comparison, the average standard deviation on event days was 1.6%, but only .8% on non-event days. Again, event days were about twice as heterogeneous as non-event days. In addition, a graph of the distribution of the daily dispersion of returns, shown in Figure 1.2, shows the difference between event and non-event days is not due to a single day, but rather the result of consistently higher heterogeneity on event days.

[Insert Figure 1.1 and Figure 1.2 Here]

I consider Figures 1.1 and 1.2 to be the primary evidence supporting hypothesis 1. Nonetheless, a formal statistical test of hypothesis 1 is also possible. To perform one, I used a non-parametric rank test, known as the Wilcoxon rank-sum test. Non-parametric tests are more appropriate for financial data because returns are known to be non-normal and heteroskedastic and because the sample of event days in this test is not large enough to invoke asymptotic normality. [18] The logic of a rank test is straightforward. It converts the raw standard deviations in the sample into ranked deviations. The converted distribution (the ranks) is a discrete uniform distribution. The test of significance compares the observed sum of ranks in each group (event and non-event days), to what

[18] In addition, Corrado (1989) and Campbell and Wasely (1993) show that rank tests outperform traditional hypothesis tests for financial data.

one would expect to see by chance alone. In the comparison using the 10 top-level sectors, the rank test statistic is -3.64. In the comparison using 35 sub-indices, the rank test statistic is -4.64. These statistics indicate that the probability of the drawing the observed distribution of returns from two equal samples is less than .001.[19] Tables with details on the two ranks tests are shown in the appendix.

In interpreting the significance of this finding, it is important to recall that a key assumption in most realist theories of war--as well as other theories of international and American politics--is that security crises have a unifying on effect on politics, motivated perhaps by the rally-around the flag phenomenon in public opinion. That is, one of the implication of realist theory is that foreign policy crises have a more homogenous effect than other events. While this certainly might be true in some conflicts, it is revealing that in a major war of the 20th century, significant days of the conflict saw greater heterogeneity than all but a handful of days within a year. Such heterogeneity would surely not exist in all wars, but it might exist in most wars of this type, a hegemonic war where one of the combatants is fighting far from home. Given that the United Kingdom (21 wars), France (19), the United States (16), the Soviet Union/Russia (9), Australia (7), and the Netherlands (7) alone were the most frequent participants in international wars from 1946 to 2003 (PRIO) and only a few of these wars were fought in those countries, wars of this type is certainly a non-trivial subset of international conflict since the end of World War II. Moreover, such a highly divergent distribution of expected economic

[19] Conventional tests of significance, produce the same conclusion. It is highly unlikely that chance produced the observed distribution of daily returns. In addition, measuring the effect of events over a slightly larger window, three days, produces the same conclusions. In addition, if I were to measure heterogeneity by the standard deviation of abnormal returns (see below) rather than raw returns, I would draw the same conclusions.

effects lends tentative support to the belief that pro-war and anti-war coalitions of support could be made up, at least in part, by actors with different economic interests in international conflict.

Winners and Losers Across Sectors

Hypothesis 2a through 4c concern the effect of different types of events during the crisis. The core elements in the analysis of these hypotheses are the same as above. Comparing the effect of events on different sectors, however, requires some modifications to this basic methodology. Following common practice in the event study literature (see Campbell et al. 1997 for an explanation, and Guidolin and La Ferrar 2007 for an application) instead of using raw returns, I measured the effect of each event by the cumulative abnormal return. Abnormal returns are returns beyond what can explained by the change in the value of the market as a whole. Because some stocks and sectors are more sensitive to the movement of the market, this can be an important source of bias. To calculate abnormal returns, I first regressed the daily returns for each index on the returns to a broad market index, in this case the extended S&P 500 composite, during a period of 50 days prior to the crisis. This 50 day period is referred to as the *estimation window*. Then, I predicted the returns during the crisis using the coefficients from this model (which is often referred to as a market model). Abnormal returns are, then, the difference between the raw returns and predicted returns following the event. Because it may take some time for all of the pertinent information about an event to become known by the market, Campbell et al. (1997) recommend estimating the effect of an event by calculating the cumulative abnormal return over a number of days. This period of time is

known as the *event window*. Following Guidolin and La Ferrar (2007), who also study the effect of conflict, I use an event window of two to three days.

The second modification is related to the nature of events in this particular crisis and the centrality of event type in my hypotheses. It was not uncommon for at least two different types of events to occur over a three day period. For example, between the close of trading on August 3rd and the resumption of trading on August 6th, Iraq had dug in its troops in Kuwait, a European boycott of oil from Iraq was announced, and President Bush made his now famous statement that "This will not stand… This aggression against Kuwait." As a result, I had to be more selective in picking significant events than in the section above (where any major event was relevant). Although it is impossible to pick days with news with only one type of implication or to know exactly how the market interpreted the news, I chose days where the primary thrust of events concerned either the threat to gulf oil supplies, an increase in the chance of U.S. military presence, *or* an increase in the probability of U.S. victory. For each event type, I selected two or three such event windows, for a minimum of six days total. The dates and the major news on each day is listed in Table 1.2. Next, I analyze each pair of event types separately, though I make comparisons across event types when appropriate.

[Insert Table 1.2 Here]

The Predicted Effect of Disruption of Persian Gulf Oil Production and Distribution

The deeper origins of the 1990-1991 Gulf Crisis are open to debate, but the first news of an Iran-Kuwait dispute to hit the American press came on July 17th, 1990 when Saddam Hussein charged Kuwait with stealing its oil and issued a vague threat that it should limit production. The remarks took observers by surprise and raised concerns

about the stability of the region. Only two days later, however, it appeared that Kuwait might make some small restrictions on output to placate Iraq. With Iraq having only recently ended its 10 year war with Iran, others thought the comment was an empty threat. Had the dispute ended there, it would most likely have been forgotten, since tough talk is relatively ubiquitous in international politics. The first major event of the crisis came July 20th, with intelligence reports of an Iraqi military build-up. By July 23rd, the next trading day, Iraq had moved troops to the Kuwaiti border, which was the lead story in both the Washington Post and New York Times. On July 24th, U.S. Naval ships were put on alert, though U.S. officials, speaking anonymously, told reporters at the New York Times, "We are not going to war." There was much discussion in the financial press about the implications of the threat to oil production. In short, in this three day period, the news primarily concerned a threat to the production and distribution of Gulf oil, with little indication of U.S. military involvement.

The second oil production threat started July 31st. In the previous week, the dispute was said to soften again, this time with a verbal agreement from Kuwait to limit its oil output, Saddam Hussein telling Saudi King Fahd that he had no intention of invading his neighbor, and reports of Iraqi forces drawing back from the Kuwaiti border. On the 31st, however, the Washington Post and New York Times ran stories suggesting that the agreement between Kuwait and Iraq was unraveling. The sticking point was that Hussein held firm to his demand for territorial concessions from Kuwait. At the same time, the Times reported that there were now 100,000 Iraqi troops on the Kuwaiti border. The next day, talks "collapsed," and by August 2nd the Kuwaiti capital had been taken. When asked about the possibility of U.S. military involvement, however, President Bush

responded, "I am not contemplating such action." In addition, Senator Sam Nunn, chair of the Senate Committee on Armed Services, said that military action would be "inappropriate." Though there may have been a small increase in the probability of U.S. military action during this three day window, the major implication of the news was for the oil market.

Turning to the analysis of how financial markets responded to these events, hypothesis 2a stated that significant events in the first phase of the conflict will increase the expected profits of companies in the energy related sector, especially oil and oil competing companies. Hypothesis 2b, by contrast, said that significant events the first phase of the conflict will most sharply decrease the expected profits in transportation related and consumer discretionary sectors. The primary evidence for both claims is displayed in Figure 1.3 and Figure 1.4. In both figures, the y-axis is the cumulative abnormal return, averaged over the two events. Figure 1.3 shows the abnormal returns for the 10 top-level (or two-digit) sectors, while Figure 1.4 shows the ten sub-sectors that showed the largest decline and increase in abnormal returns during the first phase of the crisis.

[Insert Figure 1.3 and Figure 1.4 Here]

As predicted, firms in the energy sector, especially oil companies, were the biggest "winners" from a disruption of Gulf oil production. Markets, it seems, took this to mean higher world prices and profits for the sale of oil and an increase incentive for oil drilling, which would be a good investment relative to other options in the economy. Also as expected, some of the biggest losers were in consumer discretionary and transportation. The effect on transportation related sectors is most striking when looking at Figure 1.4,

where Hotels, Restaurants, Automobiles, and Airlines were three of the four hardest hit sectors. In addition, the fact that stocks in aerospace and defense declined more than most during this episode provides some assurance that U.S. military involvement was not considered likely at this point.[20] Figures 1.3 and 1.4 show several results that were not predicted above, though all have a plausible economic rationale. In particular, telecommunications appeared to be a relative "winner," perhaps because they are a substitute for traditional, energy intensive, modes of travel. That bank and the tech sectors were both hit hard suggests that the market saw the dispute as engendering inflationary pressures that would hurt investments and loans.

Formal statistical hypotheses tests confirm these conclusions. In this context, the appropriate statistical test involves comparing the abnormal returns of each index during the event window (6 days total) to its distribution of abnormal returns in the estimation window (49 days). For the same technical reasons explained above, I performed ranked sum test for each of the sectors shown in figures 1.3 and 1.4. Using .05 probability as a cutoff, these statistics indicate that abnormal returns were significantly greater in the event windows in all sectors except Hotels & Restaurants, Materials, Health Care, Consumer Staples, and Banks. Of that group, Hotels & Restaurants was the only sector predicted to have a significant effect, and this test failed primarily because volatility in its estimation window was high. Indeed, the rank-sum test is considerably more conservative than a traditional t-test. This is especially true if news about events is incorporated quickly, so that changes in returns on the second and third days in the estimation window

[20] In addition, a House Panel voted to cut B-2 Bomber and strategic missile defense on July 31st and these cuts were discussed extensively on August 1st. One might view this as a confounding factor, but I interpret the fact that the government was willing to make heavy defense cuts at this moment as indicative that the likelihood of a major U.S. intervention at that point in time was small.

do not reflect the reaction of the market to new information. Given the conservative nature of these tests, the results provide strong support for hypotheses 2a and 2b.

The Predicted Effect of U.S. Military Intervention

The next stage of the crisis fell quickly on the heals of the first. Indeed, news stories about a possible U.S. military response started appearing on August 3rd, Congress canceled some planned cuts to the defense budget on August 5th, and President Bush announced the deployment of 50,000 troops to the region on August 7th. During this same period of time, however, Iraq was establishing its control of Kuwait and moving troops to the Saudi border, intensifying the threat to world oil production. As a result these days should not be used to evaluate the effect of U.S. military intervention. Instead, August 21st was the first day of trading following news revealing an increased chance that the U.S. would be involved in a major military confrontation when *there was also* no significant news from the Persian Gulf. On August 21st, President Bush announced that he had rejected an offer from Iraq that involved a partial pullout from Kuwait. On the 22nd, General Collin Powell spoke of removing Iraq from Kuwait by force and Bush called up reserves. Prior to this news, the consensus was that U.S. troops were in the Gulf to prevent Iraq from moving into Saudi Arabia to enforce an embargo, and to convince Iraq to make concessions regarding Kuwait. Indeed, the U.S. military operation in earlier stages was known as Operation Desert Shield, which emphasizes its defensive nature. In addition, U.S. policy prior to this news was typically described as one of containment in the popular press.

In late August, tensions in the Gulf seemed to ease. On August 30th, U.S. General Norman Schwarzkopf asserted that the U.S. would not strike first, saying "there's not

going to be any war unless the Iraqis attack." The next day statements from the Saudi government reinforced this view, calling U.S. forces "defensive." In addition, there were no front page stories in the New York Times or Washington Post discussing the possibility of war with Iraq in the first week of September. However, a second group of events implied an increased probability of U.S. intervention, but little else, started on September 13th when Great Britain announced that it was upping its deployment of forces to the Persian Gulf. Since the existing deployment of U.S. troops was considered sufficient to deter Iraq, the increase in coalition forces and support was widely read as indicating an increasing chance that weapons would be used. Indeed, the New York Times discussed the potential offensive capabilities of U.S. forces in detail on September 14th. At the same time, President Bush was taping a message to the Iraqi public that expressed U.S. resolve to fight and the conviction that there "was no way Iraq could win."

A final episode of unambiguous escalation occurred starting Friday, October 5th when President Bush stated in a public address that war with Iraq was "an acceptable risk," since the stakes were high and a U.S. victory was likely. Over the same weekend, the Israeli military handed out gas masks to its public, an action of little use unless it had reason to believe that they would be the target of an attack. Indeed, on October 9th, Hussein renewed his threat to attack Israel, claiming that he had a new missile with a range of hundreds of miles, making it capable of hitting Jerusalem. Addressing the Israeli public, Hussein said, "Blood will not enable you to retain the land of Palestine and Arab holy places." In addition, on October 8th, British warships fired warning shots at Iraqi freighters, reminding investors that war can start unpredictably when tensions are high.

How did financial markets react to news that war between the United States and Iraq was more likely? Hypothesis 3a-3c predict that this type of news would decrease the expected profits of companies in the energy sector, especially oil and oil competing companies, increase expected profits in transportation and defense related sectors. Figure 1.5 and Figure 1.6 display how the market responded to the two events described above. As before, the y-axis is the cumulative abnormal return, averaged over the two events. Figure 1.5 shows the abnormal returns for the 10 top-level (or two-digit) sectors, while Figure 1.6 shows the ten sub-sectors that showed the largest decline and increase in abnormal returns during the first phase of the crisis. To facilitate comparison with the previous section, the sectors are in the same order as before.

In general, the patterns in Figures 1.5 and 1.6 are quite similar to those in Figures 1.3 and 1.4. Energy stocks, telecommunication stocks, and utilities increased, while stocks for firms in information technology, consumer discretionary, finance, and industrials decreased. Considering that war would increase the danger to Persian Gulf Oil production and distribution this makes sense. Moreover, the departures from an exact replication of the first stage has an economic rationale; the results reflect not only an addition threat to oil markets, but also threat to consumer confidence, the possibility of terrorist attacks, and some an economic stimulus in some sectors provided by U.S. military spending . These domestic consequences of military intervention are reflected in the especially sharp decline in airline and finance stocks as well as the rise in defense stocks.

According to ranked sum tests, U.S. intervention was associated with statistically significant higher abnormal returns for the sectors of Oil Drilling, Oil Equipment, Oil

Consumables, Utilities, Energy, Utilities, Defense, and Telecommunications. By contrast, abnormal returns were statistically significant and negative for Finance, Industrials, and Airlines.[21] That the effects were not significant in additional sectors, however, could be a result of the fact that the change in the probability of U.S. invasion during these events did not increase by a large magnitude. If the news had been more unexpected during the event windows described above, the effect sizes would have been larger. In addition, it is important to remember that the rank sum test is relatively conservative, especially with only seven event days.

[Insert Figure 1.5 and Figure 1.6 Here]

The Predicted Effect of U.S. Victory in Iraq

The final phase of the conflict began January 17th with the U.S. air war against Iraq. The news during the first two days of the conflict was unequivocally favorable for the chances of U.S. victory. The U.S. Air Force found relatively little resistance during its air campaign and Iraq was unable or unwilling to attempt a counterattack and threaten Saudi oil fields, a main concern among analysts prior to the start of the war. The news was not as rosy on January 21st, the third trading day after the start of the war. The Bush administration announced the war could still last for months and Iraq continued to launch scud missiles at Israel and Saudi Arabia. Nonetheless, on the whole, the news was quite favorable during this period. The second event with news favorable to U.S. victory was the end of the conflict. Although the U.S. ground campaign began on February 25th and the early stages of the ground war went well, the extent of its success did not become

[21] Additional analyses show that escalation also had a positive effect on Energy Equipment, Air Freight, Diversified Telecommunications, and Electrical Utilities, and a negative effect on Construction and Engineering, Construction and Farm Equipment, Software, Insurance, Food, Consumer Durables, and Commercial Services.

clear until February 28th, when Kuwait was liberated. The next day a peace treaty was negotiated which returned sovereignty to Kuwait.

Hypotheses 4a-4c state that a U.S. victory should be the reverse of the first stage, with the exception that defense stocks should be hurt by an easy victory. Using the same format as before, Figure 1.7 and Figure 1.8 offer evidence in support of Hypothesis 4a and 4b, but contrary to 4c. In general, the effect of U.S. victory was the inverse of the effect of the initial oil crisis. Energy sectors, especially oil sectors decline, while transportation related sectors and consumer discretionary sectors rose. The declines in the energy and oil sectors (except oil drilling) were, by the measure of ranked sum tests, statistically significant at the .05 level, as were the increases in the finance, airlines, automobile, consumer discretionary, defense, industrials, and materials sectors.[22]

[Insert Figure 1.7 and Figure 1.8 Here]

The most unexpected result during this phase of the conflict concerns aerospace and defense stocks, which increased significantly in value rather than declined. Though unexpected, the result is no less informative. News around the beginning of the crisis provides a sensible explanation. The New York Times ran several stories about the success of U.S. Patriot Missiles, made by Raytheon a company in S&P's aerospace and defense index, in intercepting Iraqi attacks on Israel and Saudi Arabia. Both the Israeli and Saudi governments were reported to have ordered addition supplies of the missiles. Thus, the success of the war served as a sort of advertisement for some U.S. military contractors. Though the war itself was not as expensive as expected, it may have increased worldwide demand for advanced weapons systems. I have seen no evidence

[22] Details of the statistical results are given in the appendix.

that members of the defense industry anticipated this outcome before the war started, though it is conceivable that they did.

Investigating Theoretical Mechanisms, an Instrumental Variables Approach

Although I believe that the results above offer evidence that economic theory is useful in making predictions about the effects of international crises on domestic economies, there may be some doubts about the mechanisms of that theory as well as the robustness of the event study methodology that I employed. In this section I provide additional evidence that a change in oil prices was the driving force behind the divergent expectations of the effect of the crisis.

If changes in oil prices are the mechanism driving the result, one might want to know if they changed enough to produce the observed results**.** Figure 1.9 plots the closing price of oil futures against time, with the beginning and end of the crisis marked off with red vertical lines. On July 18th, when Saddam issued his first public threat to Kuwait, oil futures stood $18 a barrel. The price peaked at $40 a barrel on October 9th and returned to within a dollar of it's pre-crisis level by the time of the cease-fire, March 1st. Not only did oil prices increase greatly during the crisis, but it was the largest spike in oil prices in a span of 6 years. In addition, the U.S. intervention successful reestablished the pre-crisis status quo.

[Insert Figure 1.9 Here]

Second, the theory in this paper is that increases in oil prices produce a pattern of relative winners and losers. This can be investigated directly through regression analysis. However, because change in domestic consumption can affect oil prices (Hamilton 2003), only an instrumental variables analysis would be appropriate. Fortunately, major

events in the Gulf meet the criteria for an instrument: they are both exogenous to domestic demand and have a significant effect on oil prices. This design has the added advantage of alleviating concerns about omitted variable bias. Though I was careful to select events with a minimal amount of other news, it is certainly possible that domestic events influenced the prices of sectoral indices. Omitted variable bias is still possible in an instrumental variables regression, but, in the analysis of financial data, it is declining in the number of observations in the analysis. The fact that changes in stock prices tend to be temporally uncorrelated means that the values of dependent variables are temporally independent. Thus, as long as events are truly exogenous, only chance, rather than serial correlation, will produce a correlation between an omitted variable, events, and changes in stock prices.

To implement an instrumental variables regression, I created an instrument by coding a dummy variable as "1" for 25 days during the crisis in which there was news implying a disruption of Gulf Oil production, and as "0" otherwise (149 days). Days coded as significant events (the 1's) include the first five events listed in Table 1.1, as well days such as January 21nd, 1991 when the Bush administration said that the war could last for months (see appendix Table 1.A4 for a complete list of dates and events) . That there were significant threats to oil production throughout the sample further alleviates concerns about autocorrelation driving the results. With these events I ran a series of two-stage least squares regressions with the daily abnormal returns of each sectoral index as the dependent variable, the events as the instrument, and daily percentage changes in oil prices as the endogenous variable (EV).

Table 1.3 and Table 1.4 show the results of the instrumental variables analysis. For the sake of parsimony, the results in the tables are restricted to the variables in hypotheses 2a-2c and a few additional sectors of interests. In general, the results support the conclusions drawn in the discussion of hypotheses 2a, 2b, and 2c. Increases in projected oil prices increased expected profits in energy related sectors and decreased them the greatest in consumer discretionary and transportation related sectors. The size of the coefficients suggest that a 10 percent increase in oil prices increased oil drilling stocks by an average of 3% above the broader market. By contrast a 10% increase in oil futures produced a 1.3% decline in airlines below the broader market.[23] Given that oil prices increased 100% during the crisis, the substantive significance of the Gulf Crisis to the American economy should be clear. In addition, the relationship between changes in oil futures and stock indices was in the predicted direction and statistically significant in *all sectors* is strong evidence in support of these hypotheses.

A final check on the validity of this approach can be made by comparing these result to studies of the effect of oil shocks on the real economy, as in Killian (2008), Davis and Haltiwanger (2001), and Lee and Ni (2002). Although all three authors do not divide firms into sectors in precisely the same way as the S&P 500 indices, the results are substantively similar. They find that oil shocks lower output and sales the most in consumer discretionary, automobile, airline, and travel industries, while oil and mining sectors tend to grow. The sole discordant finding here is the large negative returns in

[23] The parallel instrumental variables regression with the return to the market index as the dependent variable is also significant and suggests that a 10% increase in oil prices produced a 1.7% decline in the value of the market as a whole.

information technology in my analysis, which none of the other authors find. One major difference in a comparison of 14 sectors is best attributed to chance.

[Insert Table 1.3 and Table 1.4 Here]

G. Conclusion

The goals of this paper were to investigate three questions: how heterogeneous were the effects of the Persian Gulf War, which sectors were winners and losers in the crisis, and how did the winners and losers change across different phases of the crisis. I presented evidence that the war had significantly more heterogeneous effects than typical events, that the winners and losers could be predicted by economic theory, and that the configuration of winners and losers depended strongly on the phase of the conflict.

The results provide core building-blocks for political economy theories of war. They show that war can create winners and losers and offers insights into the identities of those groups. It is only with this information that one can convincingly demonstrate that economic interests influence individuals security policy preferences. The implications of these results for U.S. foreign policy, in particular, are potentially quite important. Indeed, as part of this research project, I am using the analysis above to investigate the Congressional vote to authorize the use of force against Iraq. That is, by linking the results of this paper to the characteristics of states and congressional districts, I assess whether or not economic interests had an influence on an important Congressional vote.

The generalizability of the results are, to be sure, limited in some ways. The degree of heterogeneity would surely not exist in all wars, but might be similar in most wars of this type, hegemonic wars where one of the combatants is fighting far from home, a non-trivial subset of international conflict since the end of World War II. Other

hegemonic wars, however, are unlikely to be exactly like the Persian Gulf War. Different wars in different eras will produce different sets of winners and losers. Additional insights will come from comparing the economic effect of this wars to others. Indeed, as part of my broader research agenda, I am conducting similar analyses of U.S. interventions in Yugoslavia, and British and Spanish participation in the 2003 Iraq war. Such comparisons should help generate better theories about how different types of economic activity--whether trade or natural resource dependence--affect war. Such fine-grained event studies of the economic costs and benefits of war are necessary to understand how economic considerations affect decisions about war and peace, since they provide a way to assess the effect of inaction relative to intervention. In almost all cases, yearly, aggregate data will not be sufficiently rich to provide such information.[24]

Finally, although an analysis like this cannot answer some questions about the causes of the Persian Gulf War, it can cast doubt on some explanations. In particular, these results suggest that if economic interests motivated the U.S. response to the crisis, the "military industrial complex"--those supposedly benefiting from the production of coercive force--had less to do with intervention than the industries most susceptible to a disruption in world oil markets, especially oil and other energy related industries. On the other hand, industries in which consumer demand and investment drives profits, such as airlines, consumer durables, finance, insurance, software, and construction could form a coalition of dovish interests.

[24] Even quarterly data, available for some advanced economies, will have limitations, though I am exploring the use of vector-autoregressive models on quarterly data to determine if the economic consequences of war affect *retrospective* evaluations of war.

Indeed the analysis above suggests that, from the perspective of the market, the "deadweight" costs of war were small relative to the negative economic consequences of Iraqi hegemony in the Persian Gulf. This is not evidence that the war was the right decision for the U.S.; instead, an economic rationale for intervention probably existed for a fairly broad coalition of economic interests. This is all the more true given Saddam Hussein's exaggerated belief in his ability to win, his unpredictable behavior, and his refusal to make concessions. In the bargaining theory of war, such information problems are seen to be part of a "rational" explanation for war. In order for war to be rational, however, one must believe that there is something to be gained from fighting. As I show in additional parts of this project, without that incentive, information problems are irrelevant. It follows that policies aimed at reducing U.S. dependence on foreign oil--a highly popular political slogan--may reduce U.S. public support for conflicts in the Middle East, and thereby, U.S. military presence in the region, but perhaps only to a moderate degree. However, such an inference requires that economic factors have a significant influence on public and elite support for conflict and that their support influences U.S. foreign policy. Both ideas are plausible, but additional research is necessary to demonstrate that they are valid.

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Table 1.1: Major Days in the Persian Gulf War

Date	Events
July 23, 1990	Iraq moves military forces toward Iraq-Kuwait border.
August 2, 1990	Iraq invades Kuwait and captures capital.
August 3, 1990	Iraq moves troops towards the Saudi Arabian border.
August 6, 1990	First trading day after president Bush said Iraqi aggression "Will not Stand" and indicated he would deploy forces to the region. In addition, a European embargo of Iraqi oil was announced August 5th.
August 21, 1990	Bush Administration calls for an unconditional pullout of Iraq forces from Kuwait. Indicates willingness to use force to achieve this goal.
October 3, 1990	Contrary to expectations, on a highly publicized visit to Kuwait, Saddam Hussein reaffirms a defiant stance, refusing to leave.
October 5, 1990	President Bush says that conflict with Iraq carries acceptable risks and that it could win quickly. Excerpts of speech leak that Iraq will not offer any concessions at the next U.N. meeting.
January 7th, 1991	Sources report that the Bush Administration has enough Senate votes to support authorization of the use of force. Flights to middle east canceled.
January 17, 1991	First day of war with Iraq. U.S. air campaign meet little resistance, and Saudi oil fields not threatened.
February 28, 1991	U.S. ground war ends earlier than expected.

Source: New York Times and Washington Post

Table 1.2: Key Event Windows by Conflict Phase

Phase	Date	Events
Phase 1: Oil Threat	July 20th-24th	Iraq mobilizes troops
	July 31st-August 2nd	Talks between Iraq and Kuwait fall apart. Iraq invades Kuwait.
Phase 2: U.S. Decision to Intervene	August 21st-August 22nd	President Bush rejects offer of partial Iraqi pullout from Kuwait. Says war would be an acceptable risk. Hussein predicts war.
	September 13th-14th	Great Britain announces deployment of troops to Gulf Region, Arms deal with Saudi Arabia announced, Bush tapes message of U.S. resolve for the Iraqi public
	October 7-9th	Israel hands out gas masks to public. British ships shoot across bow of Iraqi freighter. Hussein renews threat to attack Israel.
Phase 3: U.S. Victory	January 17th-21st.	Start of Operation Dessert Storm. Iraq is unable to mount a significant air defense or counter attack.
	February 28th-March 4th	Cease fire signed. War ends.

Table 1.3: Instrumental Variables Regression: Effect of Crisis on Top-Level Sectors

Two-Stage Least Squares Coefficients

Dependent Variable: Daily Abnormal Returns	Information Technology	Consumer Discretionary	Finance	Industrials	Utilities	Telecom	Energy
Instrument: Gulf War Events							
EV: Change in Oil Futures	-0.0473**	-0.0651***	-0.038	-0.0522***	0.0305**	0.0254	0.153***
SE	(-0.022)	(-0.014)	(-0.026)	(-0.013)	(-0.015)	(-0.023)	(-0.029)
Observations	169	169	169	169	169	169	169

*** p<0.01, ** p<0.05, * p<0.1

Robust Standard errors in parentheses

Table 1.4: Instrumental Variables Regression: Effect of Crisis on 35 Sub-Sectors

Two-Stage Least Squares Coefficients

Dependent Variable: Daily Abnormal Returns	Hotels & Restaurants	Airlines	Autos	Gas Utilities	Oil Cons.	Oil Equipment	Oil Drilling
Instrument: Gulf War Events							
EV: % Change in Oil Futures	-.0861**	-.136***	-.0920***	0.0832***	0.147***	0.208***	0.300***
SE	(0.0334)	(0.039)	(0.0343)	(0.0242)	(0.0284)	(0.0528)	(0.0709)
Observations	169	169	169	169	169	169	169

*** p<0.01, ** p<0.05, * p<0.1

Robust Standard errors in parentheses

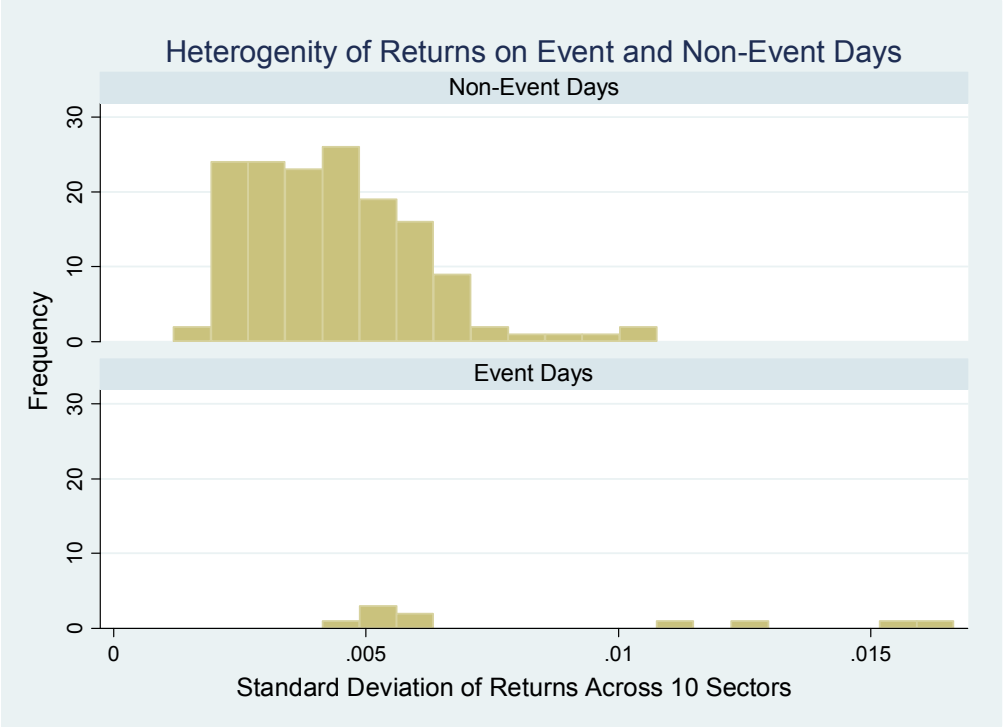

Figure 1.1: Heterogeneity of Returns on Event and Non-Event Days, Top-Level Sectors

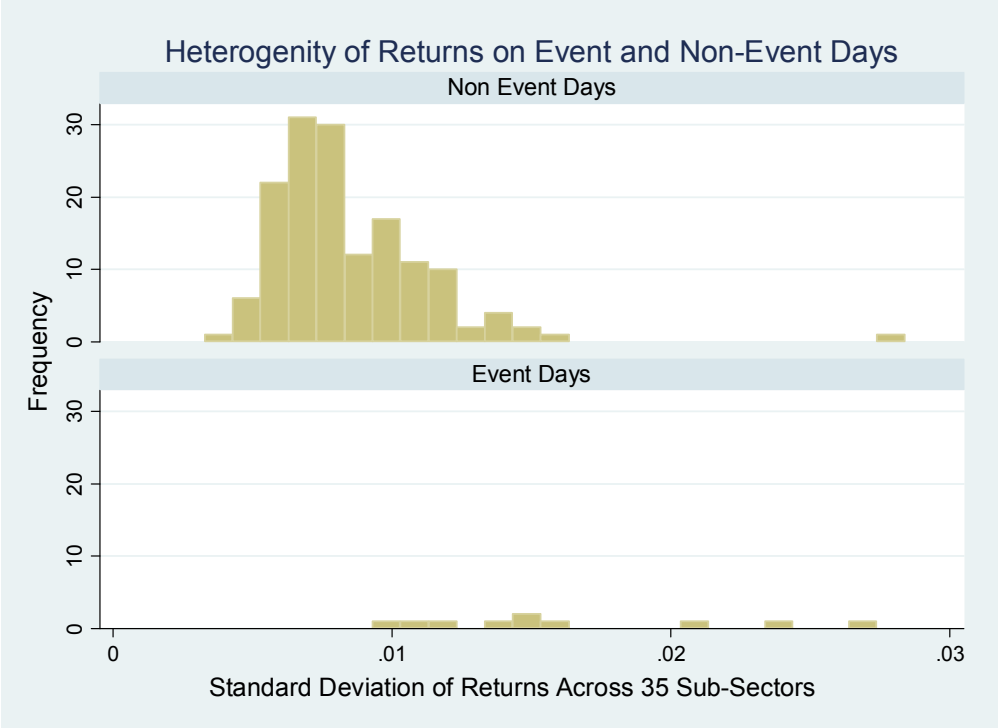

Figure 1.2: Heterogeneity of Returns on Event and Non-Event Days, Sub-Sectors Sectors

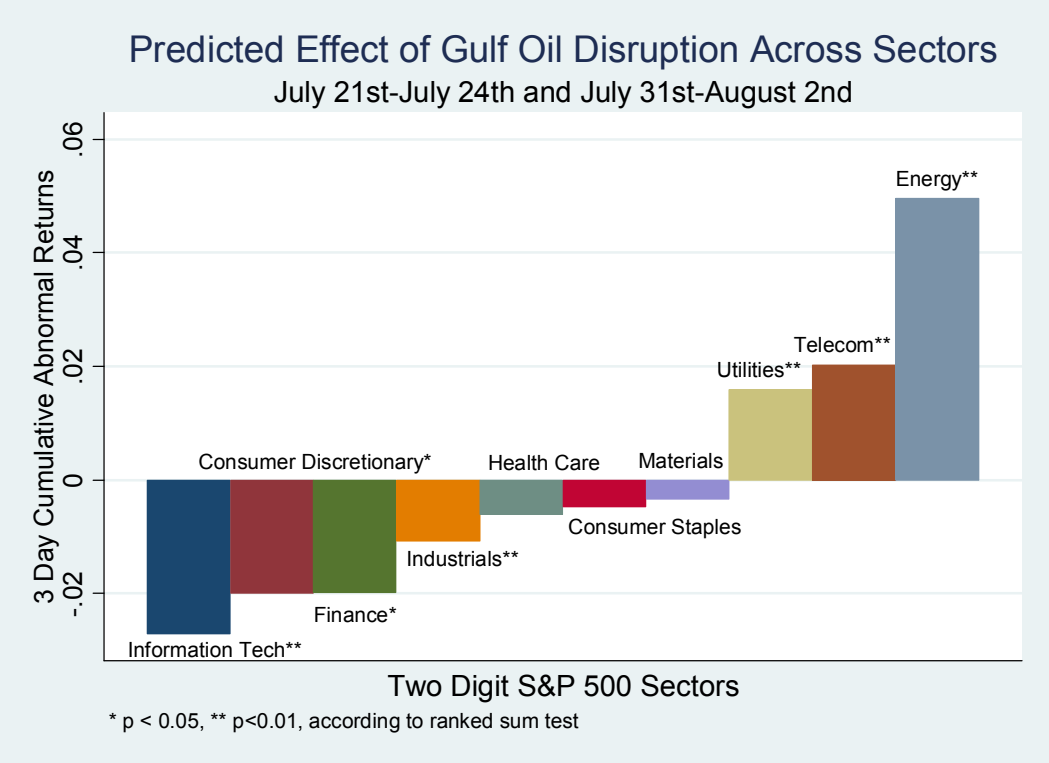

Figure 1.3: Predicted Effect of Gulf Oil Disruption Across Top-Level Sectors

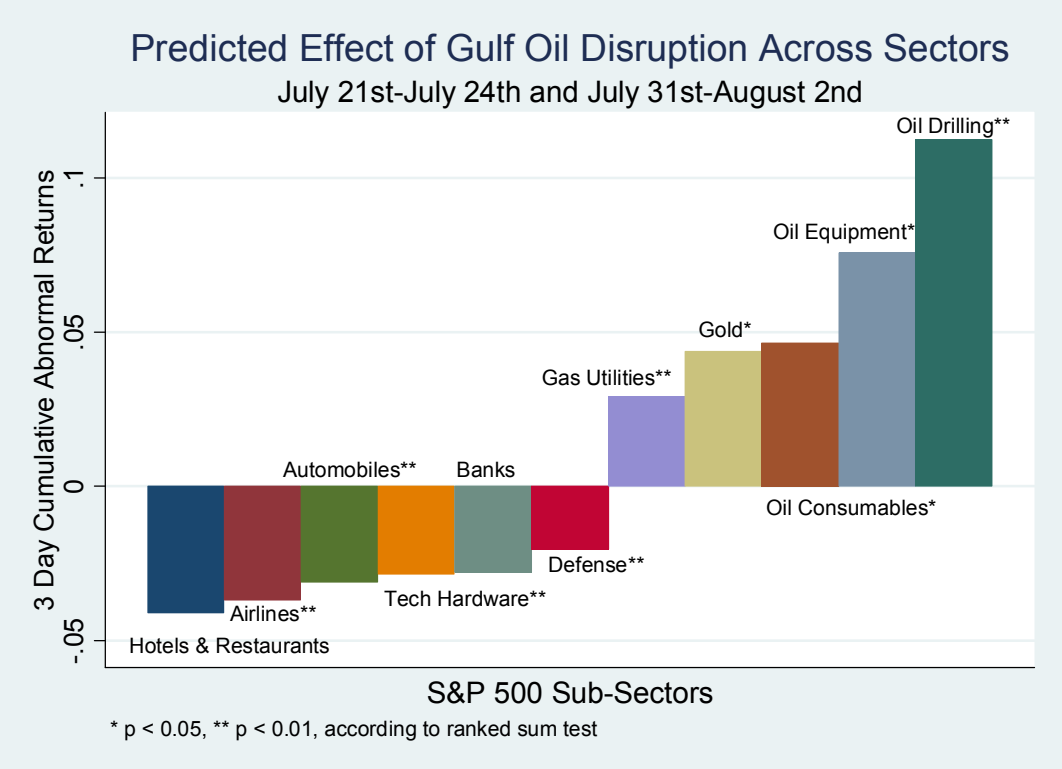

Figure 1.4: Predicted Effect of Gulf Oil Disruption Across Sub-Sectors Sectors

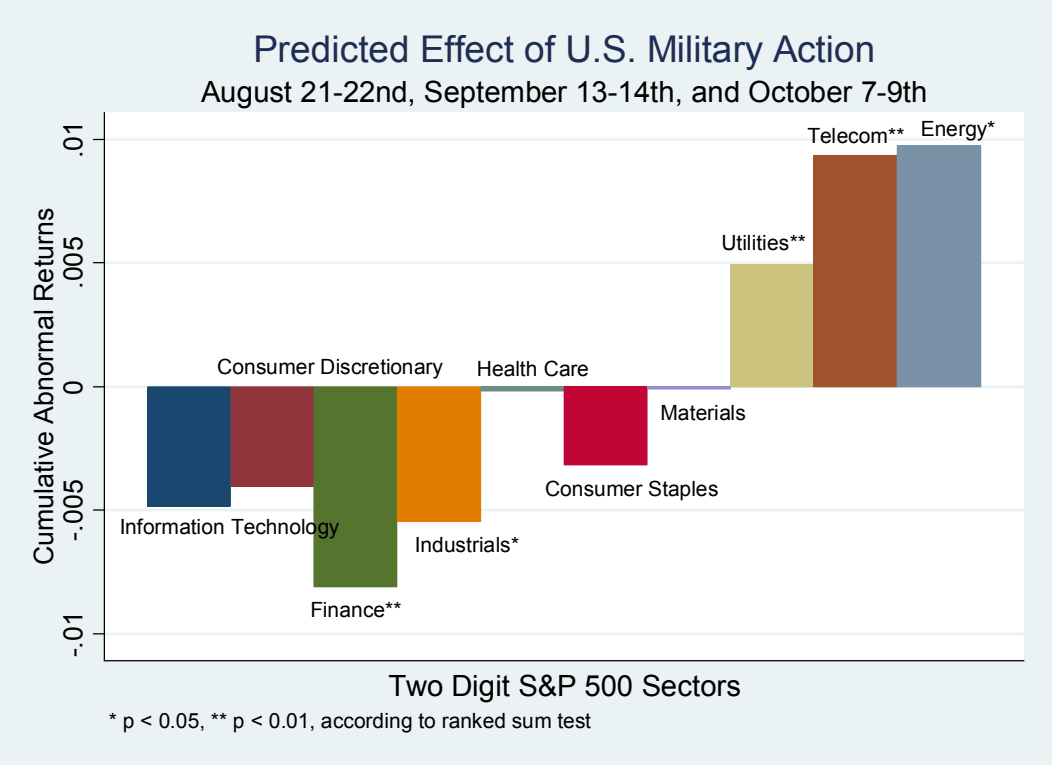

Figure 1.5: Predicted Effect of U.S. Military Action Across Top-Level Sectors

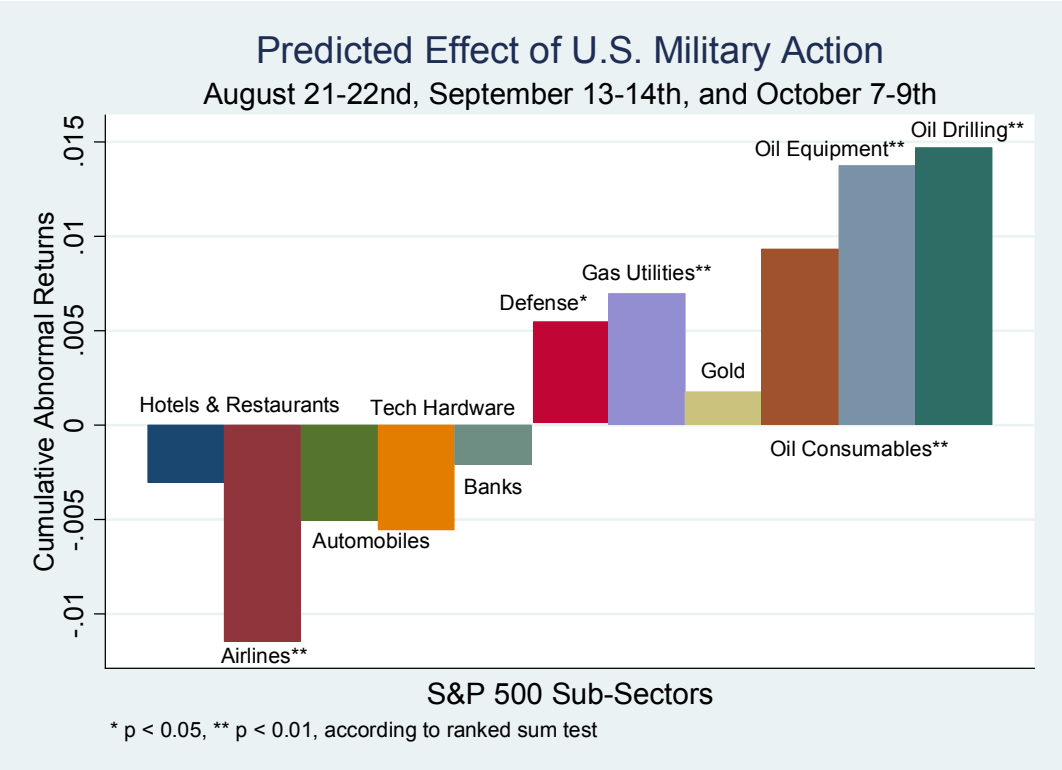

Figure 1.6: Predicted Effect of U.S. Military Action Across Sub-Sectors Sectors

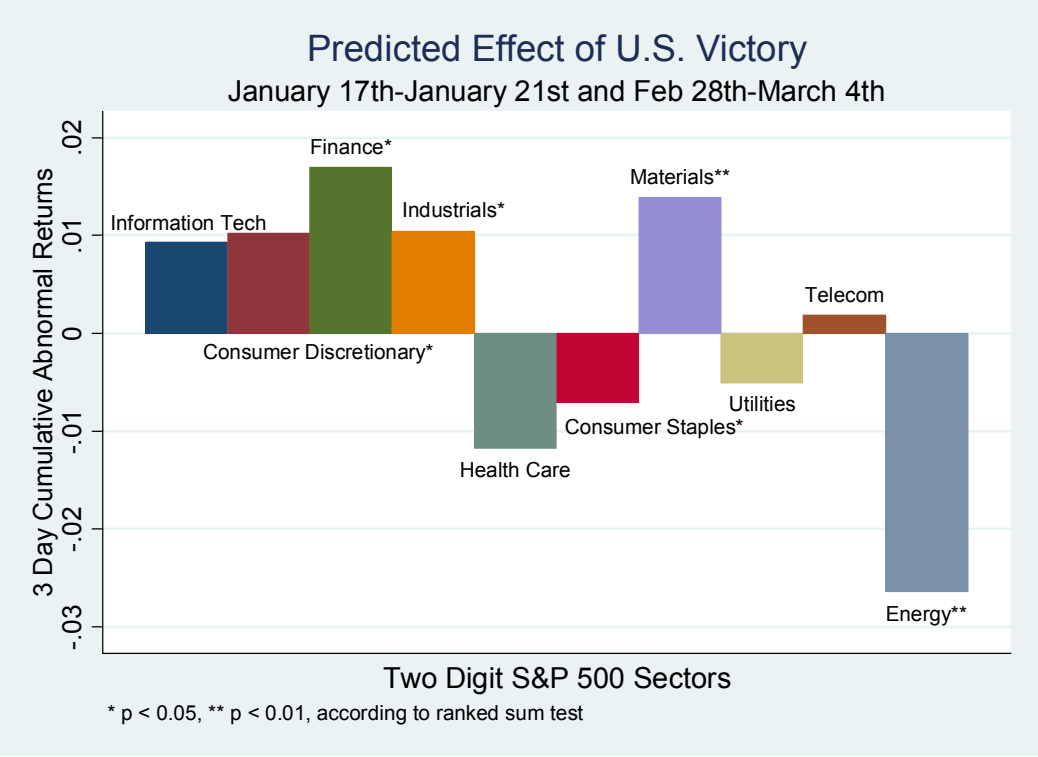

Figure 1.7: Predicted Effect of U.S. Military Victory Across Top-Level Sectors

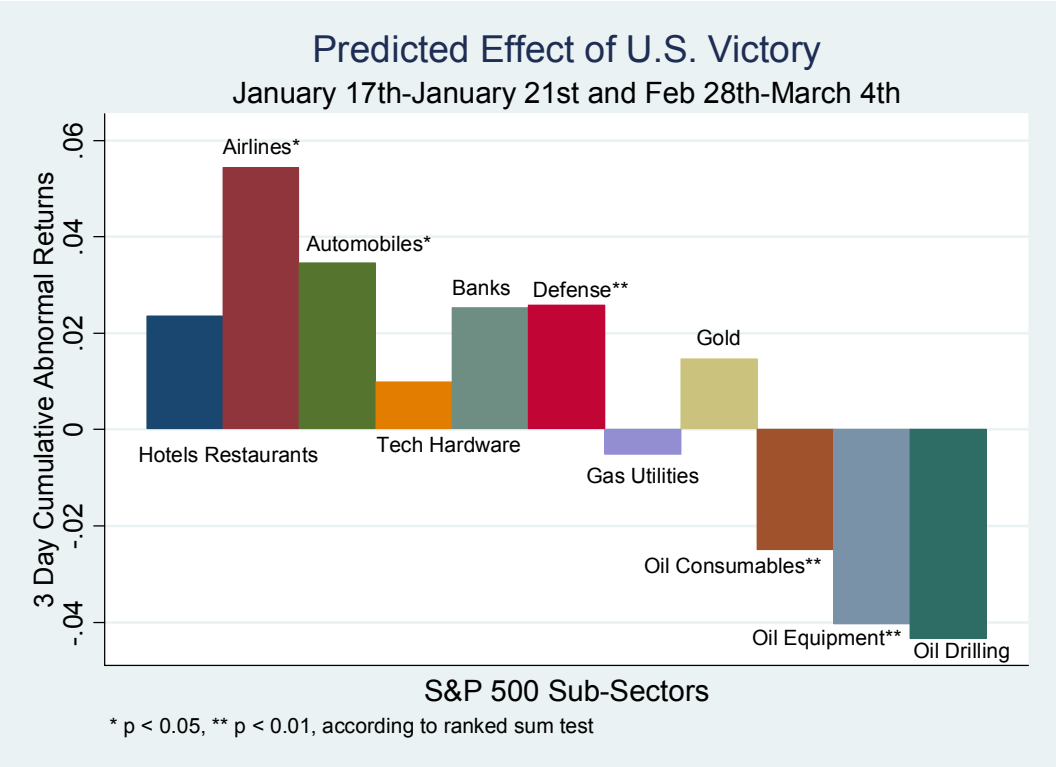

Figure 1.8: Predicted Effect of U.S. Military Victory Across Sub-Sectors Sectors

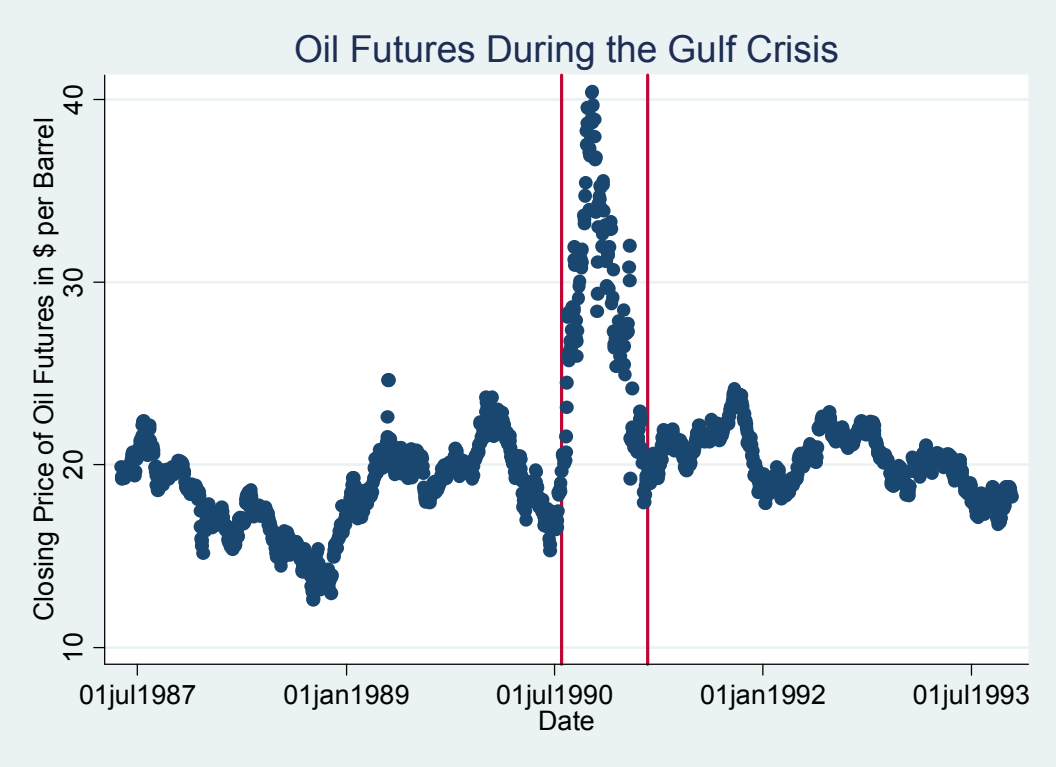

Figure 1.9: Oil Futures During the Gulf Crisis

Appendix

Table1.A1. S&P Sectoral Indices

Two-Digit "Top Level" Sectors
Consumer Discretionary
Consumer Staples
Energy
Finance
Health Care
Industrials
Information Technology
Materials
Telecommunication Services
Utilities
3 and 4 Digit Sub-Sectors
Aerospace and Defense
Air Freight and Couriers
Airlines
Automobiles and Components
Banks

Table 1.A1. S&P Sectoral Indices (continued)

Building Products
Chemicals Composite
Commercial Services and Supplies
Construction and Engineering
Consumer Durables and Apparel
Containers and Packaging
Diversified Financials
Diversified Telecom Services
Electric Utilities
Electrical Equipment
Energy Equipment & Services
Food and Staples Retailing
Food Beverage and Tobacco
Gas Utilities
Gold
Health Care Equipment and Services
Hotels Restaurants and Leisure
Household and Personal Products
Insurance Composite
Media
Metals and Mining
Oil and Gas Drilling
Oil and Gas Equipment
Oil Gas & Consumable Fuels
Pharmaceuticals and Biotechnology
Retailing
Road and Rail
Software and Services
Technology Hardware and Equipment
Trucking

Table 1.A2. Rank Test of Equality of Variance Across Top Level Sectors

Two-sample Wilcoxon rank-sum (Mann-Whitney) test

	obs	**rank sum**	**expected**
Non-Events Days	150	11556	12075
Event Days	10	1324	805
Combined	160	12880	12880

unadjusted variance 20125.00
adjustment for ties 0.00
adjusted variance 20125.00

Ho: SD return(Non Event Days) = SD return(Event Days)
Z = **-3.658**
Prob > |z| = **0.0003**

Table 1.A3. Rank Test of Equality of Variance Across 35 Sub Sectors

Two-sample Wilcoxon rank-sum (Mann-Whitney) test

	obs	rank sum	expected
Non-Event Days	150	11418	12075
Event Days	10	1462	805
Combined	160	12880	12880

unadjusted variance 20125.00
adjustment for ties 0.00
adjusted variance 20125.00

Ho: SD return(Non Event Days) = SD return(Event Days)
z = **-4.631**
Prob > |z| = **0.0000**

Table 1.A4. Positive Oil Shock Event-Days Used in Instrumental Variables Regression

Date	Event
July 20, 1990	Saddam Hussein becomes president for life of Iraq, signaling expanded war powers.
July 23, 1990	Iraq moves military forces toward Iraq-Kuwait border.
July 31 1990	A European embargo of Iraqi oil was announced August 5th.
August 1, 1990	Talks between Kuwait and Iraq collapse; Iraq walks out of conference.
August 2, 1990	Iraq invades Kuwait and captures capital.
August 3, 1990	Iraq moves troops towards the Saudi Arabian border.
August 6, 1990	Boycott of Iraqi/Kuwaiti oil announced by U.N.
August 16, 1990	Hussein warns of additional death and destruction and rejects calls for a withdrawal from Kuwait.
August 17, 1990	Secretary of Defense Dick Cheney predicts U.S. stay in Saudi Arabia will be long
August 28, 1990	Iraq declares Kuwait to be a province of Iraq. Saddam vows to keep Kuwait indefinitely.
September 4, 1990	U.N. Secretary General says talks with Iraq have failed
September 10, 1990	Soviet Union agrees to tighten embargo on Iraqi oil
September 17, 1990	France announces it is sending troops to the Middle East
September 20, 1990	Iraq announces seizing of foreign assets

Table 1.A4. Positive Oil Shock Event-Days Used in Instrumental Variables Regression (continued)

September 24, 1990	Hussein threatened to destroy the oil fields of the Middle East and draw Israel into a war if Iraq finds itself "strangled" by U.N. sanctions.
October 3, 1990	Contrary to expectations, on a highly publicized visit to Kuwait, Saddam Hussein reaffirms a defiant stance, refusing to leave.
October 5, 1990	Excerpts of speech leak that Iraq will not offer any concessions at the next U.N. meeting.
October 9, 1990	Iraqi President renews threat to attack Israel. Claims power to attack Israel with medium-range missiles.
October 11, 1990	British foreign secretary issues support for attack on Iraq
November 7, 1990	Saddam warned time is running out and China reported to support attack on Iraq if sanctions fail.
November 23, 1990	Bush declares he is tired of status quo and is close to having support for a U.N. resolution authorizing the use of force.
January 7, 1991	Congressional support predicted for war authorization. Flights to Israel suspended.
January 14, 1991	Iraqi parliament votes to defy U.S. at the deadline for Iraq to withdraw from Kuwait. Analysts describe chance of war as certain.
January 21, 1991	Administration says war could last for months.
January 22, 1991	Kuwaiti oil installations ignited by Iraq

Sources: New York Times and Washington Post

CHAPTER 2

ECONOMIC INTERESTS IN THE CONGRESSIONAL AUTHORIZATION OF THE PERSIAN GULF WAR

A. Introduction

It is widely believed that private economic interests shape the politics of foreign economic policy as well as some elements of national security policy, including military spending, foreign aid, and alliances. Research has shown, in particular, that the economic consequences of these policies influence the opinions of mass and business constituents and, as a result of electoral incentives, these views are reflected in the behavior of political representatives in the United States and elsewhere.

Do the economic interests of constituents—either diffuse or organized—also influence the decisions of major political actors concerning the most profound security policy choice of all, war? In this paper, I present evidence that they have; I show that both Senate and House congressional votes for and against the authorization of the use of force against Iraq in 1991 was linked to who was expected to win and lose in the domestic economy *if war occurred*. In order to identify the expected winners and losers of a U.S. initiated war, I exploit the results of an event study (Chapter 1), using financial market data to measure the effect of war across 45 different sectors. My results show that expectations about the economic consequence of war influenced congressional behavior through the contributions of political action committees, rather than the interests of the general public, suggesting an elite bias in the politics of war.

The 1991 war authorization vote is a valuable starting point for investigating the broader issue of economic interests in war for a number of reasons. One, it was the first vote that gave Congressional approval of a major American war since the passage of the War Powers Resolution of 1973. And, although George H.W. Bush claimed that he would take military action with or without congressional authorization, failure to garner

congressional support was a risk that he sought to avoid. Second, the vote is a rare case of a majority roll in the U.S. Congress (Cox and McCubbins 2004). That is, the Democrats held majorities in both the House and the Senate and their leadership opposed the bill, but in both cases they lost the vote. Thus, neither collective interests nor party-discipline alone can explain congressional behavior.[25] Third, economic considerations were plainly at the forefront of the Persian Gulf Crisis from the beginning, with Iraq disputing its debt with Kuwait from the Iran-Iraq War and Kuwait's oil-drilling on the Iran-Iraq border. Popular opposition to war in the U.S. made much of these reports, with rallies protesting the prospects of spilling American "Blood for Oil" (e.g. Apple 1990).

On the other hand, as the crisis evolved president Bush increasingly emphasized non-economic motives for military action, such as international precedent and the moral imperative of responding to aggression. In addition, congressional Democrats had a strategic incentive to support the president even if they opposed the war, since authorizing war could give the president a freer hand in negotiations with Iraq, which could conceivably result in a negotiated settlement. Although these strategic considerations partially obscure the role of constituent interests in congressional behavior, the narrow passage of authorization suggests that constituent interests may have had some influence.

Hence, the behavior of members of congress is worth examining more closely. Why did some representatives support the authorization of the use of force, while others

[25] Press reports suggest that Democratic leaders in the House and Senate decided not to try to sway votes in their favor, preferring to allow each member to "vote their conscience."

opposed it?[26] Why would Democrats so publicly seek to constrain the president in a crisis when it would seem to benefit the nation's economy and security to give the president a signal of national resolve with a unanimous vote? Surely ideology and party discipline can explain some of the votes, but if this were all that mattered, the president should have lost. In addition, such an explanation leaves unanswered the question of the origin of the foreign policy ideology of the Republican and Democratic parties, in general, and their pro and anti-war positions in this dispute, in particular.

To help explain congressional behavior, I turn to the political economy tradition and connect congressional votes to the distributional economic consequences of war with Iraq. In particular, building on previous research (Seljan 2009), I identify the economic winners and losers of military action using an event study methodology and then link these winners and losers to members of Congress in two ways: one, with the economic attributes of constituents as a whole, using sectoral employment data and, two, with the sectoral composition of campaign contributions from Political Action Committees (PACs). In both the House and the Senate, I find that contributions from "losing" industries predicts votes denying authorization, while larger campaign contributions from "winning" industries predicts vote authorizing the use of force. This finding holds

[26]Given that this question is inherently interesting, the lack of scholarly research aimed at addressing it is puzzling. One possible reason that it has not received more attention is that the notion that domestic economic interests influence the decision to go to war is sometimes conflated with the idea that wars are fought at the behest of multinational corporations or war profiteers—an idea tainted by its association with conspiracy theories and Marxism. Influence, however, does not equal control or complete capture. And, economic interests can also contribute to the avoidance of war if commercial interests promote pacific behavior, as is implied in some versions of the "liberal peace". A second possible reason is that measuring the economic incentives of war is a serious challenge. The effect of war is unknown *ex ante*. Thus, expectations about its effects should drive behavior and measuring expectations is difficult. As discussed below, I measure the *mean* expectation through stock market data.

whether or not I control for partisanship and ideology, using a variety of single-equation multivariate probit models and instrumental variables analysis.

I find more tepid support for a link between the employment of constituents and votes in either the Senate or House. Though representatives with a greater percentage of workers in losing (winning) sectors did tend to oppose (support) war, the relationship was relatively weak and lost significance when controlling for additional variables. Inspection of the data, however, suggests the weakness of the finding was partially a consequence of the small range of variation in the employment shares of "winners" and "losers" across congressional districts and states. In addition, another constituency-level economic variable, the district-wide unemployment rate was a moderately robust predictor of opposition, suggesting that a guns-vs-butter tradeoff was politically salient. In addition, while district-level employment was weakly related to congressional votes on war, when used as an instrument for campaign contributions, the instrumented contributions were robust predictors of votes, which implies that constituency interests can matter, but only when organized and expressed through political organizations.

These results contribute to our understanding of international relations in a variety of ways. Most importantly, they provide additional foundations for political economy theories of war and peace. For example, in some arguments that economic interdependence reduces conflict it is not clear who cares about the economic implications of conflict (e.g. Rosecrance 1986 and Russet and O'Neal 2001); the mechanism tying economic outcomes to politics is underspecified. Similarly, scholars are increasingly arguing that it is not only the amount of economic interaction but the type of economic activity that influences conflict behavior (Freiden 1994, Gartzke 2007,

McDonald 2009). Connecting the economic effects of conflict for constituents to political behavior fills in these stories and also has the potential for generating new insights into the relationship between economic characteristics, institutions, and conflict behavior.

More generally, these findings provide insight into the role of domestic interests in war and peace, a subject which successive developments in International Relations theory (IR) had deemphasized. First, structural realism focused on the interests of the state as a unitary actor, and second, game-theoretic approaches, particularly the bargaining theory of war, have concentrated on strategic factors, including changes in the distribution of power and asymmetric information with incentives to misrepresent. Both developments were extremely useful for addressing several puzzling features of international relations. The assumptions and structure of these theoretical traditions, however, render them less useful in addressing other important questions. For instance, they provide little insight into how a reduction in the dependence on foreign oil would affect U.S. foreign policy or how would U.S. foreign policy differ if the U.S. Congress was more influential in matters of war and peace. By contrast, the results in this paper suggest that "alternative energy" policies would have a moderate influence on U.S. policy in the Middle East and that greater Congressional influence would, at most, only matter if constituencies become more economically heterogeneous.

On the other hand, the weak relationship between district-level employment patterns and Congressional behavior that I identify complicates the argument that economic interest influence state behavior in war. Most basically, it suggests that additional work needs to be done to understand the mapping of constituent characteristics to political preferences over security policy. One possibility is that the intermittent nature

of security crises and enduring power of the incumbency advantage blunts the ability of diffuse interests to influence security policy. While politically influential organizations may typically grow from economic interests when policy issues are enduring, as in trade, regulation policy, or even the Cold War (Fordham 1998, Trubowitz 1998), organizations may not grow quickly enough or be prepared to work with one another to influence security policy in the midst of a new crisis. Alternatively, the results could point to the need to take seriously other sources of security policy preferences and conflict behavior. Factors to consider include a taste for retribution, social identities, social preferences, and ideology, among both the public and elites.

The paper is organized as follows. In Section B, I provide a brief summary of the war authorization vote and the state of the Persian Gulf Crisis up to that vote. Section C contains a literature review and my argument. Section D describes the data and empirical methodology. In Section E, I present and discuss my results. The final section concludes with a discussion of the implications and avenues for future research.

B. Background on the War Authorization Vote and the Persian Gulf Crisis

In hindsight, U.S. intervention in the Persian Gulf Crisis appears inevitable. America's stakes in the region were high; the end of the Cold War provided the U.S. with additional freedom to act; and the U.S. military effort was short, inexpensive, and relatively successful. It would seem that the only plausible scenario in which war could have been avoided was if Hussein had conceded to U.S. demands. Thus, it is easy to forget that the decision to use military force to expel Saddam Hussein from Kuwait was a politically contentious decision—in many ways more controversial *ex ante* than the 2003

Iraq war, especially within the Untied States. In large measure the divisiveness of the decision can be tied to the fact that military action would result in the first major war involving U.S. soldiers since the Vietnam War. Indeed, opponents of the war evoked Vietnam in their arguments against war, warning of quagmires and economic catastrophe (Wright 1990, Apple 1991, Clymer 1991).

Perhaps nowhere were the ghosts of Vietnam more present than in debates in the U.S. House and Senate preceding votes to formally grant the president the authority to use force. The very nature of the authorization, of course, was a direct result of the Vietnam War. The War Powers Resolution of 1973 was passed in reaction to how U.S. involvement in Vietnam unfolded. War was never formally declared; instead, presidents Johnson and Nixon extended the authority afforded by the Gulf of Tonkin Resolution indefinitely. The War Powers Resolution was intended to return to the Congress a measure of influence over matters of war and peace.

Nonetheless, some may question whether or not congressional war authorization was of any consequence. Those that are dubious can point to the fact that President Bush threatened to use force with or without congressional approval. In addition, they can cite the numerous scholars of American politics that have asserted that the U.S. president is supreme in matters of war and peace (e.g. Dahl 1950, Peterson 1994, Lindsay 1999, Gowa 1999, Fischer 2000, Irons 2005). To dismiss the vote as meaningless, however, one must ignore several relevant facts. One, President Bush clearly saw the vote as being important enough to expend political capital to receive congressional support. Two, recent scholarship (especially Schultz 1998, Howell and Pevehouse 2005, Baum and Groeling 2009) has demonstrated the ways in which legislatures can influence security

policy. This research suggests that, if nothing else, such approval would galvanize public support for the war, strengthen the morale of U.S. military forces, and signal U.S. resolve. Three, the vote should be considered politically consequential because representatives acted as if it had electoral consequences. Indeed, the Persian Gulf Crisis was an important issue in congressional elections in 1990 (Gugliotta 1990, Oreskes 1990a, 1990b, Apple 1990) and indirectly in elections in 1992 (Ornstein 1992).

Ultimately, President Bush narrowly obtained Congressional authorization, but only by making appeals that cut across party lines. Though relatively few Republicans broke with the President, the generally "dovish" Democrats were unable to prevent approval despite having sizable majorities in both houses. House Joint Resolution Seventy-Seven (H.J.R. 77) passed 250 to 183, with 86 of 265 Democrats breaking rank. Senate Joint Resolution Two (S.J.R. 2) was a much closer vote, passing 52 to 47 in the Senate, thanks to the support of 10 of the 55 Democratic Senators.

State of the Persian Gulf Crisis, January 1991

Before analyzing congressional votes in detail, it is important to consider the state of the conflict at the time. With votes caste on January 12th, 1991 just three days ahead of the UN's ultimatum to Iraq and with U.S. and its allies already deployed on the Kuwaiti border, passage of H.J.R. 77 and S.J.R. 2 meant supporting a U.S. led mission to expel the Iraqi Army from Kuwait. The alternative was to employ economic sanctions against Iraq, hoping that they would eventually lead him to concede on the issue. Indeed, just prior to the passage of H.J.R. 77, members rejected House Concurrent Resolution Thirty-

Three (H.C.R. 33), which would have expressed congressional support for using economic sanctions, rather than military force, to compel Hussein to leave Kuwait.

The divisiveness of expelling Iraq from Kuwait stands in sharp contrast to the broad consensus supporting the deployment of troops to Saudi Arabia. There was, it appears, little question that the United States would be better off if Iraq did not push forward from Kuwait into Saudi Arabia. This would have given Iraq control of about 43 percent of the world's oil reserves, additional leverage in world oil markets, as well as the resources to greatly strengthen his military might.[27] Not surprisingly, votes supporting the decision to deploy troops to Saudi Arabia and fund U.S. military operations in the Persian Gulf in late September of 1990 was supported by the majority of Democrats. Broad-based support for the deployment to Saudi Arabia, but tepid support for war was also describes public opinion at the time. In September of 1990, 81% supported U.S. presence in the Gulf, but only 48% of the American Public supported war, a smaller percentage than supported a potential war with Iraq in 2002. In addition, 75 percent said the United States should not attack Iraq "unless Iraq attacks American forces first" (Gugliotta 1990).

There are three main reasons for the difference in the contentiousness of these two issues. One, the benefits of expelling Saddam from Kuwait were moderate in size. Kuwait's oil reserves, while relatively large, only amounted to 11 percent of world reserves. It was clear the long-term possession of Kuwaiti oil fields would increase Iraq's political and economic leverage in the region, but how far? Iraq would still need to sell oil to pay down its war debt. Saudi Arabia would still retain the ability to offset Iraqi

[27] Proven oil reserves figures from Humphreys 2005.

influence. Indeed, by January of 1991 oil prices had declined 85% off their Persian Gulf Crisis high, a high which was reached on October 9th, 1990.

Two, the total costs of conflict were expected to be larger than they turned out to be. While there was broad international support for a U.S. led military action, Americans had good reason to be nervous about the long term costs of war. They had the experience of Vietnam, which suggested that even wars against lesser powers could be lengthy and have disastrous economic consequences. In addition, relative to Vietnam, Iraq had a very formidable army, the seventh largest in the world at the time, and one hardened by 10 years of fighting in the Iran-Iraq War. In 1991, no one could be certain that the war would be quick and easy. Even supposing that Congressional representatives had knowledge that the U.S. military plan (left hook) was very likely to succeed, they could justifiably fear that fighting would eventually bog down in urban warfare. And, as the Korean War showed, even successful military operations can lead to additional problems. In the Persian Gulf Crisis, the possibility of gravest concern—and the one Saddam ultimately tried to exploit—was that Israel would be dragged into the conflict and, as a result, some Arab states would then support Iraq by pulling out of the U.S. led coalition or indirectly assisting Iraq.

Three, no one knew how effective economic sanctions would be. Would Hussein ultimately back-down in the face of overwhelming international pressure? Could sanctions induce Iraq to strike a deal that would end its occupation of Kuwait in exchange for a plan to reduce its debt, the original motivation for its actions? Given Hussein's subsequent recalcitrance in the face of sanctions, it may appear obvious that sanctions

would fail. At the time, however, it was reasonable to think they could be effective or, at least, an acceptable form of punishment for bad behavior.

As a result of this ambiguity, Democratic candidates generally avoided taking a strong position on the war during the 1990 congressional campaigns, but emphasized the precarious state of the economy (Apple 1990). In addition, president Clinton made an indirect reference to the economic value of U.S. intervention with his famous campaign slogan, "It's the economy, stupid." The implication was that the emphasis that Bush wanted to place on his foreign policy achievements, in general, and victory in Iraq, in particular, was misleading. Winning the war was good, but ultimately the economy-wide economic benefits of doing so were questionable.

Although the historical setting of the conflict makes congressional opposition conceivable, it also raises additional questions. If war was costly, why would congressional Democrats so publicly seek to constrain the president when unanimous support might signal U.S. resolve and, thereby, convince Saddam Hussein that resistance would lead to war, a war the U.S. was committed to winning? This question was raised repeatedly by Republicans during war authorization debates and is also implied by the theoretical literature on crisis-bargaining and signaling (Schultz 1998). It is also a critical question since it raises the possibility that a vote for war authorization would actually *increase* the chance of winning a negotiated settlement. Conversely, if there were real questions about the costs and benefits of war with Iraq, why would only Democrats be influenced by them? I address both questions in greater detail below.

C. Literature Review and Argument

In this section I review answers to these questions offered by the literature and then offer my argument. Scholars have extensively studied congressional roll-call votes and this literature provides some partial answers for this vote. In particular, congressional scholars point to party, ideology, and constituents attributes as the major determinants of support for and opposition to legislation. While these categories offer useful guidance in understanding war authorization votes, attention to the particular characteristics of international conflict is also necessary. Thus, I consider both in explaining why the Democratic and Republican parties would take the positions that they did. In addition, I explain how and why expectations about the distributional consequences of conflict may have prompted some members of Congress to break from their parties. Throughout, I make the standard assumption that legislator behavior derives, at least in part, from the desire to remain in office.

Arguments derived from the literature on congressional behavior

Most members of the U.S. congress vote with their party leadership, most of the time. Scholars have identified three major reasons that this is so. One, members of the same party tend to have similar preferences over policy (Krehbiel 1992). Democrats, for instance, tend to favor more social welfare spending than Republicans, as this is part of what each partisan label has come to mean. Since I am interested in understanding the origins of policy preferences, this is not a particularly helpful fact. Two, party leadership can influence votes by rewarding loyalty with support on other bills, leadership positions within the party, and campaign resources (Cox and McCubbins 1993). Three, success of

individual members is partially tied to the success of the party as a whole (Bartels 2000, Campbell and Sumners 1990).

It is easy to see why these general patterns are applicable to the war authorization vote for Republicans. President Bush put his credibility on the line in resisting Saddam Hussein. Soon after the invasion of Kuwait, he famously stated, "this will not stand, this aggression from Iraq." He continued to use the line in presidential addresses and interviews throughout the pre-war standoff. At the same time, using force abroad without Congressional authorization could be dangerous, since Congressional support tends to increase public support and public support is thought to be helpful in sustaining a successful war effort. Again, the legacy of the Vietnam probably made the president uneasy about fighting a war without broad-based support. Thus, either backing down from Hussein or losing the war vote would likely have damaged Bush's re-election fortunes. Since a loss in the presidential election often hurts the prospects of his co-partisans in Congress, supporting the President had an obvious payoff for Congressional Republicans. One may wonder if presidential coattails were large enough to explain why only three Republicans in the House and two in the Senate opposed the president, but it provides a partial explanation and I include partisanship in the empirical investigation below.

The relevance of partisan incentives is less helpful in explaining the behavior of Congressional Democrats. That members tend to vote with their party does not imply they vote differently than their opponents. In general, there are many votes where majorities from both parties support or oppose a bill. More to the point, on other votes during the Persian Gulf Crisis, Democrats did support the President, voting virtually

unanimously to fund the war effort, support U.S. troops, and condemn Iraqi Aggression against Kuwait and Israel. To argue that Democratic opposition was cynically motivated by the desire to see the President fail, as some have (Slantchev 2006), ignores many cases of bi-partisan support during this conflict and others as well as the potential danger to the Democrats of criticizing the president in wartime. War is such a highly salient issue for voters and voters are inclined to respect the opinion of the president, at least in the short-term (Mueller 1973). Thus, opposition risks being seen has un-patriotic. In addition, a sizable portion of Democrats, especially in the House of Representatives, defected from the wishes of their party, a fact that simple partisan incentives alone cannot address by definition.[28] Thus, I seek to explain both why the majority of Democrats voted against war authorization and why some supported it.

The personal ideology of legislatures is another potential explanation of support for war. The conventional story in the literature on personal ideology is that even though legislators need the support of their constituents to stay in office, because many issues are of low salience to most voters, legislators are often able to vote their personal convictions (Miller and Stokes 1963). Given that war is such a high salience issue, one may wonder if this line of reasoning is applicable to war authorization. However, recent research on public opinion about war demonstrates that constituent views are partially determined by the views expressed by members of congress (Baum and Groeling 2005, 2009). That is, to some degree voters trust incumbents to make the right decision and look to them in forming an opinion. If so, this would provide legislators a measure of independence.

[28] Perhaps incumbents with safe seats can worry less about partisan incentives, but that is a more complicated story.

There are two distinct components of ideology that could influence Congressional positions on the Persian Gulf War. The primary ideological conflict in U.S. politics at the time was between liberals and conservatives, with liberals supportive of an active government domestically, lower levels of military spending, and a more conciliatory foreign policy; while conservatives opposed big government but were generally supportive of military spending and an aggressive foreign policy. Thus, one explanation for why some members of Congress voted against war authorization is that they were liberals who intrinsically "did not believe in war." Alternatively, liberals may have voted against war out of a concern that military spending would crowd-out social spending. Conservatives, by contrast, were free to support war authorization because they had neither concern.

Such an explanation, however, is problematic for technical and conceptual reasons. Technically, available measures of ideology conflate beliefs about how effective war will be, norms about whether or not using violence is appropriate, and views about the appropriate role of the government in the economy. Worst still, most measures of ideology are constructed from roll-call votes themselves. Thus, explaining war authorization with ideology scores is partially circular; conservatives support war because supporting war partially determines who is a conservative (Peltzman 1984, Jackson and Kingdon 1992, Smith 1995 make similar arguments). Conceptually, explaining the foreign policy ideology of politicians is another way to stating the goal of this paper.

Thus, in the analysis below, I analyze votes for war both with and without accounting for ideology.[29]

My argument

A third determinant of congressional behavior identified in the literature is constituency influence. By the nature of the geography of Congress, different members have different constituencies. This variation provides a natural explanation of variation in voting behavior, since being sensitive to the preferences of constituents provides representatives with the campaign resources and votes needed to stay in office. This suggests that there are two types of constituency influence, campaign contributions and voter preferences. I follow the intuition of the Grossman-Helpman (1994) model of trade policy which expects that congressional votes are a function of a weighted average of constituency welfare and campaign contributions.

The political economy tradition provides a powerful explanation for the interests of voters and interest groups, using economic theory to identify the distributional consequences of policy. Using this approach, scholars have shown that the economic interests of voters and campaign contributions influence congressional votes on foreign economic policy (Baldwin and Magee 2000, Hiscox 2001, Fordham and McKeown 2003, Broz 2005, Broz 2008, Gawande and Bandyopadhyay 2000, Broz and Hawees 2006). In addition, there is some evidence that the economic stakes in the broad goals of U.S. foreign policy and the economic effects of military spending have influenced

[29] Although this is not a perfect solution, it is the conventional one taken in most analyses of congressional voting on foreign policy (e.g. Fordham 1998, Baldwin and Magee, Hiscox 2001, Broz 2005, Broz and Hawes 2006, Broz 2008). Better methods would be possible if the war authorization vote was not a singular event, as repeated votes would enable the use of difference-in-difference and/or selection models (as in Fordham and McKeown 2003 and Broz 2008).

congressional voting on some national security issues (Eden 1984, Bartels 1991, Fordham 1998, and Trubowitz 1998).

Can the same approach be applied to help explain Congressional votes on war? While it would seem like a fairly straightforward question, in order to do so, one must address a series of questions: Are the effects of war different enough across individuals or groups to matter? If so, do the strategic incentives of crisis bargaining render them irrelevant or somehow confound the relationship between the economic consequences of war and security policy preferences? If not, how do the distributional consequences of war translate to individuals and interest groups in a politically meaningful way? In the remainder of this section I address these questions and deduce my hypotheses.

National and international security are public goods. Some of the benefits are non-excludable and non-rival. As a result, there is sometimes a tendency to assume that national security policy should not be divisive domestically, that interests within the polity should be homogenous, that politics should and do stop at the water's edge (e.g. Krasner 1978, Gowa 1998 Moore and Lanoue 2003). The logical flaws in this line of reasoning are, however, relatively obvious. Military spending can induce a dramatic shift in budgetary priorities, a tradeoff from butter to guns. Even assuming that everyone benefited equally from security, it is reasonable for individuals to have different ideal amounts of military spending if costs vary across individuals as a result of taxes, government social spending, or sector specific spillovers (e.g. for military contractors). Thus, to the extent that military spending benefits certain industries, crowds out social spending, or increases interests rates through deficits, security policy can create political cleavages (Bartels 1991, Fordham 1998, Trubowitz 1998, see also CRS RL31585, 2002).

In addition, it is likely that some individuals and groups benefit more from international stability than others. In particular, my research suggests that both the early stages of the Persian Gulf Crisis and the War itself was expected to have more sharply distributive consequences across economic sectors than any other political event from 1990 through 1992 (Seljan 2009).

A more subtle argument that actors should have similar interests comes form the game-theoretic analysis of war: even if war has divergent consequences for individuals and groups, perhaps the strategic incentives of crisis bargaining induce them to behavior similarly. According to the bargaining theory of war, war can be caused by incentives to misrepresent one's interest (Fearon 1995). In addition, Schultz (1998) argues that foreign adversaries are more likely to concede to a democratic leader's demands when opposition parties also vote for war. This implies that even if the relative economic "losers" of the Persian Gulf War were not resolved to fight, they might have behaved as if they were resolved so that Hussein would back down.

Although such strategic incentives should have induced some "unresolved" members of congress to vote for authorization, using this insight to conclude that economic interests are irrelevant misses the importance of incentives in "incentives to misrepresent," as well as the consequences of uncertainty over the preferences of one's opponent. In particular, the incentive to bluff does not induce bluffing by everyone; if it did, it would not be effective. Rather, the incentive to bluff depends on the payoffs from fighting and the benefits of receiving a better settlement, as shown in Powell's (1999) analysis of the risk-reward trade-off. The risk-reward tradeoff is the tradeoff between receiving a better settlement (the reward) and provoking a costly war with an

unacceptable demand (the risk). Those that pay smaller costs from fighting or benefit more from policy should be more willing to run that risk. Applying this insight to the Persian Gulf Crisis, note that because no one knew for sure whether or not Hussein would back down, those with less to gain and/or more to lose from conflict should have been less willing to vote for authorization, and risk war.

A similar response can be made to the claim that all Americans shared an interest in fighting as a method of establishing the resolve of the U.S. government around the world, since the U.S. was a global hegemon with many potential adversaries. Assuming, for the sake of argument, that such an incentive existed, it is still the case that individuals and groups should be willing to pay different amounts to receive the benefits of a tough reputation, since a tough reputation internationally is ultimately valuable in providing the ability to influence international policy. Likewise, suppose that the Persian Gulf War was ultimately the result of a commitment problem; suppose that there was no peace settlement agreeable to both the U.S. and Iraq because Iraq could not credibly commit not to eventually invade Saudi Arabia. If so, the incentive to use violence to prevent this from happening still depends on the costs and benefits of fighting, which may vary domestically.[30]

Thus, turning back to congressional behavior, I expect members representing districts with a greater proportion of voters who are net winners from war with Iraq to be more likely to favor war authorization. Similarly, I expect the proportion of voters who are net "losers" from war to be more likely to oppose authorization. In addition, I expect

[30] It is elementary to show formally that if there is no benefit to be had from acquiring a better settlement, then a commitment problem does not exist, even if there is a discontinuous change in the distribution of power. More generally, the change in the distribution of power necessary to create a commitment problem decreases as the expected utility of war increase (Powell 1999).

members that receiving more contributions from winning (losing) sectors to be (more) less likely to vote for war.

Transforming these broad claims into testable hypotheses requires identifying the winners and losers of war. This is a non-trivial challenge, a challenge which may explain why relatively little research has been done on the domestic political economy of war. Whereas the political economy of trade and monetary policy can draw predictions from well-established theories, such as the Stolper-Samuelson and Ricardo-Viner models, the effects of violent conflict are likely to be more idiosyncratic. Among other things, the effects of war should vary by the size of the nations involved, the type of military technology employed, the amount and type of economic activity in each country, the political outcome of the war (e.g. changes in borders or economic policy), and the financing of the war (regressive income taxes, progressive income taxes, tariffs, revenue from natural resources, inflation tax, etc). In addition, expectations about these factors rather than their true value should affect decision-making.

Fortunately, regardless of how complicated war may be, there is good reason to think that the effects of war will differ by economic sector. This is true because the production of violence changes the supply and demand for certain types of goods and services but not others and because international policy can influence the relative price of goods.[31] This is useful because, to the extent that capital and job skills are sector-specific (and not firm-specific), the effect of an security policy on profits and wages will be

[31] For example, crises in the middle east throughout the later half of the 20th century increased the price of oil and, as a result, the relative price of goods that were oil intensive in production or consumption (Kilian 2008). In addition, oil shocks and military spending have been shown to have a substantial effect on employment in the U.S. at both the regional (Davis et al. 1997) and sectoral level (Davis and Haltiwanger. 2001).

similar within sectors (Hiscox 2002, Seljan 2010). Although security policy produce may some heterogeneity within sectors, if, for example a firm has special access to government contracts, differences across sectors provide an empirically tractable way of studying the distributional consequences of conflict.

The narrower question, then, is how were the effects of the Persian Gulf War *expected* to differ across sectors. Though some of the war's consequences were as obvious now as they were then, it is important to answer this question carefully. That Iraq was a significant oil exporter and its dispute with Kuwait was over oil is not sufficient evidence that oil industries would profit from U.S. intervention. Had the Bush administration allowed the annexation of Iraq to stand, perhaps oil companies would have been better off than with a U.S. invasion, since eventually Saddam Hussein would wanted the expertise of multinational corporations and higher oil prices are typically good for oil companies. In addition, as discussed above, how disruptive the war would be to the international economy was unknown *ex ante* and would vary significantly depending on how the war unfolded.

To address this issue, I use financial markets and an event study design. The advantage of this approach is that financial market traders have an incentive to make prospective estimates of the effect of events on asset prices. In addition, as seen in influential papers by Abadie and Gardeazabal (2003), Massimo and La Ferrar (2007), and Wolfers and Zitziwetz (2009), event studies can measure the aggregate and distributional effects of wars. That financial markets may not predict the effect of war successfully is actually a virtue, since what is required in analyzing decision-making is a measure of beliefs before war has occurred.

In previous research (Chapter 1), I used the event study methodology to measure the effect of the Persian Gulf Crisis across 45 sectors, using returns on S&P 500 sectoral indices. I found that after news that war with Iraq was more likely than previously believed, the sectoral indices for the following industries had significant positive abnormal returns: oil drilling, oil consumables, utilities (gas and electric), energy equipment, aerospace and defense, air freight, trucking, road and rail, and telecommunications.[32] In general, the positive effects correspond reasonably well with economic theory and projections about the political consequences of the war. The sectors that benefited most from war were either involved in the production of military coercion (e.g. aerospace and defense, road and rail) or benefited from a short-term spike in oil prices. Thus, for the purposes of this paper, these sectors shall constitute the "winning sectors" of the Persian Gulf War.

By contrast, news of U.S. escalation generated negative abnormal returns for the sectoral indices of insurance, software, airlines, consumer durables, construction, gold, building products, metals and mining, finance, tech hardware, retailing, media, and electrical equipment. These sectors are related in that they either depend heavily on consumer discretionary spending, which tends to suffer when consumer confidence drops—as it tends to do before war—or somehow directly involved in the risk of war (e.g. insurance, airlines). Thus, these sectors constitute the "losing sectors" of the war in the analyses below.

[32] Abnormal returns and returns above what are expected based on the normal co-movement of an asset with the mark as a whole and the risk premium (Wolfers and Zitzewitz 2009).

With the winning and losing sectors of war identified, I can turn to making hypotheses about congressional behavior. In research on the 2003 Iraq War, I show that individuals working in industries that financial markets expected to do relatively well out of war were more likely to support using force to remove Saddam Hussein from power in the fall of 2002. If this was also the case in 1990, assuming that security policy is a salient issue for voters in Congressional elections and Congressional representatives are influenced by the opinions of their constituents, the number of workers in winner and losing sectors in each district should influence roll-call votes on the war. Similarly, assuming that PAC contributions punish and reward positions taken on security policy and that PAC contributions influence the positions taken by representatives one way or another, the amount of contributions from winning and losing sectors should influence votes on war. Thus, in analyses of congressional votes, I expect to find the following:

> H1: The probability that representatives voted to authorize the use of military force against Iraq was increasing in proportion of their constituents that worked in "winning sectors."
>
> H2: The probability that representatives voted to authorize the use of military force against Iraq was decreasing in proportion of their constituents that worked in "losing sectors."
>
> H3: The probability that representatives voted to authorize the use of military force against Iraq was increasing in the amount of campaign contributions they received from PACs representing "winning sectors."
>
> H4: The probability that representatives voted to authorize the use of military force against Iraq was decreasing in the amount of campaign contributions they received from PACs representing "losing sectors."

Additional economic variables

I consider ideas about how the guns-butter tradeoff might have affected congressional votes to be more speculative. For one, assessing the effect of the war on government social spending is less amenable to the event study methodology. While government treasuries can serve as a proxy for the *total* amount of government spending, they are no publicly traded assets that measure government *social spending* (especially on welfare, unemployment insurance, job training, education, etc). Two, details of the Persian Gulf Crisis undermine confidence in *a priori* claims about its effect on the budget: The U.S.-led alliance was relatively robust, with promises of significant financial contributions from Japan, Saudi Arabia, and France, among others. In addition, as a result of the end of the Cold War, the U.S. Congress passed legislation cutting the U.S. military budget during the crisis. On the other hand, the war could have dragged on for longer than expected. If so, the U.S. might have been the only country willing to pay the costs of war. Even if this happened, however, the government had the choice of how to fund the war. It could increase deficit spending, which would increase interests rates, it could cut social spending, or it could rely on higher tax revenues if military spending acted as a Keynesian stimulus on an economy that was heading toward recession.[33] Nonetheless, the public registered a high degree of concern about the budgetary cost of war in polls and communication with their representatives and (Gugliotta 1990) and previous analysis public opinion (Nincic 1997).

Taking these competing factors into consideration, I suspect that fear of possible of cuts in social spending was relevant to at least a portion of the electorate. Thus, in the

[33] That the war would great an aggregate economic stimulus is the interpretation of what *actually* happened during the Persian Gulf War given by Congressional Researchers Labonte and Makinen in CRS RL31585, 2002).

analysis below I include variables that may capture a higher demand for social spending in each constituency. These include, the unemployment rate, the number of blue collar workers, and the number of unionized workers. I expect that they are negatively associated with support for the authorization of the use of military force. In addition, the relationship between the median income of each constituency and support for war is an empirical question that I investigate, since the data is readily available. Median income could be positively related to support for war if the war is viewed as provided stability for the global political economy and the wealthy have a greater stake in globalization (as found in Scheve and Slaughter 2001, Hawes and Broz 2006, and Broz 2008). Alternatively, it could decrease support for war if the wealthy expect to bear a higher proportion of the war-related tax burden.

D. Data

Dependent variables

To evaluate these arguments, I analyze roll-call votes on H.J.R. 77 and S.J.R.2 in separate sets of statistical models.[34] These two votes are ideal for my purposes because authorization of the use of force was the only issue under consideration in each. Although there were additional resolutions and bills that may have affected the war effort in both houses of Congress, none did so as directly as H.J.R. 77 and S.J.R. 2. In addition, including in statistical analyses other substantively similar votes, such as that on H.C.R.

[34] I do not pool the analyses across chambers because previous research shows that partisanship and ideology have different effects in each house of Congress, with partisanship mattering more in the House and ideology being more important in the Senate (Poole and Rosenthal 1997). Additionally, it seems likely that the mapping of constituency attributes and campaign contributions to influence in each branch is different, because of economies of scale in campaigning. Thus pooling the results without accounting for sub-sample effects would produce bias; accounting for them would require sets of interactions that would unnecessarily complicate the presentation of results. Lastly, finding evidence for my hypotheses in separate analyses of each house is more a conservative econometric specification and provides additional confidence that the results are not driven by a few key outliers.

33, which called for the president to rely on sanctions rather than use force, would artificially inflate the standard errors because there is no meaningful sense in which these votes represent a sample of behavior that is independent of votes on H.J.R. 77.[35] At the same time, including resolutions less closely related to the decision to go to war, such as House Resolution 1282, which authorized additional spending once the war was underway, would only confound the analysis.

The roll-call data comes from the Inter-University Consortium for Political and Social Research (ICPSR 2004) votes—for authorization of the use of force—were set to "1", no votes were set to "0". Because there were less than 3 abstainers and missing votes, all other roll-calls were set to missing. Table 2.1 lists the text, total proportion of yes's and no's, and partisan split on each vote.

Control variables

As explained above, there are strong theoretical reasons to believe that partisanship had an independent influence on how each member voted. In short, since Bush was a Republican, Congressional Republicans had an incentive to see him succeed, while Democrats lacked such an incentive and may have benefited if he failed--as long as they were not viewed at be obstructionist. I identify partisan affiliation with the dummy variable PARTY, setting it to "1" for Republicans and to "0" for Democrats.[36] Thus, I expect PARTY to have a positive coefficient on approval of war.

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[35] Indeed the roll call votes on each were perfect mirror images of one another; support for H.C.R. 33 perfectly predicts opposition to H.J.R. 77 and vice-versa.

[36] Data on partisanship comes from ICPSR, though it is identical to the Poole-Rosenthal data. I exclude the one independent that voted on either bill, Congressman Bernie Sanders of Vermont

My primary method for controlling for ideology is to include the first dimension of each legislator's DW-NOMINATE score (Poole and Rosenthal 1997) in multivariate regressions. Higher values correspond to a more "conservative" ideology, so I would expect a positive sign; more conservative members are more likely to favor war because they have a more Hobbesian worldview, believe in the need to punish aggression, and are less concerned with the effect of military spending on domestic social spending. Because of the concerns about DW-NOMINATE described above, as an alternative proxy for foreign policy ideology I include variables measuring campaign contributions from ideological PACs as identified by the Center for Responsive Politics. These include DOVES-PAC$, HAWKS-PAC$, and ISRAEL-PAC$, which are the number of dollars in thousands contributed by each type of PAC to reach representative.

In order to investigate if constituent demand for social spending reduced support for war, in some models I include a number of variables that may proxy for this preference. In particular, using district-level data from Adler (2003), in various models I include measures of the unemployment rate (UNEMPLOYMENT%), proportion of residents over 25 that obtain a post-secondary education, (COLLEGE%), proportion of blue collar workers (BLUECOLLAR%), median household income (INCOME), unionization rate in the manufacturing sector (UNION%), in each district or state, respectively. Since public opinion research indicates that African-Americans and Military personal have distinct foreign policy attitudes (Holsti 2004), I also include measures of the proportion of each constituency that from each group (AFRICAN-AM%, MILITARY%).

Hypotheses IVs

Measuring the attributes of each constituency necessary to test H1-H2 required several steps. First, using county-level employment data from the U.S. census, I calculated employment shares using 3-digit SIC sector codes. Next, to calculate employment shares for the Senate, I simply calculated the aggregate sum of all counties in each state. For Congressional districts, I converted county-level employ data to the congressional level using the following procedure: if the borders of a county fell within the borders of a single congressional district, all of its employment was added to the district total. If a county had more than one congressional district within its borders, the number of workers from an industry in each county was estimated by using the fraction of the county's population residing in each district.[37]

Next, I mapped the 430 different 3-digit SIC employment shares in the census data onto the 45 economic sectors measured in Seljan (2009), using the SIC to GICS conversion found in Bhojraj et al. (2003). Lastly, I calculated the percentage of workers in "winning" or "losing" sectors in each constituency by taking the raw (unweighted) sum of the number of workers in the appropriate sectors and dividing by the total population.[38] This produces WINNERS-EMP% and LOSERS-EMP%, the independent variables corresponding to H1 and H2.

To construct the independent variables for H3-H4, I begin with the PAC industry contribution data from the Center for Responsive Politics (CRP), obtained at

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[37] I obtained the geographic information from MABLE '98/Geocorr v3.0 Geographic Correspondence Engine. Available at <http://plue.sedac.ciesin.org/plu/geocorr>.

[38] An alternative approach would be to weight the winning (and losing) sectors by the magnitude of their expected gains (and loses) from war. In order to simplify the presentation and interpretation of the results and to mirror the method used to measure the influence of import and export sectors in the analysis of congressional votes on other areas of foreign policy (e.g. Hiscox 2001, Broz 2008, Broz and Hawes 2006), I opted for the raw sum.

OpenSecrets.Org. This data lists the industry and recipient of each campaign contribution made by federally registered PACs in the 1990 electoral cycle. I converted the 442 CRP industry groups to the 45 GICS sectors using the conversion table at OpenSecrets.Org. In addition, I verified the conversion and filled in missing groups using the written description of the CRP and GICs groups. The total dollar amount of contributions to each member of Congress from PACs in "winning" or "losing" sectors were then totaled, producing WINNERS-PAC$, and LOSERS-PAC$.

Before preceding to the analysis, it is important to consider how the strategic incentives of interstate bargaining may affect these variables. I assume that some members of congress voted for the resolution to strengthen the president's hand in negotiations even though they were "unresolved" or "opposed" to war. If so, this would less the influence of all of the independent variables proportionately, since the benefits of a stronger hand in negotiation are collective. That is, the war authorization vote is not a perfect measure of the preferences of members of congress or the influence of constituency interests on their behavior. However, the strategic incentive of delegating authority to the president affect the analysis primarily by *biasing against* finding a significant relationship with party, PAC contributions, or diffuse constituency interests.

E. Estimation and Results

PARTY, DW-NOMINATE, WINNERS-PAC$, and LOSERS-PAC$ are theoretically endogenous variables in the sense that the literature would expect that their values are partially determined by constituency characteristics and, in the case of PAC contributions, how members would vote on war authorization. Unfortunately, because of the nature of congressional elections and because the war authorization vote was a

singular event, there is limited validity in attempting to model the selection process (since any such model will face similar endogeneity problems), using lagged values as instruments, or employing difference-in-difference estimators. Thus, in order to adopt a pragmatic estimation strategy, I first assess the magnitude of the problem before discussing my approach.

[Insert Table 2.1 Here]

As shown in Table 2.1, only three Republicans in the House and two in the Senate voted against each bill. In addition, PARTY and DW-NOMINATE are highly correlated with one another (r=.889 in the House, and r=.891 in the Senate), as can be seen in Table 2.2, the correlation matrix for the key independent variables.[39] In addition, PARTY, DW-NOMINATE, WINNERS-PAC$, and LOSERS-PAC$ are moderately correlated with one another as well as WINNERS-EMP% and LOSERS-EMP%. Thus, any single-equation model that includes PARTY or DW-NOMINATE effectively means that all other variables in the model are *only* capturing why a portion of Democrats defected from the preferences of party leadership, even if, in fact, they also influenced votes through the selection of a candidate from a particular party or through shaping the *observed* ideology of their representative.

[Insert Table 2.2 Here]

By contrast, I am interested in whether or not the economic characteristics of constituencies influence the positions taken on the Persian Gulf War by each party and accounting for variation within parties. Therefore, I run a series of models of increasing complexity and sophistication, each addressing, in essence, a different question. I assume

[39] This is not surprising, given that a sizable portion of the variation in DW-NOMINATE is a result of partisanship itself, and another portion simply captures how consistently one votes with their party.

that all of the constituency level economic variables are exogenous with respect to PARTY, DW-NOMINATE, WINNERS-PAC$, and LOSERS-PAC$. Although political decisions can influence economic conditions and the district and state level, it is unlikely that they have a large effect on the economic characteristics of districts with respect to the Persian Gulf War, a relatively unique event.

First, I estimate a set of probit models assessing H1and H2, each controlling for different constituency characteristics, but *without* controlling for partisanship, ideology or campaign contributions. The question these regressions deal with is simply how well the diffuse attributes of constituency alone could predict votes on the Persian Gulf War—taking politics out of the equation. Table 2.3 presents results of this analyses for the House (in the upper half) and Senate (in the lower). In the House there is a statistically significant relationship between WINNERS-EMP% and LOSERS-EMP% in some models, but the relationship is relatively weak. In the Senate, only LOSERS-EMP% reaches statistical significance, and does so barely. By contrast, the unemployment rate appears to be a much better predictor of congressional behavior, at least in the House. Moreover, these models explain a small amount of variation in the House and Senate votes. This suggests that the diffuse economic characteristics of constituency had, at most, a moderate influence on Congressional action during the Persian Gulf War. The results are bit stronger when state-dummies are included, but doing so eliminates states where all representatives voted the same way and can only be applied in the House.

[Insert Table 2.3 Here]

Second, I estimate similar set of models to test H3-H4, adding the PAC contribution variables to the previous models. As shown in Table 2.4**,** PAC contributions

are a much stronger predictor of congressional behavior than employment patterns (again, the House is in the upper half of the table, and the Senate the lower half). Both contributions from PACs represenging "winning" interests and "losing" interests are significantly related to Congressional votes in the predicted direction. The coefficients for contributions from winners and losers tend to be very similar in magnitude, which provides added confidence in the results. In addition, now the models predicts a much higher percentage of variation, between 21 and 41% in the House and about 18% in the Senate. On the other hand, WINNERS-EMP% and LOSERS-EMP% are only significant in the House model that includes state dummies. That being said, one should be cognizant that coefficients on contributions in this specification should not be interpreted as PACs ability to buy votes or select representatives that share their interests. Although it is possible that contributions influenced representatives in these ways, these estimates could also indicate the extent to which the expected winners and losers of war channeled their contributions towards representatives whose votes on the Persian Gulf War would be most likely to benefit them.[40]

[Insert Table 2.4 Here]

Third, I estimate multivariate probit models testing H1-H4, controlling for party, then ideology, then both. This provides the most conservative estimate of the influence of my key independent variables on congressional behavior, since, at most, their coefficients

[40] Though not as interesting in answering the main questions that motivate this paper, this interpretation would mean that economic interest influence the policy preferences of PACs over war, a claim that has typically lacked systematic empirical support. Of course, if this were my primary interest, campaign contributions should be the dependent variable in the analyses. Another plausible critique is that campaign contributions by an interest group may be "a surrogate measure of an interest group's effort to lobby and mobilize votes in the district" so that the relationship between campaign contributions and roll call votes may actually reflect the effect of lobbying and voter mobilization efforts (Smith 1995). Although this is an interesting possibility, my interest here is not to finely parse the mechanism by which economic interests influence congress, but to determine if there is any sort of a connection.

explain variation in voting among Congressional Democrats. When DW-NOMINATE is included, as in models 10, 11, and 12, this is a particularly stringent test since the model negates by construction any possibility that members observed ideology is influenced by employment patterns or PAC contributions. That is, in these models the coefficients explain voting that deviates from each representative's ideology. The best indication of this is that PARTY is insignificant in the House and Senate when DW-NOMINATE is included. Nonetheless, as can be seen in Table 2.5, PAC contributions and the unemployment rate remain significant predictors of how representatives voted in the House across most models. The results are a bit weaker in the Senate, but the signs are in the correct direction and there is limited statistical power with 99 observations. By contrast, WINNERS-EMP% and LOSERS-EMP% are even more weakly related to votes when PARTY or DW-NOMINATE is included.[41] The effects are substantively strong as well. The estimates from the most conservative model (model 11) suggest that an additional $30,000 in contributions from PACs representing "winning" sectors would increase the average Democratic representative's probability of supporting war by 8%.

Given that the first dimension of DW-NOMINATE is given such a strong economic interpretation by its originators (Poole and Rosenthal 1997), and that additional economic variables remain significant in models 9 through 12, economic considerations appear to have a strong influence on congressional behavior in war. Members that receiving campaign contributions from the economic winners of war, that come from districts with

[41] WINNERS-EMP% and LOSERS-EMP% are insignificant in any model that includes partisanship, ideology, OR PAC contributions alone or in conjunction with each other or other variables, unless state dummies are included.

high unemployment, and that are conservative—and thus generally see a smaller role for the government in the economy—were more likely to favor war authorization.

A serious alternative explanation of these results is that PAC campaign contributions in the 1990 electoral cycle were "expressive" in the sense that they were given to representatives that shared similar views on security policy without an intention or ability to influence policy. To address this issue, I estimate a set of instrumental variables models that directly model the endogeneity of campaign contributions. These statistical models try to estimate the true effect of contributions on votes by isolating the exogenous (economic only) sources of variation in campaign contributions. I instrument for campaign contributions with constituency attributes, attributes which are weakly related to partisanship or ideology, both theoretically and empirically (WINNER-EMP%, LOSER-EMP%, and MILTARY%). Given the difficulty of finding valid instruments and the small sample size, instrumenting for WINNERS-PAC$ and LOSERS-PAC IV separately in the same model was not practical. Fortunately, because the coefficients for WINNERS-PAC$, LOSERS-PAC tended to be so similar in most models, combining the two together is a reasonable simplification. Thus I constructed NET-PAC$, which is simply WINNERS-PAC$ minus LOSERS-PAC$. In addition, since including ideology would defeat the purpose of an IV regression, in Model 15, I proxied for foreign ideology with PAC contributions from ideological PACs representing "dovish", "hawkish", and pro-Israeli beliefs.[42]

The results of three such instrumental variable models are displayed in Table 2.6. They show that instrumented contributions are significantly related to votes on war in the

[42] DOVE-PAC$ had to be dropped from the Senate regression because contributions greater than $0 from DOVES perfectly predicted voting against war.

Houses and Senate, but only in the Senate if not controlling for partisanship. The lack of significance in the Senate is, however, entirely the result of the loss of efficiency in the IV regressions since the coefficient estimates are similar in size as in the single-equation models but the standard errors are three to four times as larger. Together, these results strengthen the inference that PAC contributions from the expected winners and losers of war influenced congressional behavior.[43]

[Insert Table 2.5 Here]

Discussion

Based on this collection of results, I would reject H1 and H2 and accept H3 and H4. That is, I find strong evidence that economic interests shape the politics of war, but only through the activity of elites. That elites are more influential than the general public in maters of foreign policy is perhaps the common presumption and has some support in the literature (e.g. Jacobs and Page 2005). On the other hand, given that more diffuse interests appear to be influential in other areas of foreign policy (Bailey 2001, Hiscox 2002, Broz 2008) and that electoral incentives are often seen as the primary constraint on Presidential decision-making on security policy, in this section I discuss potential reasons for these findings in additional detail.

One reason that contributions appear to be more influential in these analyses may be that the PAC contribution data is simply more precise than the employment data. I was able to match PAC contributions directly to a particular representative, whereas constituency employment patterns measure attributes of the district as whole, both the

[43] None of these models identify the mechanism by which contributions work. It could be that contributions work by influencing which type of representative is selected, "buying votes", persuasion, voter mobilization efforts, or some combination thereof. Although this is an interesting issue in American politics, it is of limited relevance to the primary issues in international relations that motivate this paper.

politically active and inactive. In addition, for members of the House, the constituency level data was constructed imperfectly from county-level data. As a result, representatives from large urban counties, such as Los Angeles County, Orange County, San Diego County, or King County, appear to have very similar constituencies even when they do not. Measurement error could also come from the fact that some workers are employed in one Congressional district, but live and vote in another. These sources of measurement error in the employment data should bias against finding a relationship for diffuse interests in the analyses. However, the strength of PAC contributions and the weakness of sectoral employment shares is consistent across the House and the Senate, despite the measurement problems being more acute in the House.

Another reason for the apparently weak influence of diffuse interest on congressional votes was that there was a limited range of variation in the employment data across constituencies. This is especially true for the variable WINNERS-EMP%. There were only four Congressional districts with more than 8 percent or less than 2 percent of the population working in "winning" sectors.[44] The range of variation was even smaller in the Senate; in only two states did more than 6 percent or less than 3 percent of the population work in "winning" sectors. Thus, the results may reflect little more than the reality that the political influence of "winners" was not significantly greater in districts where they made up 6 percent of the population than in districts where they made up 3 percent of the population.

[44] With employment data more closely matched to districts—rather than counties—this problem may have been avoided in the House.

Along with these technical or empirical explanations of the null finding for H1 and H2, there are a number of plausible theoretical explanations. Although I have shown elsewhere that economic interests matter to public opinion about war, the effect only holds for workers with sector-specific skills and the magnitude of its effect is moderate and perhaps not strong enough to make voters punish incumbents members of Congress. Given that the war was a unique event and that the vote came at the beginning of the electoral cycle, members of Congress may have felt that ordinary voters would not have a held the vote against them two or more years later. More generally, the incumbency advantage in Congressional elections may provide a significant enough buffer that only an enduring record of disregarding constituency interests is dangerous. Moreover, it should not be surprising if organized political interests are better able to express their preferences than the general public. Lastly, to the extent that congressional votes were motivated by a desire to give the president greater bargaining leverage, narrower constituency interests must necessarily suffer.

The rejection of H1 and H2 is also interesting in light of the fact that the unemployment was a robust predictor of opposition to war in the House. This could mean that members of the House may be more concerned with diffuse interests of their constituencies if their votes are easily connected to future policy and their partisan reputation. In particular, Congressional Democrats may have feared losing credibility if a vote for war was seen as putting foreign problems ahead of domestic ones. Alternatively, to the extent that unemployment rate is correlated with the popularity of the president, members of Congress from districts and states with high unemployment may have felt they had greater leverage to oppose the president and vote their true preferences. The

finding is also interesting because others have argued that a high national unemployment rate should increase the propensity of the president to use force abroad because it provides him with diversionary incentives (Fordham 1998). The results here suggest that such a relationship may be contingent on the reputation of the president.

F. Conclusion

Despite widespread interest in the pacifying influence of commercial interests on foreign policy and despite concerns that the military-industry complex could promote an aggressive stance in foreign affairs, existing scholarship has not identified a systematic connection between the domestic losers and winners of war and political behavior. In this paper, I demonstrate such a relationship in the Congressional votes authorizing the use of military force against Iraq in 1991.

I find strong and consistent evidence that members receiving greater contributions from "losing" interest groups were more likely to vote against war authorization, while members receiving greater contributions from "winning" interest groups were more likely to vote for authorization. In order to identify winning and losing sectors, I rely on results obtain from an event study (Seljan 2009), demonstrating the political relevance of financial market analysis. I also find suggestive evidence that concerns about a budgetary guns-vs.-butter tradeoff influenced votes. The unemployment rate and median income in a constituency—two proxies for demand of government services—were negatively correlated with Congressional support for war.

This finding implies that additional research on the domestic political economy of conflict is warranted. Two broadly similar conflicts amenable to such research include the votes authorizing U.S. use of force in Kosovo in 1999 and Iraq in 2003. They also

indicate that it is important to understand the extent to which PACs and other organized economic interests are able to influence other institutions of government, especially the behavior of the major bureaucracies involved in security policy. In addition, of course, it would also be valuable to investigate the role of economic interests in the politics of security policy in other countries. Although a formal vote on war is not necessary in all political systems, the analysis of analogous legislative acts in Great Britain, Israel, and France could provide similar insights. A more challenging but not impossible undertaking would be to explore domestic preferences in non-Democracies.

The results of this paper are arguably most interesting for what they imply about state behavior. They suggest that economic interests may shape state behavior in international crises, though surely less than starkly materialist theories of IR imply. Moreover, exactly how economic interests shapes state behavior requires an additional layer of theorizing and research. The intuitive implication of these results is that when the U.S. government is heavily influenced by "winning" interests it will adopt a more belligerent or expansionistic foreign policy. The observable consequence of a more belligerent foreign policy, however, may be that the U.S. receives more favorable concessions or faces fewer challenges, as suggested in some assessments of the diversionary use of force hypothesis (Moore and Lanoue 2003 and Fordham 2005). On the other hand, it is also possible the U.S. would be more likely to fight "resolved" states, especially if leaders in those states also have diversionary incentives.

I find little support for a link between the employment of constituents and votes in either the Senate or House. The null finding for diffuse interests may simply be the result of measurement error, that only organized interests can successfully influence Congress

in matters of war and peace, that the incumbency advantage limits the influence of constituents votes long before elections, that state-level strategic incentives diminished the relevance of narrower interests, or that the public primarily influences Congress through retrospective evaluations.

Taken together, the findings of this paper imply that the economic interests of elites and organized interests influence security policy, but that the economic interests of the general public do not. Given that I show that economic interest influence the public's opinions war in related research (Seljan 2010a), this is further evidence of an elite bias in American foreign policy (Jacobs and Page 2005). In addition, the results are a reminder of the importance of political organization in enabling societal interests to influence political behavior, something well understood in the study of American and Comparative politics, but often overlooked in domestic explanations of international relations.

According to my estimates, partisanship and ideology are more influential factors on Congressional votes than economic interests, whether those interests are tied to ordinary citizens or organized interest groups. The important question from the perspective of IR theory is how the relevance of partisanship and ideology helps us understand international conflict. Some answers have already been offered by the literature. Howell and Pevehouse (2005), for example, find that presidents have been more willing to act when their party also has a majority in Congress. There is less evidence, however, that one party or the other has induced more belligerent behavior (Gowa 1999). What this null finding means, however, is unclear. One reason that there may not be an observed relationship between partisanship and state behavior is that other countries may strategically respond to the hawkish preferences of the Republic party by

not challenging the U.S. when they are powerful. Alternatively, given that ideology is as important as partisanship and the ideological meaning of partisan labels have evolved over time, simple measures of partisanship using dummy variable my not be sufficient. Indeed, my results suggest that future research should take seriously the evolution of ideology within the Congress as well as potential interaction effects between ideology, the business cycle, and the location and type of U.S. intervention.

Lastly, even if the foreign policy preferences of parties are evolving, their importance in aggregating economic interest is also worth considering in future research. That parties in the U.S. have been catch-all coalitions of interests may make it difficult for narrow special interests to dictate policy by themselves. It is hard to imagine a major war being fought to satisfy the profit motives of a single firm, even a very large one, given that parties have loyal supporters from many different industries. By contrast, it seems more likely that narrow interests could be influential in smaller-scale conflicts. Furthermore, in democracies where parties have a less broadly programmatic constitution, it may be easier for special interests to be influential in security policy. This suggests that both formal an informal electoral institutions may have a role in the politics of war.

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Table 2.1: War Authorization Votes in the U.S. House and Senate

Bill Number	House Joint Resolution 77	Senate Joint Resolution 2
Congress	102nd	102nd
Date	January 12, 1991	January 12, 1991
Summary	Use of Force against Iraq/Passage. Passage of the joint resolution to authorize the use of military force if Iraq has not withdrawn from Kuwait and complied with U.N. Security Council resolutions by January 15. The resolution authorizes the use of force and the expenditure of funds under the War Powers act and requires the president to report to Congress every 60 days on the efforts to obtain Iraqi compliance with the U.N. resolutions.	Use of Force Against Iraq/Passage. Passage of the joint resolution to authorize the use of military force if Iraq has not withdrawn from Kuwait and complied with U.N. Security Council resolutions by January 15. The resolution authorizes the use of force and the expenditure of funds under the War Powers act and requires the president to report to Congress every 60 days on the efforts to obtain Iraqi compliance with the U.N. resolutions.
Result	Y=250; N=183	Y=52; N=47
Partisan Split	Democrats: Y=86-179 Republicans: 164-3	Democrats: 10-45 Republicans: 42-2

Table 2.2: Correlation Coefficients, 102nd Congress

U.S. House of Representatives

	PARTY	DW-NOM	WIN-EMP%	LOSE-EMP%	WIN-PAC$	LOSE-PAC$	UNEMPL%	INCOME
PARTY	1							
DW-NOM	0.8819	1						
WIN-EMP%	0.0932	0.1059	1					
LOSE-EMP%	-0.0525	-0.1599	0.2443	1				
WIN-PAC$	0.0324	0.1264	0.115	-0.1859	1			
LOSE-PAC$	-0.3969	-0.4309	-0.0121	0.1283	0.4448	1		
UNEMPL%	-0.235	-0.3525	-0.3051	-0.0934	-0.053	0.1143	1	
INCOME	0.2191	0.1434	0.1572	0.3027	-0.0784	0.1465	-0.2826	1
n=433								
COLLEGE%	0.0438	0.1305	-0.081	-0.3882	0.1525	-0.1138	0.0929	-0.1989
BCOLLAR%	-0.1577	-0.078	-0.0193	0.0416	0.067	0.0222	0.1958	-0.3278
UNION%	0.0057	-0.1813	-0.1689	0.0584	-0.1445	0.1561	0.5191	0.2887

U.S. Senate

	PARTY	DW-NOM	WIN-EMP%	LOSE-EMP%	WIN-PAC$	LOSE-PAC$	UNEMPL%	INCOME
PARTY	1							
DW-NOM	0.891	1						
WIN-EMP%	0.1616	0.1873	1					
LOSE-EMP%	-0.1585	-0.2545	-0.279	1				
WIN-PAC$	0.1297	0.2252	0.0481	-0.1757	1			
LOSE-PAC$	-0.0756	-0.0224	-0.0527	-0.0228	0.8188	1		
UNEMPL%	0.0306	-0.1049	-0.3602	0.0091	-0.0039	0.0851	1	
INCOME	0.0115	-0.084	0.1908	0.2153	-0.1218	-0.0109	0.1905	1

Table 2.3: Probit Analysis of Persian Gulf War Authorization Vote, Constituency Characteristics Only

IV	Model 1	Model 2	Model 3	Model 4
	U.S. House of Representatives			
WINNERS-EMP%	0.0245	0.0269	0.0265	0.0713**
	(0.0240)	(0.0243)	(0.0239)	(0.0327)
LOSERS-EMP%	-0.0213***	-0.0181**	-0.0225***	-0.0311***
	(0.00722)	(0.00756)	(0.00629)	(0.00780)
UNEMPLOYMENT%	-0.192***	-0.180***	-0.200***	-0.348***
	(0.0409)	(0.0425)	(0.0317)	(0.0647)
INCOME ($1,000)	0.00574	0.00272	0.000942	-0.00864
	(0.00878)	(0.00925)	(0.00697)	(0.0114)
COLLEGE%	0.0105	0.0104		
	(0.0105)	(0.0107)		
BLUECOLLAR%	0.00857	0.0109		
	(0.0125)	(0.0133)		
UNION%	-0.00200	-0.00272		
	(0.00435)	(0.00456)		
MILITARY%		0.00206		
		(0.00181)		
AFRICAN-AMERICAN%		-33.04		
		(23.06)		
State Fixed Effects	**No**	**No**	**No**	**Yes**
Observations	435	435	435	396
Log likelihood	-263.13382	-261.44124	-264.46438	-0.2182
Pseudo R-squared	0.113	0.1187	0.1085	0.2182
	U.S. Senate			
WINNERS-EMP%	0.0468	0.0424	0.0539	
	(0.0843)	(0.0862)	(0.0802)	
LOSERS-EMP%	-0.0854*	-0.0875*	-0.0425	
	(0.0462)	(0.0473)	(0.0280)	
UNEMPLOYMENT%	0.0973	0.0977	0.00894	
	(0.131)	(0.131)	(0.0875)	
INCOME ($1,000)	0.0385	0.0386	-0.00415	
	(0.0307)	(0.0321)	(0.0221)	
COLLEGE%	-0.0422	-0.0444		
	(0.0465)	(0.0474)		
BLUECOLLAR%	0.0602	0.0666		
	(0.0523)	(0.0587)		
UNION%	-0.0200	-0.0205		
	(0.0126)	(0.0129)		
MILITARY%		0.00799		
		(0.0576)		
AFRICAN-AMERICAN%		-0.00164		
		(0.00708)		
Observations	99	99	99	
Log likelihood	-63.887061	-63.856986	-66.31957	
Pseudo R-squared	0.0673	0.0677	0.0318	

Notes: Dependent Variable 0=No, 1=Yes. Marginal effects calculated by setting independent variables at their means. Robust standard errors in parantheses. *** p<0.01, ** p<0.05, * p<0.1

Table 2.4: Probit Analysis of Persian Gulf War Authorization Vote, Constituency Characteristics and PAC Contributions

IV	Model 5	Model 6	Model 7	Model 8
	U.S. House of Representatives			
WINNERS-PAC$ ($1,000)	0.00800***	0.00804***	0.00770***	0.00990***
	(0.00112)	(0.00131)	(0.00134)	(0.00157)
LOSERS-PAC$ ($1,000)	-0.00769***	-0.00771***	-0.00754***	-0.0102***
	(0.000861)	(0.000951)	(0.000960)	(0.00121)
UNEMPLOYMENT%	-0.183***	-0.165***	-0.171***	-0.310***
	(0.0446)	(0.0325)	(0.0337)	(0.0730)
INCOME ($1,000)	0.0132	0.0145**	0.0174**	0.0138
	(0.00919)	(0.00714)	(0.00745)	(0.0128)
COLLEGE%	0.00471			
	(0.0104)			
BLUECOLLAR%	0.00486			
	(0.0128)			
UNION%	0.00275			
	(0.00467)			
WINNERS-EMP%			-0.00253	0.0738**
			(0.0244)	(0.0367)
LOSERS-EMP%			-0.00889	-0.0185*
			(0.00751)	(0.00992)
State Fixed Effects	**No**	**No**	**No**	**Yes**
Observations	435	435	435	396
Log likelihood	-213.31703	-213.65113	-212.70216	-157.02313
Pseudo R-squared	0.2767	0.2756	0.2788	0.4157
	U.S. Senate			
WINNERS-PAC$ ($1,000)	0.00481***	0.00493***	0.00474***	
	(0.00108)	(0.00106)	(0.00107)	
LOSERS-PAC$ ($1,000)	-0.00510***	-0.00521***	-0.00503***	
	(0.00115)	(0.00115)	(0.00114)	
UNEMPLOYMENT%	0.142	0.0357	0.0435	
	(0.123)	(0.0827)	(0.0911)	
INCOME ($1,000)	0.0207	0.00751	0.0102	
	(0.0267)	(0.0208)	(0.0229)	
COLLEGE%	-0.0335			
	(0.0472)			
BLUECOLLAR%	-0.0131			
	(0.0350)			
UNION%	-0.0155			
	(0.0136)			
WINNERS-EMP%			0.0221	
			(0.0821)	
LOSERS-EMP%			-0.0262	
			(0.0301)	
Observations	99	99	99	
Log likelihood	-55.901797	-56.635832	-56.089908	
Pseudo R-squared	0.1839	0.1731	0.1811	

Notes: Dependent Variable 0=No, 1=Yes. Marginal effects calculated by setting independent variables at their means. Robust standard errors in parantheses, *** p<0.01, ** p<0.05, * p<0.1

Table 2.5: Probit Analysis of Gulf War Authorization Vote, Constituency Characteristics, PAC Contributions, Ideology, and Partisanship

IV	Model 9	Model 10	Model 11	Model 12
		U.S. House of Representatives		
PARTY	0.635***		0.110	0.185
	(0.0387)		(0.128)	(0.128)
DW-NOMINATE%		1.549***	1.391***	1.191***
		(0.132)	(0.230)	(0.265)
WINNERS-PAC$ ($1,000)	0.00469***	0.00268**	0.00270**	0.00369***
	(0.00111)	(0.00112)	(0.00110)	(0.00141)
LOSERS-PAC$ ($1,000)	-0.00290***	-0.00139	-0.00133	-0.00255**
	(0.000895)	(0.000894)	(0.000879)	(0.00101)
WINNERS-EMP%	0.00169	-0.0222	-0.0198	-0.00911
	(0.0260)	(0.0271)	(0.0268)	(0.0313)
LOSERS-EMP%	-0.00626	0.00118	0.000621	-0.00583
	(0.00694)	(0.00731)	(0.00719)	(0.00654)
UNEMPLOYMENT%	-0.166***	-0.114***	-0.115***	-0.164**
	(0.0378)	(0.0394)	(0.0389)	(0.0781)
INCOME ($1,000)	-0.0179**	-0.00774	-0.0101	-0.00462
	(0.00895)	(0.00934)	(0.00958)	(0.0120)
State Fixed Effects	**No**	**No**	**No**	**Yes**
Observations	435	435	435	396
Log likelihood	-148.51615	-123.87238	-123.54166	-91.48373
Pseudo R-squared	0.4964	0.58	0.5811	0.6596
		U.S. Senate		
PARTY	0.757***		0.0194	
	(0.0683)		(0.293)	
DW-NOMINATE%		1.995***	1.962***	
		(0.302)	(0.538)	
WINNERS-PAC$ ($1,000)	0.00241**	0.00154*	0.00155*	
	(0.000943)	(0.000879)	(0.000899)	
LOSERS-PAC$ ($1,000)	-0.00241**	-0.00166	-0.00166	
	(0.00110)	(0.00113)	(0.00113)	
WINNERS-EMP%	-0.0833	-0.117	-0.118	
	(0.112)	(0.118)	(0.120)	
LOSERS-EMP%	-0.0216	0.00229	0.00186	
	(0.0378)	(0.0363)	(0.0382)	
UNEMPLOYMENT%	-0.0847	-0.00903	-0.0119	
	(0.0908)	(0.102)	(0.0986)	
INCOME ($1,000)	0.00147	0.00783	0.00787	
	(0.0261)	(0.0266)	(0.0264)	
Observations	99	99	99	
Log likelihood	-30.65337	-25.70823	-25.70654	
Pseudo R-squared	0.5525	0.6247	0.6247	

Notes: Dependent Variable 0=No, 1=Yes. Marginal effects calculated by setting independnet variables at their means. Robust standard errors in parantheses. *** p<0.01, ** p<0.05, * p<0.1

Table 2.6: Instrumental Variables Analysis of Persian Gulf War Authorization Vote, Two-Stage Probit

	Model 13	Model 14	Model 15
	U.S. House of Representatives		
Endogenous Variable:			
NET-PAC$ (WINNERS$-LOSERS$)	0.0098***	0.0087***	0.0090***
	(0.0019)	(0.0024)	(0.0025)
Instruments: WINNERS-EMP%, LOSERS-EMP%, MILITARY%			
Exogenous Variables			
PARTY		0.4528***	0.5139***
		(0.0994)	(0.1089)
UNEMPLOYMENT%	-0.1253***	-0.1423***	-0.1137**
	(0.0435)	(0.0538)	(0.0468)
INCOME ($1,000)	0.0210**	-0.0016	0.0033
	(0.0085)	(0.0144)	(0.0131)
HAWKS-PAC$			0.3921***
			(0.1186)
DOVES-PAC$			-0.8925
			(0.6284)
ISRAEL-PAC$			0.0203***
			(0.0059)
Observations	435	435	435
Log likelihood	-2264.6687	-2219.9563	-580.31031
	U.S. Senate		
Endogenous Variable:			
NET-PAC$ (WINNERS$-LOSERS$)	0.0067***	0.0035	0.0032
	(0.0015)	(0.0038)	(0.0037)
Instruments: WINNERS-EMP%, LOSERS-EMP%, MILITARY%			
Exogenous Variables			
PARTY		0.6614**	0.6849**
		(0.3101)	(0.2706)
UNEMPLOYMENT%	0.0560	-0.0040	-0.0099
	(0.0810)	(0.0959)	(0.0917)
INCOME ($1,000)	0.0204	0.0050	0.0034
	(0.0212)	(0.0278)	(0.0269)
HAWKS-PAC$			-0.0031
			(0.0025)
ISRAEL-PAC$			0.0006
			(0.0008)
Observations	99	99	97
Log likelihood	-621.8454	-591.28463	-580.31031

Notes: Dependent Variable 0=No, 1=Yes. Marginal effects calculated by setting independnet variables at their medians. Robust standard errors in parantheses. *** p<0.01, ** p<0.05, * p<0.1

Appendix

Table 2.A1: Descriptive Statistics

	102nd House			
	Mean	*Std. Dev.*	*Min*	*Max*
PARTY	0.386	0.487	0.000	1.000
DW-NOM	-0.067	0.368	-0.791	0.784
WIN-EMP%	3.957	1.182	1.368	12.426
LOSE-EMP%	12.736	4.727	5.542	49.073
WIN-PAC$ ($1,000)	43.201	31.628	0.000	197.051
LOSE-PAC$ ($1,000)	60.089	42.766	0.000	279.993
UNEMPLOYMENT%	3.006	0.956	1.068	7.886
INCOME ($1,000)	20.078	3.994	8.434	33.404
COLLEGE%	18.588	2.772	6.000	26.692
BCOLLAR%	7.877	2.272	2.789	17.511
UNION%	21.709	8.174	5.800	35.800
MILITARY%	0.722	1.559	0.013	12.944
AFRICAN-AM%	11.431	14.991	0.067	92.069
HAWK-PAC$	0.379	2.087	0.000	29.510
DOVES-PAC$	0.140	0.676	0.000	5.999
ISRAEL-PAC$	3.689	6.199	0.000	40.150
	102nd Senate			
PARTY	0.444	0.499	0.000	1.000
DW-NOM	-0.044	0.356	-0.611	0.756
WIN-EMP%	4.180	0.776	2.810	6.421
LOSE-EMP%	9.620	2.051	6.123	14.876
WIN-PAC$ ($1,000)	103.709	136.404	0.000	630.139
LOSE-PAC$ ($1,000)	94.664	110.704	0.000	395.880
UNEMPLOYMENT%	2.906	0.671	1.756	4.980
INCOME ($1,000)	19.537	2.624	14.526	28.395
COLLEGE%	19.091	1.357	16.121	22.911
BCOLLAR%	7.718	1.663	4.665	11.934
UNION%	19.196	7.304	5.800	35.800
MILITARY%	0.945	1.135	0.054	6.058
AFRICAN-AM%	9.152	9.219	0.221	35.194
HAWK-PAC$	2.206	9.124	0.000	81.953
DOVES-PAC$	0.707	2.875	0.000	20.820
ISRAEL-PAC$	19.920	45.375	-1.000	218.242

CHAPTER 3

ECONOMIC CONSIDERATIONS IN PUBLIC OPINION ABOUT WAR: EVIDENCE FROM THE U.S.-IRAQ WAR IN 2003

A. Introduction

Do economic interests affect attitudes about war? A wide variety of theories of interstate conflict—from versions of the democratic peace to Marxist theories of imperialism—are founded on the assumption that they do. Nonetheless, there is little evidence that this is true. In fact, studies of public opinion find a role for economic considerations in opinions about political parties, presidents, social policy, and trade policy, but not war. Are opinions about war fundamentally different?

I take up this question by investigating whether or not the economic consequences of military action influenced the degree of support for the use of force to remove Saddam Hussein from power in 2003. The Iraq war is a natural choice for examining this question since many opponents of the war thought economic interests were a driving motivation for the Bush Administration. In mass demonstrations, for example, protestors held up signs reading "No Blood For Oil" and academic opponents warned of the war's astronomical costs (Nordhaus 2002, Blimes and Stiglitz 2002). This was, however, a minority view. Advocates of military action emphasized the threat posed by Hussein to *national* security and most of the academic analysis of public opinion about war has argued that ideology, fear, and partisanship were the primary determinants of support for military action.

In this paper, I show that economic interests did matter: there was a kernel of truth in the anti-war perspective, though the economic story is considerably more complicated than anti-war slogans suggest. In particular, the invasion of Iraq was expected to have a broad distribution of economic consequences, with some sectors, such as construction, energy, and defense, being *relative* winners and other sectors, such as information

technology, consumer discretionary, and airlines, being the *biggest* losers. These differences, in turn, were reflected in public opinion about war. Individuals working in sectors expected to benefit from war were, in fact, more likely to favor U.S. military action. However, economic interests also contributed to "dovish" attitudes; individuals expected to suffer the most from the use of force were more likely to *oppose* it. Confirming previous findings, I show that pre-existing attitudes towards wars and receptivity to the Bush administration's case for war strongly influenced public opinion. Such factors, however, were not important enough to make economic interests irrelevant.

I derive my hypotheses about these opinion cleavages from a theory of attitudes about war that is rooted in a set of plausible assumptions about the economy, the labor market, crisis bargaining, and policy preferences. In particular, I assume that the effect of war on the economy differs by economic sector, an important economic asset for most Americans is their job skills, that those skills are tied to their industry of employment, and that people support the policy that mostly closely reflects their ideal strategic response. The inspiration of the theory owes much to the Stolper-Samuelson (SS) and Ricardo-Viner (RV) theories of trade policy preferences and the Iverson and Soskice (2001) theory of social policy preferences, but takes seriously the strategic implications of interstate conflict. A key conclusion is that the strategic incentives of interstate crisis bargaining do not necessarily overwhelm individual differences in economic interests.

A primary contribution of this paper is methodological: using financial market data to estimate the consequences of policies is an important improvement over conventional research strategies and is applicable to studies of economic interests in other areas of public opinion (e.g. trade and monetary policy). Although claims that economic

interests affect views about war is a classic one, compelling evidence either for or against it has typically eluded scholars. A fundamental roadblock to providing such evidence is that it requires measuring *ex ante* expectations about the effect of war, an inherently uncertain event. I address this challenge by expanding on an approach pioneered in Wolfers and Zitzewitz (2009). I measure expectations about war for 53 different industries by regressing daily changes in sectoral security indices on changes in the probability of invasion from September 2002 through February 2003, as indicated by the publicly traded "Saddam Security."[45] This produces estimates of the expected economic effect of war across 53 industrial classifications—in the view of actors with a clear incentive to predict it. I then use this estimate in an analysis of American National Election Study (ANES) panel data from 2000 through 2002. I show that support for invading Iraq was strongly related to the economic consequences of war for respondent's industry of employment. In addition, I show that this result is driven entirely by workers with industry-specific skills and is robust to the inclusion and exclusion of a variety of control variables, including partisanship, political awareness, ideology, sex, race, perception of threat, authoritarianism, ethnocentrism, education, and age. That the general public, on average, has preferences that align with financial market expectations is itself noteworthy since so many previous studies have concluded that economic interests are unrelated to opinions about war. The difference in findings is the product of using a more refined and theoretically motivated measurement of the distributive consequences of a war.

[45] I extend the findings in Wolfers and Zitzewitz by including 38 additional sub-sectors of data, greatly increasing the precision of the estimates for the effect of war.

A second contribution of the paper is that it provides micro-foundations for political economy theories of war and peace. Although it would be unwise to draw broad generalizations from a single study of American public support for war with Iraq in 2002, the results justify additional research into the economic origins of security policy preferences. Such results could then be used to support and enrich theories linking economic conditions to conflict behavior. It should be noted, however, that the results in this paper do not imply a deterministic or solely materialist view of war. A number of factors besides economic interest are found to influence support for war. The results are intended to support a domestic theory of war in which the effect of economic factors in any particular conflict depend on the nature of the conflict itself, the relative influence of opposing interests, and how domestic political institutions aggregate individual and group preferences, including the preferences of the state. Surely, some interests and some conflicts have little to do with the economy. In addition, it is not necessarily the case that "hawkish" economic interests cause war; if those interests can be credibly signaled, they simply define the bargaining range. On the other hand, such interests could help explain why states are sometimes dissatisfied with the status quo in the first place and, thus, willing to risk war in a crises.

B. Research Question and Literature Review

Broadly speaking, there are two closely related research questions motivating this paper: Why would individuals in the same country have different preferences over the use of force in an interstate crisis? And, do economic interests affect individual preferences over the use of force? These questions are fundamental to IR theory because nearly all domestic theories of war are grounded on assumptions about differences in

domestic preferences. Indeed, the primary reason to have a domestic theory of war is that one supposes that individuals have different payoffs from war and beliefs about its effects. If individuals have the same payoffs and beliefs, then the unitary actor assumption that has governed much of the analysis of international politics would suffice. Nonetheless, most explorations of the domestic politics of war proceed with little justification for the variance in security preferences that motivate their analysis. For example, many explanations of the democratic peace, whether normative (e.g Doyle 1983, Russet and Oneal 2001) or economic (e.g. Lake 1992, Bueno de Mesquita et al. 2003) are driven by assumptions about the determinants of individual security policy preferences. Many of these assumptions, however, are problematic. The public does not invariably favor tough diplomacy, as assumed in the audience cost literature (i.e. Fearon 1994), or only favor politicians that win wars, as assumed in Bueno de Mesquita et al. (2003).[46]

That individual preferences are a fundamental building-block of *any* domestically rooted theory of international politics has long been appreciated in the study of international trade and finance, but largely ignored in security studies. Whereas studies of the political economy of trade and investment ground claims about domestic preference heterogeneity in the SS and RV models of trade, studies of the political economy of war have nothing comparable. As a result, we understand surprisingly little about the material interests motivating the use of violence in international affairs. A goal of this paper is to

[46] Similarly, the public is not reflexively supportive of presidents during international conflict, as often assumed in diversionary theories of war (Downs and Rocke 1994, Ostrom and Job 1986, Fordham 1998b).

make the empirical analysis of domestic preferences as rigorous as the formal theoretical analysis of state interactions.

The dependent variable of this research question is security policy preferences at the individual level. I measure individual preferences with public opinion about the use of force against Iraq. Thus, in this section, I review three types of explanations of American public opinion about war. The first type of explanation, favored by both IR and American behavior scholars, focuses on the importance of information and elite cues. The second, with some representation in American behavior, comparative politics, and IR literatures, explains attitudes towards violence through the lens of social-psychology. As noted above, this paper adopts a third type of explanation, which emphasizes material self-interest. Of course, this approach is not novel and is already implicit in most neo-liberal and rational choice theories of war, so I use the literature review to point out what is missing in this tradition before explaining how I build on it.

Informational Theories

A common view of public opinion in the IR literature is essentially informational: either the pubic is mired in apathy and ignorance or it is easily manipulated by power hungry politicians. An important implication of this view is that public opinion is largely irrelevant to international relations, even in democracies. Purely informational conceptions of security policy preferences, however, are problematic for a variety of reasons. First and foremost, the public is *relatively* well informed about issues of war and peace. They are more knowledgeable of wars than most areas of public policy (see Aldrich, et al. 1989, Abramowitz 1994, Bartels 1994, Baum 2003, Holsti 2004). The view of the public as irrational or entirely ignorant of foreign affairs is simply out of date.

However, Mueller (1973), Zaller (1992), Jacobson (2007), Berinksy (2007) all offer more sophisticated versions of the informational story. In these accounts, the public is not nearly as apathetic or ignorant and the ability of politicians to influence the public exists but has limits. Voters may lack the incentives or ability to understand every detail of politics, but they acquire information from sources that they respect to arrive at positions that tend to reflect their own interests.

While scholars have marshaled an impressive amount of evidence in support of the elite centered view, for most conflicts, 80-90% of the variation in policy preferences is unrelated to partisanship (Wittkopf 1987, Holsti 2004). In addition, these studies do not eliminate the possibility that partisans and party elites simply have similar foreign policy interests and that voters can use information short-cuts effectively (Popkin 1994, Lupia and McCubbins 1998). Most importantly, even if partisanship is influential, it leaves many important questions for international relations theory unanswered: why has the public been more supportive of some conflicts than of others? Why did the public overwhelmingly oppose humanitarian operations in Somalia, but were relatively supportive of intervention in Bosnia? What can explain changes in support for operations in Iraq over time? Nonetheless, any analysis of public opinion about war must include measures of partisanship and political awareness and I do so below.

Socio-tropic Theories: Social Preferences and War

Socio-tropic theories of public opinion provide an alternative approach to explaining security policy preferences. The key contention of the socio-tropic perspective is that humans are fundamentally social animals, that they are not solely self-interested, but have developed altruistic or pro-social interests. A large number of controlled

experiments show that humans act pro-socially towards in-group members, but not towards out-group members or norm violators (Tajfel 1982, 1986; Brewer and Kramer 1986, Baron 2001, Bornstein 2003, Henrich et al. 2005; Fowler 2005, Fowler and Kam 2006). Moreover, two of the conditions that increase within-group altruism are group competition and norm violations (Baron 2001, Bornstein 2003b), conditions that seem to be present in interstate war. In fact, a common claim in the study of American political behavior is that public opinions are *primarily* socio-tropic. In regard to public opinion about war, a fairly consistent finding is that social interests are highly correlated with foreign policy attitudes. Historically, racial identity in the U.S. has had a much larger and more consistent relationship with security policy preferences than income, region, age, gender, education and even partisanship in most conflicts (Holsti 2004). Similarly, ethnic identity has been important in several conflicts. Berinsky (2009) re-analyzes opinion data from the 1920s and 1930s and finds that first and second generation Italians and Germans were more likely to oppose intervention in Word War II, while recent immigrants from Great Britain were most likely support it.[47] Moving forward 60-70 years, Kinder and Kam (2007), show that Americans who demonstrated greater degrees of ethnocentrism in their answers to ANES survey questions in 2000 were more likely to support the Bush administration's War on Terror in 2002.

There are, however, a variety of plausible alternative interpretations of the relationship between social identity and policy preferences. Most notably, social identity may be a heuristic for self interest or endogenous to self-interest (Fearon and Laitin 2000,

[47] And, contrary to conventional wisdom, the relationship between these attitudes and identities, continued throughout the course of war.

de Figueiredo and Weingast 1999). Discriminating between these and other views is a thorny methodological problem that I set aside here; I include social variables as control variables but do not try to prove or disprove their ultimate meaning in my empirical analyses.

Political Economy Theories

A third source of theories about domestic security policy preferences—and the source I develop and investigate below—come from positive political economy. Political economists attempt to explain policy preferences primarily by deriving the distributional consequences of those policies from economic models. Classic examples include the Meltzer-Richard model of tax policy, in which a constant tax rate benefits the poor more than the wealthy, or the Ricardo-Viner (RV) model of trade policy, in which tariffs benefit import competing industries more than export oriented industries. It follows that a political economy theory of security policy preferences would start by exploring the distributional consequences of various security policies. A focus on distribution consequence is plausible on its face because the economic costs of war are often quite large. The economic costs of the Iraq war, for example, dwarf those of U.S. trade barriers in 2004.[48] In addition, the ratio of defense spending to discretionary social spending increased 90 percent in the run-up to war (Cypher 2002). This suggests that a "guns versus butter" tradeoff could be a salient consideration for many individuals and groups. Existing studies tangentially support this intuition. Nincic (1997) shows that such a guns versus butter trade-off is broadly apparent in affecting changes in isolationist sentiment over time. In addition, Trubowitz (1998) and Fordham (1998a, 2008) provide evidence

[48] For an estimate of the Iraq War, see Blimes and Stiglitz 2006.

that congressional votes on security policies and defense spending are related to the economic make-up of congressional districts and states.

Previous studies of *public opinion about war*, however, have concluded that material interests are essentially irrelevant (Sears 1980, Holsti 2004, Berinsky 2007). Unfortunately, these studies use quite blunt indicators of self interest. For example, Sears measures self interest by whether or not respondents were a member of the military or had a family member in the military. Holsti includes measures of income and region to test hypotheses about class and regional cleavages, but only vaguely specifies the relationship between the variables he measures and theories about economic interests in war. And, Berinsky (2007) experimentally manipulates information about the costs of the war with Iraq in 2003, but the information concerns the effect of the war on the economy as a whole. As a result, it is plausible that more refined, more theoretically motivated measurements of economic interests would produce different results, which is what I find below.

C. Theory: Distributional Consequences of War and Preferences Over the Use of Force

The political economy theory adopted in this paper asserts that it reasonable for economic interests to affect individual policy preferences over the use of force. Some might contend, instead, that wars have relatively homogenous consequences for the national economy. Alternatively, some may argue that national strategic incentives make the distributional consequences of war virtually irrelevant. In this section, I address these concerns. First, I explain why international disputes have heterogeneous consequences. Second, I review a model of strategic interaction in order to identify the particular

consequences of international disputes that are relevant to support for war. Third, I develop expectations about how the decision to use force to remove Saddam would differ across sectors of the U.S. economy. Fourth, I explain how and why the sectoral-level effects of war should influence the incomes of individuals. And, fifth, I explain why the economic effects of war translate into degrees of support and opposition to war. I argue, in particular, that it is possible but unlikely that strategic considerations in interstate bargaining confound the influence of individual economic interests.

As discussed in the literature review above, the idea that war creates winners and losers in the domestic economy is an old one. Some of these claims, however, seem to be mutually contradictory. For example, Rosecrance (1986) and Russet and O'Neal (2001) argue that commercial interests pay higher opportunity costs from war, while Lenin argued that war increased employment and access to markets. I prefer a more general approach that sees multiple economic effects of international disputes. They can change the demand and supply of goods and services, change who controls economic assets, and/or destroy factors of production. While this implies that war will often have macroeconomic consequences, it is also useful in predicting war's distributional consequences. In particular, as the RV models of trade show, if assets are not perfectly mobile, then these types of economic disturbances will create relative winners and losers that differ by economic sector.

There are two main advantages of this approach. One, it allows us to consider both the direct and indirect implications of war across a wide range of industries. For example, a dispute which is likely to induce a change in the price of oil will not only affect the petroleum industry, but will also have a broad distribution of effects that

depends on the intensity with which industries use petroleum in production and consumption (see for example, Hamilton 2003 and Killian 2008). Similarly, the production and implementation of violence is likely to stimulate production in some sectors—in turn of the century America, ship building and steel—but disrupt economic activity in others—such as travel or any commerce in the path of combat. Two, a focus on sectors facilitates systematic empirical research. There is considerable economic data on economic sectors and individuals' sector of employment is easily identified.

The ultimate question of interest in this paper is why individuals prefer war to a peaceful settlement. As a result, it is necessary to be precise in identifying which consequences of international disputes are relevant to the decision to go to war. This, in turn, requires a theory of strategic interaction between states. The theory that I use is the bargaining model of war (Fearon 1995, Powell 1999), a widely applied theory in the study of both interstate and intrastate conflict. In the bargaining model of interstate conflict, two states (State A and State B) seek to resolve a generic dispute and can do so either peacefully or through violent conflict. The dispute can be anything from the location of a border to trade and investment policy to domestic institutions to weapons policy. It follows that, in order to determine the economic consequences of choosing war, one must consider both the policy consequences of a dispute and the economic consequences of war itself. Concerning the policy implications of a dispute, a broad continuum of policy outcomes are theoretically possible: (1) the issue remains unresolved and the status quo is maintained, (2) a range of settlements that increasingly favor State

A, (3) a range of settlements that increasingly favor State B. Each outcome, moreover, can be reached peacefully or through violent conflict.[49]

Thus, in deciding whether or not to support war, one must compare two potential futures: the one in which war occurs and the one in which a peaceful settlement is reached. This, in turn, requires comparing (1) the expected consequences of resolving the policy dispute *through war* and the expected consequences of violence itself to (2) the expected consequences resolving the policy dispute *without war.*[50] Since this is the comparison of interest, for simplicity I refer to the difference between these two quantities as the expected effects of war. It should be clear that in order to assess these effects for any particular conflict one must carefully consider these features of the pre-conflict environment.

I now turn to assessing the expected effects for the Iraq War of 2003. In my assessment, I rely on the fact that the war's potential consequences were heavily discussed by experts, politicians, and policy-makers and that the press covered these discussions extensively. By the fall of 2002, all the major media outlets had run multiple stories about the possibility of war with Iraq and stories focusing on its economic effects were commonplace.[51] Although beliefs about the nature of such a conflict changed over

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[49] Since I am concerned with trying to understand why war occurs, peacefully resolved disputes include disputes that are resolved through the threat of violence or economic sanctions.

[50] In retrospect, it appears that the outcome of some historical disputes that were resolved through violence, like the Korean War, *could have* been reached peacefully. If the expected outcome of violence and a peaceful settlement were the same, *ex ante*, then the only effect of war is the effects of violence itself. While it is certainly possible that states fight this type of "war of resolve," it is important not to confuse the results of war with pre-war expectations.

[51] Early stories discussing war projections in major newspapers include: Michael O'Hanlon in "Three Months to Baghdad," *The Washington Times*, August 30, 2003; Eric Schmitt and Thom Shanker "Threats and Responses: Military Tactics; U.S. Refines Plans for War in Cities," *New York Times*, October 22, 2002; and "Saddam's Oil" *The Wall Street Journal*, September 15, 2002. Congressional democrats published an early assessment of the war's cost in *Assessing the Cost of Military Action Against Iraq: Using Desert*

time and varied from person to person, there was a surprising amount of agreement about the general parameters of the dispute. The Bush administration said that it was considering using force to remove Saddam Hussein from power because of Iraq's chemical and biological weapons program as well as Hussein's potential connections to terrorist groups, especially Al Qaeda. In addition, several outlines of the military plan for the war had been leaked to the press (e.g. Schmitt and Shanker 2002), and commentators openly debated the nature and costs of the post-conflict reconstruction of Iraq (e.g. Clark 2002). At the same time, there was some hope that Saddam Hussein would want to avoid another military confrontation with the United States and would disarm himself peacefully, a process that could be monitored by U.N. weapons inspectors.

What were the likely policy effects of trying to removing Saddam Hussein from power? Because of the ease with which the United States had invaded Iraq in 1991 and overthrown the Taliban in Afghanistan in 2001, a U.S. military victory was thought to be very likely. In a widely cited assessment, Anthony Cordesman estimated that there was a 5-10 percent chance that it would take more than 90 days for the U.S. to topple Saddam.[52] In other words, if the United States decided to go to war, a new regime would almost

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Shield/Desert Storm as a Basis for Estimates, House Budget Committee, Democratic Staff, September 23, 2002 and the Congressional Budget Office published another in "Estimated Costs of a Potential Conflict with Iraq," September 2002. The White House indicated that it was committed to rebuilding Iraq following an invasion in an October 7th news release http://www.whitehouse.gov/news/releases/2002/10/20021007-8.html. General Clark estimated the cost of reconstruction efforts in a statement before the House Armed Services Committee, September 26, 2002. Other influential projections include: James Fallows, "A Liberated Iraq Could End Up Like Weimer Germany," September 24, 2002, *The Guardian*; Anthony *Cordesman Iraq's Military Capabilities in 2002: A Dynamic Net Assessment*, Center for Strategic and International Studies, Washington, September 2002; CRS-RL31585, Marc Labonte and Gail Makinen, *Possible U.S. Military Intervention in Iraq: Some Economic Consequences*, October 1, 2002; "Counting Casualties: How many people would die in an Iraqi War?, Slate, September 25, 2002; William D. Nordhaus, "The Economic Consequences of a War with Iraq," October 29, 2002; and Laurence Meyer, "After an Attack on Iraq: The Economic Consequences" Conference summary from the Center for Strategic and International Studies, November 21, 2002.

[52] In addition, as shall be discussed below, the price of the publicly traded June "Saddam Security" prior to the invasion indicated a belief that there was a 95% chance that he would be removed within three months.

certainly come to power in Iraq. This would mean the elimination of the sanctions regime that been in place since 1990, which severely limited Iraqi oil exports. It would also increase investment opportunities for U.S.-based companies in Iraq, especially those involved in oil drilling and exploration. In the very long term, this may have also meant more oil available form Iraq on the international market and a reduced threat of additional Middle East oil crises, though the bump in production from Iraqi oil would probably reduce world oil prices by only $1 per barrel (Nordhaus 2002).

What about the direct effects of war? Projections about the cost of military operations varied, but most reports estimated that the deployment of between 100,000 to 250,000 soldiers to Iraq for 3 to 9 months would cost between $50 and $140 billion (CRS-RL31585 2002, Meyer 2002). At the very least, this increase in defense spending would marginally boost demand for defense industries and defense contractors associated with the transport of troops, and, to a lesser extent, industries that produce inputs for defense industries, such as primary metal industries. In addition, analysts projected considerable government spending on occupation, peacekeeping, reconstruction and nation-building in Iraq, totaling between $100 and $600 billion (Meyer 2002, Nordhaus 2002). Given that much of this money would be paid to private companies, it was reasonable to expect that the war would increase demand for products in the construction, building products, and private security sectors. On the other hand, under the Bush Administration, military and reconstruction spending was likely to be financed through higher deficits, which would increase inflation and interest rates, the latter causing investment and other interest-sensitive spending to be lower than it would otherwise be

(CRS-RL31585 2002). If follows that sectors that rely on business investments, such as information technology, would be especially hurt by war.

Another widely discussed potential direct effect of war with a Iraq was the disruption of oil production in the Persian Gulf. By 2002, the American public had extensive experience with political crises in the Persian Gulf and oil prices, as they had contributed to recessions following the Yom-Kippur War in 1973, the Iranian Revolution in 1979, and Iraq's invasion of Kuwait in 1990. Although the extent to which this would occur again was unclear, a short-term increase in oil prices was thought to be likely (CRS Report RL31676, WSJ September 15, 2002). The recessionary effects of an oil price shock come primarily through its effect on consumer's real income and, thus, spending. It follows that sectors that rely on consumer discretionary spending would be especially hard hit by war. Relative to these sectors, by contrast, higher oil prices actually increase profits for oil and other energy producers—oil producers because they receive more money from what they already own and other energy producers as consumers switch to alternative forms of energy. As discussed above, a U.S. victory would mean lower energy prices in the long term with precisely the opposite effect. The net consequences are ambiguous, except that war was likely to improve opportunities for international oil investors.

More generally, forecasters expected the war to reduce consumer and business confidence in the short-term, further dampening consumer spending and business investment (Prakken 2002). One potential reason for this was fear of retaliation from Iraq involving the use of WMDs, most likely in the Middle East but possibly through a terrorist attack on U.S. soil. The industries whose demand is most susceptible to the

threat of terrorism are traditionally those related to tourism. Passenger airlines, for example, lost over $7 billion as a result of the September 11th attacks. Indeed, in the case of war, the airline industry would be hit in three ways: through an increase in the cost of fuel, through heightened fears of travel during the war, and consumers having less money to spend on leisure. In addition to its effect on consumer confidence, such speculation represented greater risk for insurance companies.

As explained above, the "expected effects of war" depend on what would happen if the United States decided not to invade Iraq. If the dispute was resolved without war, there are at least three plausible scenarios. One, the status quo could be maintained. If so, Iraq would continue to be a potential threat, while the U.S. would continue the "containment" of Iraq, which included the oil sanctions regime, deployment of troops in Saudi Arabia, heavy surveillance, occasional air-strikes of weapons facilities, the maintenance of no fly-zones in Northern and Southern Iraq, and the threat of retaliation. Two, Saddam Hussein could bow to U.S. pressure, dismantling his weapons program completely. For disarmament to be credible long term, however, some degree of U.S. or U.N. presence would be necessary. Three, Saddam Hussein could use the inspections process as a delaying tactic that would allow him to rebuild his forces before either attacking the United States or using its weapons as a bargaining chip in future disputes. Certainly, the third possibility was the one that the Bush Administration sought to avoid. It is difficult to assign probabilities to these different scenarios. What is instructive is what they have in common: only in the second scenario could Iraq significantly change its relationship with western investors—and there is no evidence that such a side-deal was extensively discussed.

To summarize, compared to a peaceful settlement, it was reasonable for Americans to expect that war would increase short-term oil prices, investment opportunities in Iraq, government spending on the military, transportation, reconstruction, and private security (and thus the deficit) and decrease consumer discretionary spending and interest-sensitive spending.

From this discussion, I deduce the following set of hypotheses about the "expected effects of war":

> H1: War with Iraq would be expected to have a relatively positive effect on profits in energy industries (especially oil drilling and exploration), defense industries, defense inputs industries such as metals, construction, construction inputs (such as building products), and transportation.
>
> H2: War with Iraq would be expected to decrease profits in airlines, insurance, and sectors dependent on consumer discretionary spending and business investment.
>
> H3: War with Iraq would have an intermediate effect on consumer staples, healthcare, real estate, and materials.

H1 covers industries for which a military operation would increase demand and those for which price shocks and post conflict investment opportunities would improve profits. The industries in H2 are those that were most sensitive to price shocks, inflationary pressures, and changes in the interest rate. H3 includes a collection of industries that do not benefit directly from war and are less sensitive to income shocks or aggregate price shocks. The industries in H3 rely heavily on non-discretionary consumer and non-discretionary government spending or receiving spending. I test all three hypothesis in the empirical section below.

How and why would these sectoral-level effects of war translate to individual incomes? The answer depends on whether or not assets are sector-specific. Indeed, in

international economics there was a long debate about factor mobility since assumptions about factor mobility drive the different conclusions in the SS and RV models of international trade. The SS and RV models both show how an exogenous change in product prices affects wages and profits. In the SS model, where the factors of production are perfectly mobile, an exogenous increase in the demand of a good increases wages (the price of labor) in all industries if the good is labor intensive, but profits (the price of capital) in all industries if the good is capital intensive. By contrast, in the RV model, where factors of production are not perfectly mobile, an increase in the demand for a good increases the wages *and* profits for workers and owners only in that industry, since it is costly if not impossible for workers and physical capital to be used in another industry. The effects of economic shocks are, however, similar within an industry because it is assumed that workers and capital can move between individual firms. To use an example from the hypotheses above, even if a construction worker is employed by a firm with no direct connection to the Iraq War, the increase in demand for construction workers throughout the economy improves his job and wage prospects. In this paper, I investigate the hypothesis generated by the RV approach because the net labor/capital intensity of the goods affected by war is ambiguous and there is empirical evidence supporting the RV assumptions in the contemporary U.S. (Beaulieu and Magee 2004, Hiscox 2001).

Will, however, the income effect of war be reflected in opinions about war? Or, do the incentives of strategic interaction render this conclusion irrelevant? Why not support war even if it would be disastrous with the hope that the other side backs down? For the answer, I return to the bargaining model. A key implication of the model is that

that international crises produce a risk-reward trade-off. States seek to get the best deal that they can, making offers that balance the benefits of getting a favorable settlement against the risk that the other side rejects the offer because it prefers war (Fearon 1995). This implies that states are willing to pay the costs of war if their adversaries refuse to compromise and war is winnable. In both of these calculations, the effect of the war itself and the benefit of winning are key variables. As they change, the types of offers one makes and rejects change.[53] While everyone has a strategic incentive to get the best deal possible, people facing different payoffs from war have different thresholds for risk-taking or bluffing. The danger of supporting a disastrous war is that the other side may not back down and such a strategy is less palatable for less "resolved" individuals.[54]

Nonetheless, it is theoretically possible that the income effects of war are irrelevant. Why? The other component of the decision-making process in crisis bargaining is the offer of the other state. The more extreme its offer, the less likely that the income effect of war would influence one's strategic response. If the other state is highly conciliatory, then almost everyone should accept. If its offer is especially recalcitrant or belligerent then few would accept it. In general, the bargaining model predicts moderate offers—the equilibrium offer is one that is just barely accepted. Nonetheless, it is possible that offers are more extreme, perhaps because a state has an unrealistic belief about its ability to win.

What type of offer did Sadam Hussein make after the Bush Administration issued its demands? Although he characterized U.S. requests as a violation of sovereignty and

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[53] See the equation and discussion of pg 101 of Powell (1999) for a discussion.
[54] Another way to state this is just as there are strong and weak "types" of states that behave differently in the same strategic environment, so are there strong and weak types of individuals that prefer different policies.

described the United Nations as tool of imperialism, he ultimately allowed weapons inspectors into the country. On the other hand, there were some details of his weapons program that he did not divulge; it was not entirely clear how cooperative he was being; and he refused to resign. In other words, as the bargaining model would expect, he tried to appease U.S. but did not give it everything it asked for. It follows that the offer implied by his behavior was likely to satisfy some individuals but not others. Putting together the arguments above, yields the following hypothesis:

> H4: the probability that individuals favored war with Iraq is increasing in the expected effect of war on asset prices in their industry of occupation.

In other words, in the context of an international dispute, individuals in industries facing relatively low economic costs of fighting and high economic rewards of winning are more likely to prefer war over diplomacy than the average individual.

I do not expect to find a deterministic relationship since it is unlikely that individual opinions differ only because of their industry of occupation. Though the economic effects of war should be similar for all employees and employers within an industry, they are not identical. Second, though I have not said so explicitly above, it is likely that additional factors could affect the utility of each outcome. In addition, individuals may have different beliefs about the probability of winning a war. Nonetheless, *H4* holds, ceteris paribus.

An additional testable implication of the theory follows from the discussion of assets specificity. Following Hiscox (2002) and Iverson and Soskice (2001), rather than assuming there is or isn't asset specificity, it is also possible to view factor mobility as a variable such that the degree of factor mobility varies across time, asset type, and

occupation. Thus, suppose that asset specificity/factor mobility depends on occupation type (unskilled worker, skilled worker, etc). For those with low asset specificity (or high factor mobility), the economic shocks of war for a particular industry would have smaller consequences for personal income because their assets, like unskilled labor, could move more freely to the relatively advantaged industries. This leads to the following expectation:

> H5: the relationship between industry of occupation and opinions about war with Iraq will be stronger (whether positive or negative), for workers with more sector specific job skills.

That is, to the extent that there is a relationship between industry attributes and opinions and war, it is only meaningful for those whose assets are specific to that industry. Workers with relatively general skills, such as laborers and administrative assistants, should be *less* concerned about economic shocks to their industry of employment.

In the next two sections I evaluate these hypotheses in two distinct but connected steps. First, I investigate H1, H2, and H3, estimating the expected economic effect of the Iraq war and then I use these results to construct the key independent variable in order to assess H4 and H5.

E. A Test of H1-H3: The Net Economic Costs of the Iraq War

Methodology

H1, H2, and H3 concern which economic sectors were expected to be the relative winners and losers in a conflict with Iraq. Much previous research on security policy preferences, both statistical and qualitative, has struggled to provide systematic evidence of this key attribute of conflict. Typically, scholars have deduced the expected effect of

war from its actual effect or used statements of expectations from experts or politicians. These methods are understandable given that wars have uncertain and multifarious consequences and economic expectations appear to be too nebulous to measure. Neither approach, however, is adequate. *Ex post* estimates of war suffer from hindsight bias; wars rarely turn out exactly as expected and only *ex ante* beliefs are relevant to the decision to go to war. Expert and political assessments tend to vary considerably and suffer from a cheap talk problem and individuals often have incentives to misrepresent their beliefs (Fearon 1995).

Fortunately, financial markets provide a solution. Financial markets respond to news about real and potential international events, are inherently prospective, aggregate divergent beliefs, and address the cheap-talk problem. They do so because they provide incentives to have accurate expectations; when information about the effect of international events is revealed, traders that made investment decisions based on fanciful or ideological driven beliefs will pay a financial cost. Indeed, economic theory holds that news driven changes in the price of a security reflect the market's average guess of how the value of an asset (or security) will change in the future (Campbell et al 1997). Numerous "event studies" have taken advantage of these characteristics of financial markets to estimate the aggregate effect of war (e.g. Abadie aand Gardeazabal. 2003, Guidolin, et al.2005, Frey and Waldenström. 2007).

The Iraq War is particularly amenable to this type of analysis because of a unique prediction market that existed well in advance of the outbreak of violence. Starting in September of 2002, Tradesports.com, an on-line betting exchange, allowed users to buy and sell securities that reflected the probability that the Bush Administration would

invade Iraq. In particular, Tradesports' June 'Saddam Security' was a contract that paid $100 if Saddam Hussein was no longer in control of Baghdad on June 1st, 2003, but $0 otherwise.[55] Because Saddam was expected to fall quickly if the U.S. invaded, the price of the 'Saddam Security' at any particular time can be interpreted as a close approximation of the percent probability of invasion in the view of the market.[56] Examining the correlation of these prices with securities tracking financial variables can, under certain assumptions, provide an estimate of investors beliefs about the consequences of war.

Indeed, the rich information in this data addresses a common problem in event studies: it provides an estimate of how the probability of war changes after an event. By contrast, traditional event studies typically rely on a single dramatic action—such as military deployment or a speech—that plausibly increases the perceived probability of war. *How much* such news affects those perceptions is, however, unknown. The 2003 Iraq War illustrates this problem: by the time the Bush Administration issued its final ultimatum to Hussein on March 17th, prediction market prices imply that there was already a 90% chance of war. As a result, the economic effects of conflict were likely to be largely priced into the market.

There are several reasons to believe that the 'Saddam Security' is a good indicator of beliefs about the probability of war among financial market traders. One—and most basically—many of the active traders on Tradesports.com were based on Wall Street or were traders in London. Two, the Saddam securities had a high trading volume—higher

[55] March, April and May Saddam securities had a different deadline, but were otherwise identical.
[56] The price of the June 'Saddam Security' was $95 on the eve of invasion, suggesting traders saw a 5% chance that Saddam would hold onto power through June. For simplicity, I do not make the small, 5% adjustment of coefficients that is implied by this probability.

than most securities at Tradesports.com or the Iowa Electronic Market—with a total of approximately $1.2 million traded. This speaks to the liquidity and efficiency of the market. Three, it indeed passed rigorous econometric tests of pricing efficiency (Leigh et al. 2003), suggesting prices followed a random walk and were trend stationary. Four, the broad trends in the price of the Saddam security correspond to the dominate pre-war narrative: uncertainty over whether or not UN-led inspections would be sufficient to disarm Iraq and satisfy the Bush administration and then subsequent U.S. and coalition military movements. And, five, its prices were highly correlated (r=.9) with an expert quantitative assessment of the probability of war, William Saletan's 'Saddameter,' published in slate.com.

To understand how the expected effects of war varied across industries and test H1-H3, I regress changes in the prices of 53 sectoral stock indices on changes in the price of the Saddam Securities. The following basic model of financial markets motivates this empirical approach. Traders trade financial assets and a prediction market security. The prediction market security pays p=1 if war occurs and 0 if not. Financial asset i is worth n_i without war and $\eta_i + \beta_i$ with it. Traders have heterogeneous beliefs about η_i, β_i and the probability of war, p. Beliefs about the probability and effect of war are uncorrelated across individuals. As a result, equilibrium prices in the financial and prediction markets will reveal the central tendency of trader's beliefs about $\beta_i p + \eta_i$ and p, respectively.

If beliefs about the probability of war and the non-war value of an asset (η_i) evolve over time and are uncorrelated with beliefs about the effect of war, then changes in the financial asset's price will be given by:

$$\Delta F_{it} = \overline{\beta}_i \cdot \Delta \overline{p}_t + \Delta \overline{\eta}_{it}$$

where ΔF_{it} and $\Delta \overline{p}_t$ are changes in the price of financial market and prediction securities, respectively, $\overline{\beta}_i$ is the mean expected effect of war for security *i*, and $\overline{\eta}_{it}$ are non-war events that affect the value of that security. If $\Delta \overline{p}_t$ and $\Delta \overline{\eta}_{it}$ are orthogonal to one another, then an OLS regression of a financial security on the prediction security will produce an unbiased estimate of $\overline{\beta}_i$ (Wolfers and Zitzewitz, 2009).

The assumptions in this approach are similar to most event studies, though two of them are especially important for the use of prediction market data and, thus, are worth defending further. The first is that views about the effect of war are uncorrelated with its probability. To make this more plausible, the sample of observations used in the analysis is restricted to a period in which news about the severity of war was limited (9/26/2002 to 2/6/2003). By February, news leaked that Kuwait and Saudi Arabia had pledged to increase oil production if necessary to stabilize oil prices and that the U.S. military was confident of being able to protect oil fields (CRS RL31715 2003). To the extent that news about the intensity of war was negatively correlated with news about its likelihood, this estimate would be biased *towards zero*.

[Insert Figure 3.1 Here]

The second is that changes in the predicted probability of war are uncorrelated with other determinants of stock prices. Traditional event studies usually use a single event or event window to estimate the effect of violence. Hence, any other type of news released at the time, like earnings reports or dividend announcements, could be the true cause of changes in security prices. More sophisticated event studies attempt to address this issue by constructing "control industries" in other countries and measuring non-war

news (see, for example, Guidolin et al. 2005). Constructing adequate control groups and measuring non-war news, however, are also error prone endeavors. Prediction markets provide a more powerful solution: because markets integrate information quickly and changes in security prices are not autocorrelated, observations are temporally independent (or nearly so). Thus, the chance that random confounding factors drive an observed correlation is declining in the number of observations, a probability that statistical tests measure. Figure 3.1 shows the closing price of the June Saddam Security and S&P 500 market index. It suggests that, at the very least, simple time trends do not drive the correlation between changes in the price of the Saddam Security and changes in the S&P 500. A related concern is that changes in security market prices *cause* changes in the perceived probability of war. This would require more than that policymakers are influenced by financial markets; it would mean that short-term fluctuations in security prices *contemporaneously* affect the *revelation of information* about the probability of war, which seems highly unlikely.[57]

Estimation and Results

My empirical estimates come from regressions in which I use the closing price of financial market securities matched to the most recent transaction of the relevant Saddam Security from September 19, 2002 to February 6, 2003. Because the various Saddam Securities did not trade on every day of this sample, using only the June Saddam Security would mean losing too much data. Thus, following Wolfers and Zitzewitz I stack 5-day differences from both the March and June securities, analyzing changes that occasionally

[57] A more technical concern is that the prediction-market traders use financial markets to profit in the less liquid (slower moving) prediction-market. As Wolfers and Zitzewetz argue, however, the fact that Salten's Saddameter was so highly correlated with the prediction markets and Salten did not follow financial markets suggests that even if it occurred the bias produced would be minimal.

span over several days.[58] This provides 139 observations of changes in the probability of war, which are used to predict changes in security prices. In their analysis, Wolfers and Zitzewitz conclude that the 2003 Iraq War was expected to be quite costly, decreasing the value of the S&P 500 by about 15 percent. I was able to replicate their results within 0.1%[59]

To measure the effect of war across industrial sectors, I use Standard and Poor's Sectoral Indices.[60] Standard and Poor's has compiled industrial indices dating to 1871 The indices are organized hierarchically, with 10 top-level sectors and industry groups and sub-groups within those sectors. The value of each index is tied to the value-weighted average of the stock prices of major firms in the S&P 500 each sector as determined by Standard and Poor's. These indices have been used in financial market research extensively and used as proxies for the real economy in Estrella and Mishkin (1998), Beber et al. (2010). In addition, Standard's and Poor's industrial classification system, known as GICS (the Global Industrial Classification Standard) has been shown to have greater intra-industry homogeneity than other schemes, including the Standard Industrial Classification (SIC) as compiled by Eugene Fama and Kenneth French

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[58] 5-day differences are the differences in the closing price of both the prediction market and security markets on trading day *t* and *t* - 5 trading days. The 5-day specification is Wolfers and Zitzewitz's preferred estimate due to evidence that the prediction markets exhibit a slight bid-ask bounce. Estimates of the effect of war from a 1-day difference specification are smaller in absolute magnitudes but the relative magnitude across sectors is very similar.

[59]The small difference is a result of my dropping cases with missing Saddam Security data at the beginning of the sample. Note that this estimate of the of effect of war supports the key assumption of the bargaining model that war is more costly than a peaceful settlement. Interestingly Wolfers and Zitzewitz conduct extensive additional analysis of option prices to determine that the large negative estimate is due to a small (10%) probability of a very bad war outcome. A 10% probability of a worst-case scenario war-scenario similar to the probability assigned by Cordesman, Nordhaus, and Meyer. Not surprisingly, markets rallied during the war when this worst-case scenario did not occur.

[60] The exception is the Homeland Security Index. Standard and Poor's had no similar indices, but such a sector was important for categorizing workers in private security firms.

(Bhojraj et al. 2003).[61] To facilitate comparisons across sectors and remove changes in prices that may be due changes in the risk premium, I use abnormal returns or "alphas" as the primary dependent variable in my analysis. To calculate abnormal returns, I estimate a single factor capital asset pricing model (CAPM) from 1/1/1996 to 6/30/2002, and then use those coefficients to produce prediction residuals for the sample of days for which the Saddam Security was traded**.**

Table 3.1 displays the results of separate regressions of abnormal returns on changes in the Saddam Securities. The coefficients represent the percentage change in abnormal returns in each industry due to a 1 percent change in the probability of war. Along with sectors explicitly identified in H1-H3, it includes additional sectors of interest. The ten broader, top-level sectors are bolded. In general, the results support H1-H3. The financial market's estimate of the economic consequences of war represent an aggregation of expert forecasts of the effect of war and economic intuition. The war was thought to be most dangerous for the Airlines, Insurance Companies and industries that rely on consumer discretionary and investment spending. The latter include the broad sector "Consumer Discretionary" and sub-sectors within it such as Media (e.g. Time-Warner), Consumer Retailing, Hotels, Restaurant and Leisure, as well as the investment and/or consumer dependent sectors of Farm Equipment, Electrical Equipment, Paper and Forest Products, Information Technology, Software Services, Technology Hardware, Telecommunications, and Wireless Telecommunication. By contrast, the war was expected to have relatively benign consequences for those connected to the war effort

[61] I also estimated the effect of war on the Fama-French sectoral data. Although the results were consistent for easily matched sectors, too few of the industries with clearly identifiable war-related stakes have their own category in Fama-French his data. In particular, the Fama-French data lacks categories for construction, oil drilling, and insurance. Results are available upon request.

itself (Aerospace and Defense, Transportation, Air Freight, Road and Rail), reconstruction and peacekeeping (Construction and Engineering, Building Products, Homeland Security), and Energy *producing* sectors (Oil and Gas, Utilities). Lastly, industries whose revenue is typically less responsive to short-term fluctuations in demand or who have sources of demand that were both increasing (government military and reconstruction spending) and decreasing (consumer discretionary) fell towards the middle. This includes sectors such as Consumer Staples, Consumer Durables, Commercial Services, Household Personal, Health Care, Materials, Real Estate, Automobile, and Banks. An industry whose economic outlook probably depended on conflicting sources of demand was automobiles. For example, General Motors produced Hummers for the general public and military support vehicles of a similar design; hence they would be hurt by reduced consumer spending because of war, but those losses would be partially offset by orders from the government.

[Insert Table 3.1 Here]

Considering the complexity and uncertainty inherent in military action, this is an excellent measure of the "expected effect" of war across industries. The prediction market data tracks the probability of a war and non-war resolution of the dispute, providing the ability to draw inferences about the economic outlook of different political futures. In addition, financial markets consider more than the direct, budgetary costs of war; they also consider the harder to quantify general equilibrium consequences of price shocks and changes in the interest rate.

The results are also potentially informative for IR theory. As commercial and capitalist peace theories assume, many commercial sectors and export dependent sectors

in the U.S. were expected to suffer especially sharp losses in war. In general, this was especially true for advanced industries requiring investment and a stable economic climate. On the other hand, sectors that benefit from government spending were less damaged. In addition, a naïve measure of trade flows between Iraq and the U.S might lead one to expect that the oil industry would be hurt by war with Iraq, but that was not the market's expectation.

On the other hand, these estimates do not measure the true expected economic effect of war across sectors in the real economy. Even though this analysis is far more finely-grained than most, it is possible to identify additional sub-sectors within the 53 used here. More important, in some sectors it is possible that publicly traded companies do not serve as an accurate proxy for all industries in the United States. For example, it is possible that only a few large publicly traded companies acquired military contracts in construction, but smaller construction firms were hurt by war However, given that it is not obvious how these sources of measurement error are correlated and that uncorrelated error produces attenuation bias, it is likely that the results below *underestimate* the effect of economic interests on opinions about war that I shall investigate in the section below.

F. A Test of H4-H5: The Economic Effect of War and Public Opinion

Methodology and Data

H4 and H5 predict that the expected effect of the Iraq war on Americans' industry of occupation affected their preference over the use of force. My key independent variable in these hypotheses, $\Delta E(\textit{industry asset price})$, comes from matching the estimates in Table 3.1 to individuals' industry of occupations. My dependent variable

comes from opinion surveys. Some scholars of international relations may be skeptical that surveys can offer a valid measurement of preferences. They may be concerned about the wording of questions; they may wonder if respondents are sincere in their responses; and they may favor measuring preferences through behavior. Although these concerns are reasonable and "revealed preferences" would be valuable, there is ample evidence from public opinion research that the views expressed in opinion surveys are politically meaningful. In particular, we know that opinion cleavages over the use of force among the general public closely mirror the cleavages that exist in congressional voting (Jacobs and Page 2005). In addition, respondents that oppose (support) war typically vote for presidents or congressmen that also oppose (support) war, regardless of partisanship (Neimi and Jennings 1991). Lastly, we know that presidents attend to public opinion about international disputes as measured in opinion surveys (Aldrich et al. 2006).

Thus, to assess support for the invasion of Iraq in 2003, I use the American National Election Series (ANES) data from 2000-2002. The ANES is the pre-eminent academic survey of American public opinion. Every two years the ANES conducts pre and post election surveys covering a broad range of political and social issues. It also has rather fine-grained occupational and industry data, which is a necessary to construct *ΔE(industry asset price).*[62] A final advantage of the 2000-2002 panel is that a large number of respondents took part in both surveys, yielding panel data. This allows me to

[62]To use the estimates in Table 1 in an analysis of public opinion an additional step is required: they must be matched to the industry of occupation of ANES survey respondents. The ANES classifies each individual's reported occupation into one of 254 different sectors using the Standard Industrial Code (SIC) system. This system differs from the one used by Standard & Poor's (the Global Industry Classifications Standard, GICS). Fortunately, the discrepancies between the two systems are relatively well studied. I rely on Bhojraj et al (2003) in translating between the two systems. The list of SIC industries and their S&P counterparts as well additional details about translating between the two are in the appendix. Matching the estimates in Table 1 to the ANES employment data in this manner yields *ΔE(industry asset price).*

measure control variables in 2000, before a war with Iraq was a widely discussed possibility, diminishing concerns about reverse causality or simultaneity bias, which are frequently cited in critiques of studies that use public opinion data (Bartels 2006).

In the fall of 2002, ANES asked subjects whether or not they favored the use of military force to remove Saddam Hussein from power.[63] Answers to this question, which vary from strongly favor to strongly oppose, is the dependent variable in this analysis. At the time of this survey it was widely reported that the Bush Administration was considering invading Iraq, but whether or not it would be necessary was not yet known. Thus, this question provides a reasonable approximation of the strategic environment described above: the U.S. was clearly dissatisfied with the status quo and Hussein appeared to be unwilling to compromise enough to appease the Bush administration. The public was relatively split on the issue, with about 55% of respondents favoring military action, and 45% either ambivalent or opposing it.

Control Variables

To make my estimate of the effect of $\Delta E(\textit{industry asset price})$on support for war credible, my analysis must control for other plausible determinants of support for military action.

The panel structure of the ANES data allows me to include a "pretest" measure of respondents' support for military action. Since the ANES did not ask respondents about invading Iraq in 2000, I rely on "proxy pretest", called *Defense Spending*, which indicates if they thought the U.S. government should increase, decrease, or keep defense spending

[63] The question was: "As you may know, President Bush and his top advisers are discussing the possibility of taking military action against Iraq to remove Saddam Hussein from power. Do you FAVOR or OPPOSE military action against Iraq -- or is this something you haven't thought about?"

the same in 2000. Though supporting defense spending is clearly different than supporting military action, support for defense spending is a useful proxy since my theory centers on economic interests in war. Including this measure should reduce bias that might result if respondents that tend to favor policies that increase military spending select into industries that were expected to benefit from war.

As explained above, the two most prominent explanations of public opinion about war focus on the influence of partisanship and social identity on preferences. Thus, I include a standard measure of *partisanship* from the ANES in the analyses. This variable has five categories, running from strong Democrat to strong Republican.[64] In addition, following a common approach in the literature on public opinion, I control for the effect of partisan cues by including a measure of political *awareness*, measured by answers to factual questions, and interact it with party ID (Kinder and Kam 2007). The rationale for doing so is that individuals who are aware of current events are more likely to know the position of their party.[65]

Note that the alignment of the major political parties in the U.S. in 2000 and 2002 makes this a "hard case" for testing the proposition that economic interests affect opinions about war. By the time of the survey, the parties had taken distinct positions with respect to national security policy. That is, it was clear in 2002 that the Republican Party was more supportive of invasion than the Democratic party. In addition, this hawk-dove divide was well established by 2000. Thus, if individuals chose their partisan identification because of the parties' stance on foreign policy, then controlling for

[64] I considered using a non-parametric approach for controlling for the effect of partisanship, but the data show that the relationship between partisanship and opinions about war is almost perfectly linear.
[65] I do not report it below, but the results are only slightly stronger if I drop the interaction of partisanship and awareness.

partisanship will bias downward the effect of any non-partisan variables, including economic or social variables, decreasing the chance of finding evidence in support of H4 and H5.

To address the potentially confounding effects of social identity and social preferences on opinions about war, I include two sets of controls. The first set includes the variables *black, female*, and *authoritarianism*. *Black* and *female* are dummy variables equal to one if the respondent is black or female, respectively. Women are said to be more empathetic and thus have a general dislike for violence (e.g., Conover and Sapiro 1993). African Americans tend to oppose U.S. military action. It is not entirely clear why this is the case, though it has been suggested that African Americans tend to believe that war usually promotes the interests of white Americans, but puts black soldiers in harm's way (Mueller 1973, Holsti 2004). The authoritarianism scale is constructed from responses to questions about how to raise children. It captures the idea that some people have an intrinsic taste for justice or punishing norm violators and that this taste is an important consideration in opinions about foreign affairs (Liberman 2006, Kinder and Kam 2007).

The second set of controls is plagued by missing data, so I include them separately. They are *ethnocentrism*, *religiosity*, and *education*. *Ethnocentrism* is a variable created by Kinder and Kam (2007) to test their theory that prejudice is an important reason for support of president Bush's war on terrorism. *Religiosity* is a scale constructed from questions asking how important Christianity is in the lives of respondents. It is added on the hypothesis that the war with Iraq is viewed as a conflict between religious identities (Huntington 1996). *Education* is simply the number of years

of schooling that the respondent completed, and may reflect the "cosmopolitan" norms that are often emphasized in higher education. Though education may also measure occupational characteristics, by including it as a control variable, I am attempting to be conservative in my estimate of the influence of economic conditions. To ease the interpretation of results, all covariates are normalized so that the lowest value is 0 and the highest value is 1.

Estimation and Results

To test H4, I estimate the relationship between asset type and public opinion about war, using an ordered probit model. Mathematically, this model can be expressed as:

$$y_{i,2002} = \alpha_0 + \beta_1 \Delta_{j,\,2000} + \mathbf{B}_2\mathbf{X}'_{i,2000} + u_i$$

$$P(y=m) = P(\tau_m < y^* < \tau_{m-1})$$

$$= \Phi\,(\tau_m - (\alpha_0 + \beta_1 \Delta_{j,\,2000} + \mathbf{B}_2\mathbf{X}'_{i,2000})) - \Phi\,(\tau_m - (\alpha_0 + \beta_1 \Delta_{j,\,2000} + \mathbf{B}_2\mathbf{X}'_{i,2000}))$$

Where Δ_j is $\Delta E(\textit{industry asset price})$ in industry j and $\mathbf{X}'_{i,2000}$ is a vector of control variables measured in 2000. The term $y_{i,2002}$ refers to the opinions (falling into one of m categories, 5 here) Americans expressed about the possibility of war with Iraq in the fall of 2002. The term y^* represents the unobserved latent variable that determines the level of support for military action.[66] The opinion variable is coded such that low values represent strong opposition to the war and high values represent strong support. The results of a single-

[66] The middle category of the dependent variable is "Unsure/I Don't Know," and one might be concerned that this category is not clearly greater than opposition and less than support in term of y^*, the latent "level of support." If so, then ordered probit is not the appropriate econometric model. A simple way to test this is to see if the "parallel lines assumption" required of an ordered probit model is violated. To do so, I performed a Wald-Test of parallel lines for all independent variables and found that only "awareness" and "authoritarianism" failed (awareness likely failed because, as one might expect, the least aware people were most likely to answer "unsure/I don't know" rather than the top or bottom category). A generalized ordered logit model in which all of the variables except awareness and authoritarianism were restricted to be parallel produced results that were nearly identical to ordered probit. Since these results are significantly more complicated to present and only differ for control variables, I present ordered probit.

equation multivariate regression are suspect if there is a high degree of correlation among the independent variables in the model. Fortunately, as can be seen in Table 3.2, the amount of correlation between *ΔE(industry asset price)* and the key control variables is relatively modest, peaking at .23 with Female and less than .02 for partisanship.

[Insert Table 3.2 Here]

Table 3.3 displays the primary evidence for evaluating H4. As can be seen, the relationship between *Δ E(industry earnings)* and support for war is as predicted; in all three models, support for war increases as the economic consequences of war improve for one's industry of occupation. In addition, most of the covariates are related to support for attacking Iraq in a way that is consistent with prior theoretical predictions. Those that favored increased military spending in 2000, Strong Republicans, Republicans aware of the news, and those with more authoritarian values were most likely to favor invading Iraq in 2002. By contrast, women, African Americans, and the highly educated tended to oppose invasion. Neither religiosity nor ethnocentrism had a statistically significant relationship with opinions about the war, when controlling for other factors, however. Model 3 drops these two variables and adds two less theoretically motivated covariates, fear of terrorist attacks and age. Their coefficients suggest that the young and people that thought additional terrorist attacks were likely were more supportive of military action.

[Insert Table 3.3 Here]

To illustrate the substantive importance of *Δ E(asset price)*, in Figures 3.2-A, 3.2-B, and 3.2-C, I graph the probability of strongly supporting and strongly opposing war with Iraq against *ΔE(industry asset price)*, among independents, democrats, and republicans, respectively. The predicted probabilities are generated from Model 1 by

setting the continuous control variables for each type of partisanship (Independent, Democrat, Republican) to the mean for each category and allowing $\Delta E(asset\ price)$ to vary.[67] Figure 3.2-A shows that the "average" Independent working in an industry that was most hurt by war was roughly equally likely to strongly support and strongly oppose the use of force to remove Saddam Hussein from power. By contrast, approximately 50% of typical Independents working in sectors that stood to profit from the war strongly supported it and only 10% strongly opposed it. Figure 3.2-B indicates that typical Democrats were, in general, less supportive of military action than independents, but also that support varied considerably with the expected effect of war on their industry of occupation. For Republicans, however, the economic effects of war appear to be less relevant. Figure 3.2**-C** suggests that, regardless of the expected effect of war, the average Republican was much more likely to strongly support war than strongly oppose military action.

[Insert Figure 3.2-A Here]

[Insert Figure 3.2-B Here]

[Insert Figure 3.2-C Here]

H5 states that the relationship between $\Delta E(industry\ asset\ price)$ should be stronger for those with industry-specific job skills. This claim is based on the intuition that some workers should care little about industry-level shocks because only the broader labor market is important for their income. To test this hypothesis, I created the variable *Mobile Labor* from the ANES occupation data. This variable was set equal to one for respondents working as administrative assistants, clerical workers and clerks, service

[67] *Female* is set at 1 (for females) for independents and democrats and to 0 (for males) for Republicans. *Black* is set to 0 (for non-Black) in all three graphs.

workers, machine operators, retail sales workers, janitors and other cleaners, drivers and truckers, security guards, general laborers and "helpers", and students working part-time, assuming that these occupations are less specific to particular industries. By contrast, respondents working as executives, proprietors, managers, engineers, technicians, sales supervisors, or in professional specialty occupations (scientists, doctors, dentists, etc), farming and forest, and precision production were coded 0. I then interacted *Mobile Labor* with Δ *E(industry asset price)* and included these two new variables and estimated the model as above. Table 3.4 displays the results.

[Insert Table 3.4 Here]

In all three models of Table 3.4, the coefficient on the first variable, *Mobile Labor,* was statistically indistinguishable from zero, indicating there was little difference in support for war, on average, between respondents whose job skills were relatively industry-specific and respondents with more general skills. Consistent with *H5*, however, the significance of the expected effect of war for one's industry of occupation was much greater for respondents with industry-specific job skills. In these models, the coefficients on Δ *E(industry asset price)* measures the association between the industry-wide effect of war for those with specific skills. The coefficient for workers with mobile job skills is obtained by summing together the coefficient for Δ *E(industry asset price)* and Δ *E(industry asset price)X Mobile Labor,* which is .313 in Model 4, a positive number but not significantly different than zero. In addition, comparing the models in Table 3.3 to the corresponding models in Table 3.4, suggests that industry-specific labor was driving the results in the initial analysis. In other words, the distribution of effects of war across sectors is related to public opinion about war, *but only among those with industry-specific*

*skills***.** Figures 3.4-A and 3.4-B demonstrate this pattern visually among independents. Whereas support for war appears to be invariant to the expected effects of war for those with general skills (Figure 3.4-A), support is strongly associated with the expected effect of war for those with industry-specific skills (Figure 3.4-B).

I took several steps to check the robustness of the results in Table 3.3 and Table 3.4. One, I re-ran all of the models with a dichotomous version of the dependent variable, set to 1 for those that said they "strongly supported" or "supported" using military force to remove Saddam Hussein from power and set to 0 otherwise. The results for my key independent variables in H4 and H5 were nearly identical.[68] This should alleviate concerns that respondents with extreme views were driving the results or that an ordered probit specification is inappropriate. Second, I included additional covariates to the most extensive models above (Model 3 and Model 6): a of measure patriotism in 2000 (*Patriotism*), based on a question that asked how much they "loved" the United States, a continuous measure of respondent's income (*Income*), a set dummy variables for region (coefficients not shown), and a measure of the military population in their congressional district (*Military Population*). Each of these variables have appeared in other analysis of opinion about war. Third, I re-ran Models 3 and Model 6 with all government employees removed from the data. While the stock market can provide reasonable proxies for how government employees working in different sectors (e.g. Health Care, education, or public safety) are affected by war, it's possible that the labor market dynamics in government jobs are unique. Nonetheless, these alternative model specifications do not substantively change the coefficients on the key variables of interest.

[68] Results of these analyses are shown in the appendix.

Discussion

Taken together, these results suggest that economic interests are an important consideration in public opinion about war. For this to be possible, it would seem that the public must have a fairly sophisticated understanding of how war would affect their economic interests. Berinsky (2007), by contrast, forcefully demonstrates that the public's beliefs about the costs of war are heavily mediated by elite discourse. While I agree that ordinary voters can be misled and are unlikely to form expectations about the consequences of war through their own research, they nonetheless have numerous sources of information about war, including congressmen, local business elites, national and regional newspapers, trade magazines, co-workers and friends. These sources may help them to gain more nuanced expectations than those generated by their party. Ultimately, however, the precise manner in which the public comes to understand its interests is a secondary issue. The validity of these results do not require *assuming* that the general public knows what investors know about the relationship between war and economic outcomes. Rather, the results test, in part, the assumption that an educated and invested guess of the effects of war is a useful predictor of what individuals, on average, will believe about the effects of war.

A plausible objection to this inference is that individuals choose their occupation partially because of some underlying ideological conviction which is also a determinant of security policy preferences. For example, workers in aerospace and defense might have, on average, a more hawkish vision of the world. Note, however, that the multivariate regression is intended to address this issue. The inclusion of support for defense spending in 2000, partisanship, authoritarianism, ethnocentrism, religiosity,

education, and threat perception in the model diminishes the chance that security "ideology" is driving the observed relationship between occupation and preference for war, since these variable measure such a construct. More importantly, these results are not driven by intrinsically hawkish or dovish industries. Construction and engineering was expected to be a major "winner" of the invasion of Iraq, but only because the replacement of Saddam Hussein required rebuilding Iraq. It seems unlikely that respondents' choice of occupation in 2000 was affected strongly by their opinions about a war that was not under serious consideration and undertaken by a president that had yet to be elected.[69]

Another possible objection is that the importance of economic considerations is unique to the 2003 Iraq war. Although it is true that the results of this paper only speak to the Iraq War, conventional wisdom suggests that economic interests were just as if not more important in other major American wars, such as the Mexican-American War, World War I, the Persian Gulf War in 1991. At the same time, the Iraq war was certainly unique. The industries for which the war was especially salient *should be* different than other wars which occur in different regions and eras and are fought for different reasons. The point of this analysis was not to identify intrinsically pro-war or anti-war industries, but to show that economic interests are related to public opinion about war in a logical fashion.

G. Conclusion

[69] Nonetheless, it is possible that some portion of respondents beliefs about war is unobserved in the analysis above and correlated with support for using military force to remove Saddam Hussein from power.

In this paper, I make two main arguments: (1) the economic consequences of war can be a significant consideration for public opinion about war and (2) public opinion about war is a puzzle with important implications for IR theory. The bulk of the paper is aimed at providing theoretical and empirical evidence to support the first argument with an analysis of public support for war with Iraq, as measured in the fall of 2002. I show that there were sound economic reasons for industry-based cleavages over support for war and that these cleavages are observable in public opinion data. Such cleavages, in addition, only hold, for individuals with relatively industry-specific skills, which is consistent with the underlying economic model used to motivate the analysis.

Concerning the second argument, these results provide preliminary micro-foundations for political economy theories of war. That is, the evidence that actors have different economic interests in war support theories of war that start by specifying individuals payoffs from conflict and compromise and then model how domestic institutions aggregate those interests. The term "two-level game" (Putnam 1999) has become a popular descriptor of such an approach and the models of war in Bueno de Mesquita et al. (2003) come close to integrating heterogeneous interests, institutions, and bargaining into a single theory of war. As yet, however, few such models accurately reflect the divergent effects of war and international disputes across individuals, which is critical for evaluating claims about the role of "special interests", such as the industrial military complex, in war. More generally, while scholars have clarified many of the strategic dimensions of violent conflict, much less is understood about the underlying interests in international disputes. This is a serious oversight given that the leading

strategic theories of war clearly state that actors with different payoffs or utility functions will act differently (see for example Fearon 1995, Powell 1999, Slantchev 2005).

To be clear, in arguing that public opinion about war is an important puzzle for international relations, *I am not* arguing that everyone's opinion influences state behavior or that the opinion of the median voter influences state behavior. In order for this question to have implications for IR, broadly speaking, the only claim one needs to accept is that the international environment does not wholly determine state behavior. If that is true, then, at the very least, public opinion provides information which allows us to investigate the nature of incentives to use political violence in international politics.

Lastly, although this paper focuses on the influence of economic interests on security policy preferences, I have not done so because I believe that they are the only determinant of security policy preferences. Rather, I have focused on economic interests because understanding economic interests is complicated enough to require its own analysis. In addition, surveys and other observational approaches already provide preliminary evidence that social preferences and information matter. The goal of this paper was to put economic considerations on (roughly) equal footing with those factors. An important next step is to investigate how important economic interests are in public opinion during other wars and other countries. Though prediction-market data may not always be available, I intend to use the event study methodology to investigate public opinion in Great Britain and Spain concerning the Iraq War and U.S. opinion toward intervention in Bosnia. In addition, in order to investigate whether or not economic factors enter into retrospective evaluations of war, I intend to use economic and employment data and vector auto-regressive models (e.g. Davis et al. 1997) to estimate

individual's "retrospective" economic interests.

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Table 3.1: Ex Ante Estimate of the 2003 Iraq War by Sector

	Alpha			Alpha	
Sector	Coefficient	S.E.	**Sector**	Coefficient	S.E.
Consumer Discretionary	-0.080***	(0.016)	**Industrials** (continued)		
Automobiles	-0.026	(0.043)	Air Freight	0.107***	(0.030)
Consumer Durables	-0.036	(0.026)	Airlines	-0.272***	(0.054)
Hotels Restaurant & Leisure	-0.043*	(0.023)	Building Products	0.165***	(0.044)
Media	-0.116***	(0.028)	Commercial Services	-0.029	(0.024)
Retailing	-0.078***	(0.027)	Construction & Engineering	0.302***	(0.069)
Consumer Staples	0.058***	(0.022)	Construction Materials	0.034	(0.046)
Food, Beverage, & Tobacco	0.048*	(0.027)	Electrical Equipment	-0.051**	(0.023)
Food Staples Retail	0.056	(0.039)	Farm Equipment	-0.102***	(0.039)
Household Personal	0.080***	(0.023)	Road and Rail	0.152***	(0.031)
Energy	0.072**	(0.029)	Transportation	0.071***	(0.021)
Energy Equipment	0.071	(0.049)	Wholesale Trading	-0.080***	(0.027)
Oil & Gas Consumables	0.170***	(0.045)	**Information Technology**	-0.167***	(0.030)
Oil & Gas Drilling	0.211***	(0.066)	Software Services	-0.183***	(0.042)
Oil & Gas Equipment	0.021	(0.046)	Technology Hardware	-0.205***	(0.037)
Oil & Gas Refining	0.074**	(0.029)	**Materials**	0.017	(0.024)
Finance	-0.014	(0.021)	Chemical Composite	0.025	(0.024)
Banks	-0.021	(0.030)	Containers & Packaging	-0.104***	(0.029)
Diversified Financial Comp.	-0.014	(0.019)	Gold Mining	0.470***	(0.076)
Insurance	-0.183***	(0.042)	Metals & Mining	0.048	(0.038)
Real Estate Investment	-0.030	(0.030)	Paper & Forest Products	-0.082*	(0.045)
Health Care	0.018	(0.020)	**Telecommunications**	-0.072	(0.051)
Health Equipment	0.144***	(0.032)	Diversified Telecomm.	-0.034	(0.052)
Pharmaceuticals & Biotech	-0.021	(0.024)	Wireless Telecomm.	-0.410***	(0.088)
Homeland Security	0.0911**	(0.041)	**Utilities**	0.112*	(0.059)
Industrials	0.0501***	(0.015)	Electrical Utilities	0.129**	(0.062)
Aerospace & Defense	0.155***	(0.031)	Oil & Gas Utilities	0.085***	(0.032)

n = 132, *** p<.01, p<.05, * p<.1

S&P 500 Top-level sectors in bold, sub-sectors indented; Homeland Security index by ISE-CCM

Table 3.2: Correlation Coefficients

	ΔE(Industry Asset Price)	Defense Spending	Partisan-ship	PartisanshipX Awareness	Awareness	Authori-tarianism	Female	Black
ΔE(Industry Asset Price)	1							
Defense Spending	0.0534	1						
Partisanship	-0.0134	-0.2729	1					
Part. X Awareness	-0.0315	-0.2181	0.4856	1				
Awareness	-0.0109	-0.007	-0.1044	0.6758	1			
Authoritarian	0.1134	0.1662	-0.0376	-0.2638	-0.2411	1		
Female	-0.2268	-0.0636	0.1045	-0.1312	-0.2681	-0.0403	1	
Black	0.0618	-0.0133	0.2727	-0.0647	-0.1822	0.1824	0.0126	1

n=1047

Table 3.3: Support for Military Action Against Iraq and Expected Effect Of War By Industry

IV	Model 1	Model 2	Model 3
ΔE(Industry Asset Price)	1.127***	1.270***	1.165***
	(0.350)	(0.382)	(0.355)
Defense Spending	1.297***	1.210***	1.339***
	(0.184)	(0.203)	(0.188)
Partisanship	-0.542***	-0.480***	-0.504***
	(0.165)	(0.185)	(0.168)
PartisanshipXAwareness	-1.107***	-1.172***	-1.326***
	(0.374)	(0.411)	(0.385)
Awareness	-0.0855	0.0701	0.218
	(0.240)	(0.270)	(0.254)
Authoritarianism	0.343***	0.216	0.258*
	(0.133)	(0.158)	(0.139)
Female	-0.171**	-0.177**	-0.180**
	(0.0759)	(0.0832)	(0.0773)
Black	-0.582***	-0.567***	-0.563***
	(0.132)	(0.145)	(0.136)
Ethnocentrism		0.225	
		(0.277)	
Religiosity		0.0458	
		(0.133)	
Education		-0.679**	-0.853***
		(0.334)	(0.293)
Fear of Terror			0.278**
			(0.128)
Age			-0.00809***
			(-0.0023)
Observations	1046	887	1032

*** p<0.01, ** p<0.05, * p<0.1

Standard errors in parentheses

Table 3.4: Support for Military Action Against Iraq and Expected Effect Of War, By Industry for Specific and General Labor

IV	Model 4	Model 5	Model 6
Mobile Labor	0.154	0.0479	0.0596
	(0.0964)	(0.0876)	(0.0808)
ΔE(Industry Asset Price)	1.618***	1.543***	1.418***
	(0.480)	(0.441)	(0.415)
ΔE(Industry Asset Price)XMobile Labor	-1.305	-1.061	-0.917
	(0.914)	(0.858)	(0.777)
Defense Spending	1.526***	1.207***	1.333***
	(0.222)	(0.203)	(0.188)
Partisanship	-0.719***	-0.480***	-0.506***
	(0.201)	(0.185)	(0.168)
PartisanshipXAwareness	-1.323***	-1.187***	-1.337***
	(0.446)	(0.411)	(0.385)
Awareness	-0.217	0.0866	0.230
	(0.284)	(0.271)	(0.254)
Authoritarianism	0.407**	0.208	0.256*
	(0.163)	(0.158)	(0.139)
Female	-0.206**	-0.183**	-0.187**
	(0.0933)	(0.0836)	(0.0777)
Black	-0.774***	-0.570***	-0.569***
	(0.165)	(0.145)	(0.136)
Ethnocentrism		-0.653*	
		(0.340)	
Religiosity		0.256	
		(0.279)	
Education		0.0572	
		(0.133)	
Fear of Terror			0.282**
			(0.128)
Age			-0.00788***
			(0.00228)
Observations	1046	887	1032

*** p<0.01, ** p<0.05, * p<0.1

Standard errors in parentheses

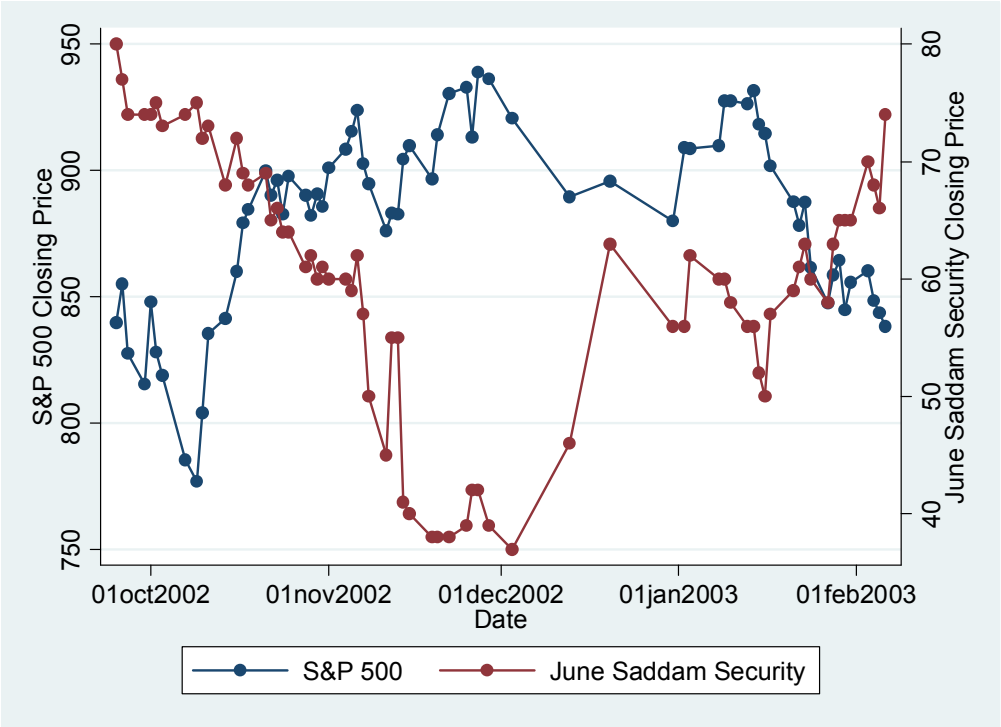

Figure 3.1: The Saddam Security and the S&P 500

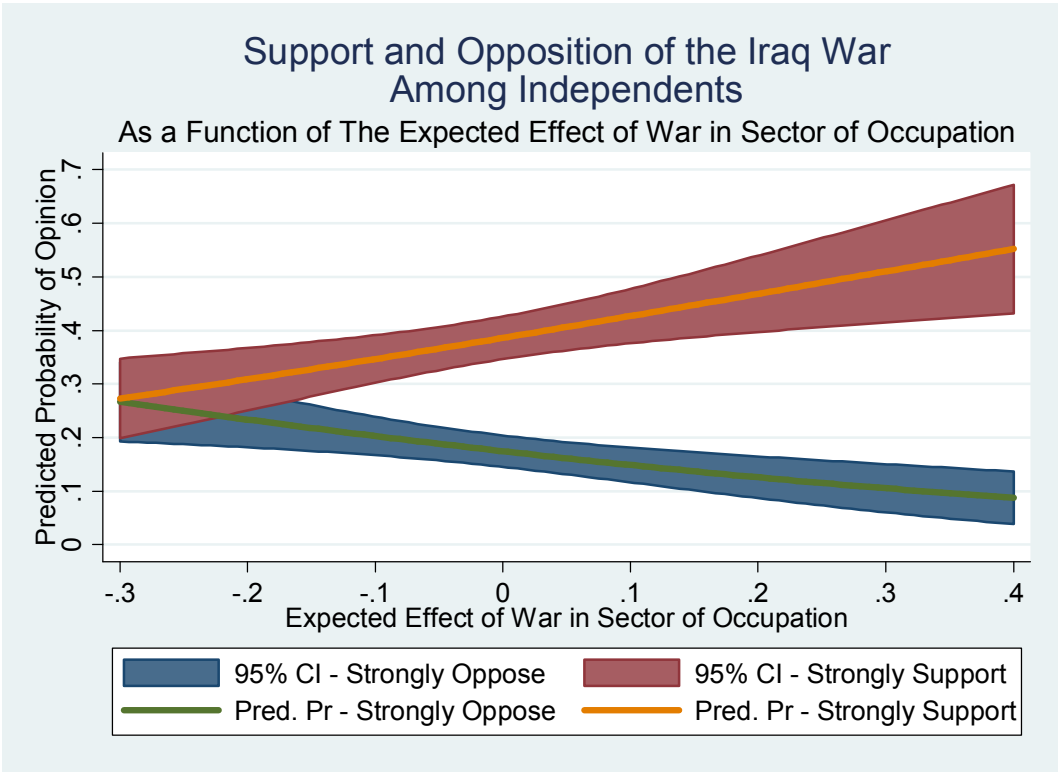

Figure 3.2-A: Support and Opposition to the Iraq War, Among Independents

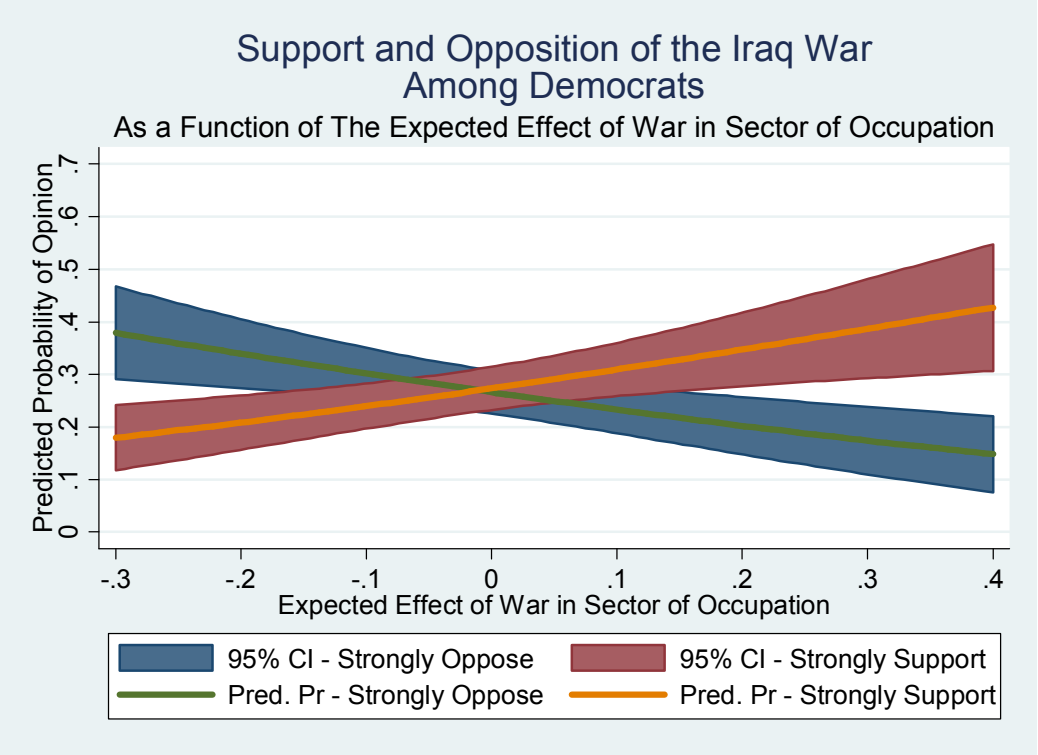

Figure 3.2-B: Support and Opposition to the Iraq War, Among Democrats

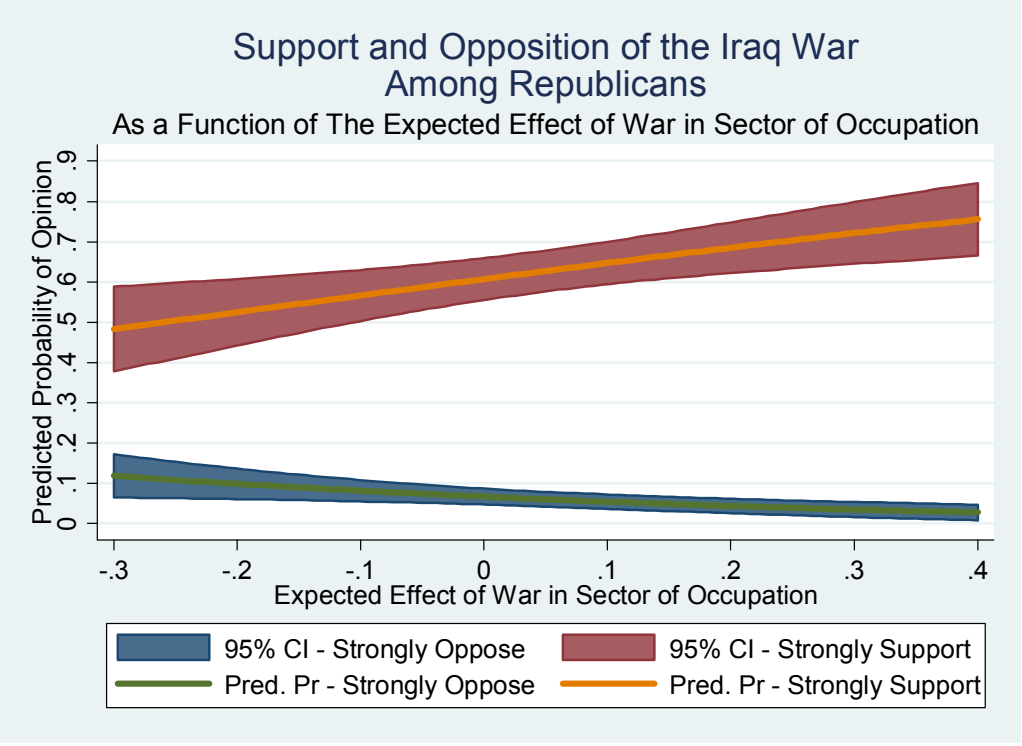

Figure 3.2-C: Support and Opposition to the Iraq War, Among Republicans

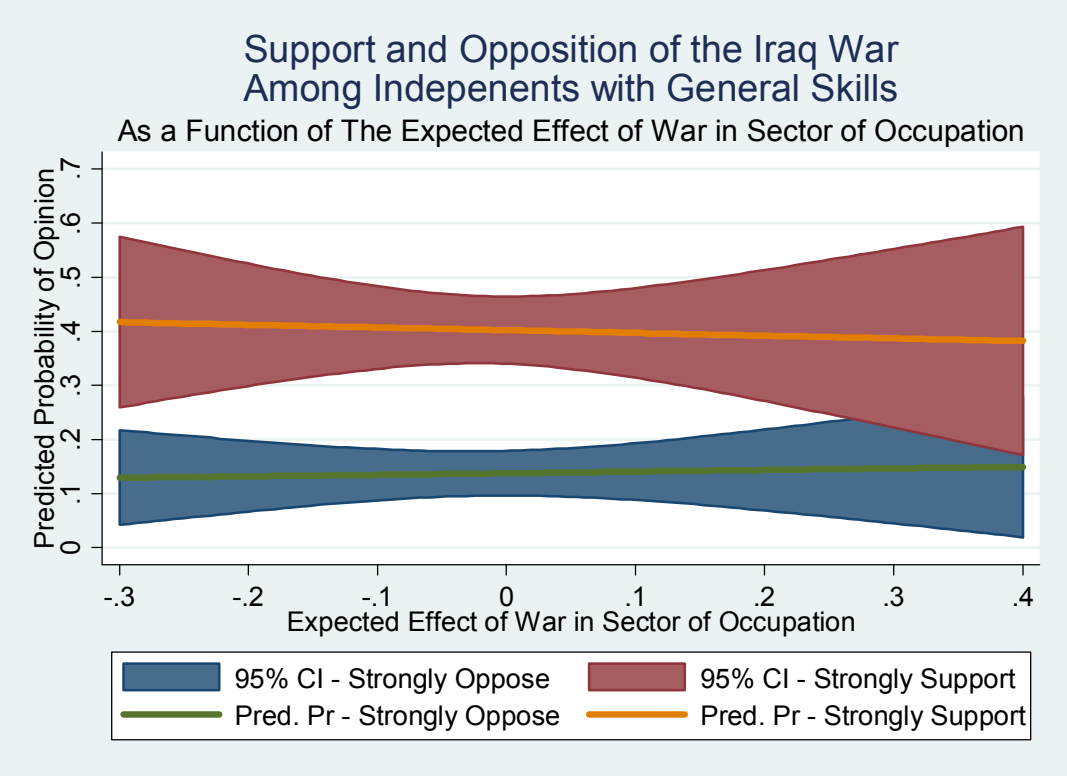

Figure 3.3-A: Support and Opposition to the Iraq War, Among Independents with General Skills

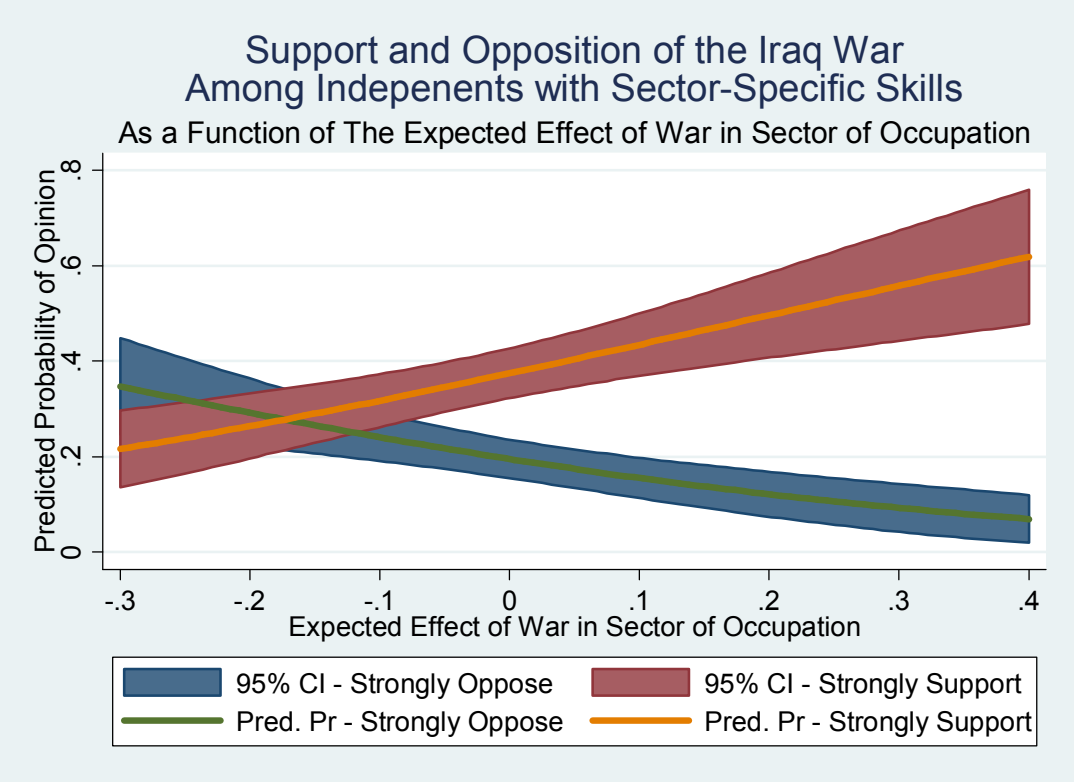

Figure 3.3-B: Support and Opposition to the Iraq War, Among Independents With Sector-Specific Skills

Appendix

Table 3.A2: Support for Military Action Against Iraq and Expected Effect Of War By Industry, Dichotomous DV

IV	Model 1	Model 2	Model 3
ΔE(Industry Asset Price)	1.291***	1.395***	1.331***
	(0.410)	(0.446)	(0.419)
Defense Spending	1.462***	1.329***	1.542***
	(0.219)	(0.239)	(0.223)
Partisanship	-0.605***	-0.487**	-0.555***
	(0.194)	(0.216)	(0.197)
PartisanshipXAwareness	-0.868*	-1.054**	-1.051**
	(0.444)	(0.487)	(0.458)
Awareness	-0.0995	0.0390	0.159
	(0.285)	(0.318)	(0.303)
Authoritarianism	0.177	0.109	0.171
	(0.156)	(0.186)	(0.164)
Female	-0.225**	-0.221**	-0.232**
	(0.0893)	(0.0977)	(0.0915)
Black	-0.636***	-0.588***	-0.632***
	(0.161)	(0.175)	(0.165)
Ethnocentrism		0.479	
		(0.323)	
Religiosity		-0.0177	
		(0.155)	
Education		-0.0774	-0.367
		(0.391)	(0.344)
Fear of Terror			0.369**
			(0.151)
Age			-0.0103***
			(0.00271)
Observations	1046	887	1032

*** p<0.01, ** p<0.05, * p<0.1

Standard errors in parentheses

Table 3.A3: Support for Military Action Against Iraq and Expected Effect Of War By Industry for Specific and General Labor, Dichotomous DV

IV	Model 4	Model 5	Model 6
Mobile Labor	0.113	0.0710	0.0693
	(0.0933)	(0.104)	(0.0965)
ΔE(Industry Asset Price)	1.751***	1.732***	1.674***
	(0.485)	(0.517)	(0.491)
ΔE(Industry Asset Price)XMobile Labor	-1.613*	-1.300	-1.243
	(0.886)	(0.999)	(0.916)
Defense Spending	1.460***	1.328***	1.538***
	(0.219)	(0.240)	(0.224)
Partisanship	-0.609***	-0.488**	-0.557***
	(0.194)	(0.216)	(0.197)
PartisanshipXAwareness	-0.894**	-1.072**	-1.065**
	(0.445)	(0.487)	(0.458)
Awareness	-0.0580	0.0623	0.174
	(0.287)	(0.319)	(0.303)
Authoritarianism	0.168	0.0965	0.168
	(0.158)	(0.186)	(0.165)
Female	-0.238***	-0.231**	-0.241***
	(0.0898)	(0.0982)	(0.0920)
Black	-0.645***	-0.590***	-0.640***
	(0.161)	(0.175)	(0.165)
Ethnocentrism		-0.0422	
		(0.399)	
Religiosity		0.515	
		(0.326)	
Education		-0.00377	
		(0.156)	
Fear of Terror			0.372**
			(0.151)
Age			-0.0101***
			(0.00272)
Observations	1046	887	1032

*** p<0.01, ** p<0.05, * p<0.1

Standard errors in parentheses

Table 3.A4: Support for Military Action Against Iraq, Alternative Model Specifications

IV	Model 7	Model 8	Model 9	Model 10
Mobile Labor		0.0365		0.0590
		(0.0944)		(0.0902)
ΔE(Industry Asset Price)	1.211***	1.524***	0.930**	1.283***
	(0.408)	(0.465)	(0.374)	(0.434)
ΔE(Industry Asset Price)XMobile Labor		-1.331		-1.347
		(0.937)		(0.836)
Defense Spending	1.147***	1.140***		
	(0.224)	(0.224)		
Partisanship	-0.370*	-0.374*	-0.527***	-0.531***
	(0.192)	(0.193)	(0.184)	(0.184)
PartisanshipXAwareness	-1.355***	-1.369***	-1.723***	-1.723***
	(0.438)	(0.438)	(0.429)	(0.429)
Awareness	0.0988	0.115	0.488*	0.494*
	(0.292)	(0.292)	(0.289)	(0.290)
Authoritarianism	0.238	0.237	0.322**	0.329**
	(0.158)	(0.158)	(0.153)	(0.154)
Female	-0.169*	-0.176*	-0.194**	-0.199**
	(0.0897)	(0.0902)	(0.0853)	(0.0858)
Black	-0.683***	-0.689***	-0.550***	-0.566***
	(0.168)	(0.168)	(0.151)	(0.152)
Education	-1.110***	-1.105***	-0.772**	-0.743**
	(0.343)	(0.347)	(0.322)	(0.326)
Fear of Terror	0.267*	0.275*	0.246*	0.253*
	(0.150)	(0.150)	(0.139)	(0.139)
Age	-0.00954***	-0.00950***	-0.00567**	-0.00551**
	(0.00275)	(0.00277)	(0.00248)	(0.00249)
Income	0.0162	0.0161		
	(0.0132)	(0.0133)		
Patriotism	-0.158***	-0.162***		
	(0.0482)	(0.0483)		
Military Population	-3.48e-06	-3.66e-06		
	(6.17e-06)	(6.19e-06)		
Excludes Government Employees	No	No	Yes	Yes
Observations	789	789	844	844

*** p<0.01, ** p<0.05, * p<0.1

Standard errors in parentheses

In Table 3.A5, the occupation code in the ANES is listed in the left column and S&P indexed to which it was matched is on the left. Where the closest match between the SIC and S&P codes was listed in Bhojraj et al. (2003) and was above 50%, I used their correspondence. In cases where the match was less clear, I matched them based on the ANES descriptor, which tends to be more precise and the list of companies in each S&P index. For example, Eastman Kodak has been a member of the Consumer Discretionary index so I assigned " photographic" workers in to that category.

One category of workers lacking a clear match requires additional explanation: government workers. I assigned individuals that worked in education, social services, and miscellaneous government posts to the value of consumer discretionary, since this the grouping under which the S&P 500 put educational services. While this may not be ideal, it corresponds reasonable well with the intuition that spending on defense crowds out discretionary social spending. By contrast, I assigned those working for the military, international security, and public safety to the value of the International Securities Exchange and Cronus Capital Markets (ISE-CCM) Homeland Security Index, which tracks companies engaged in contractual work with the Department of Homeland Security, law enforcement agencies, or providing products or services for border and transportation security; domestic counterterrorism; protection of critical infrastructure; defense against catastrophic threats; and, emergency preparedness and response. It is listed with the S&P indices in Table 3.1.

Table 3.A5: ANES to S&P Conversion	
ANES (SIC) Industry	**S&P Sector Index**
Agricultural production, crops (01)	Food, Beverage and Tobacco Production
Agricultural production, livestock (02)	Food, Beverage and Tobacco Production
Veterinary services (074)	Food, Beverage and Tobacco Production
Landscape and horticultural services (078)	Food, Beverage and Tobacco Production
Agricultural services, n.e.c. (071, 072, 075, 076)	Food, Beverage and Tobacco Production
Forestry (08)	Paper and Forest Products
Fishing, hunting, and trapping (09)	Food, Beverage and Tobacco Production
Metal mining (10)	Primary Metals and Mining
Coal mining (12)	Primary Metals and Mining
Oil and gas extraction (13)	Oil and Gas Drilling
Nonmetallic mining and quarrying, except fuels (14)	Primary Metals and Mining
Construction (15, 16, 17)	Construction and Engineering
Meat products (201)	Consumer Staples, Food
Dairy products (202)	Consumer Staples, Food
Canned, frozen, and preserved fruits and vegetables (203)	Consumer Staples, Food
Grain mill products (204)	Consumer Staples, Food
Bakery products (205)	Consumer Staples, Food
Sugar and confectionery products (206)	Consumer Staples, Food
Beverage industries (208)	Food, Beverage and Tobacco Production
Misc. food preparations and kindred products (207, 209)	Food, Beverage and Tobacco Production
Not specified food industries	Food, Beverage and Tobacco Production
Tobacco manufactures (21)	Food, Beverage and Tobacco Production
Knitting mills (225)	Consumer Durables and Apparel
Dyeing , finishing textiles, except wool, knit goods (226)	Consumer Durables and Apparel
Carpets and rugs (227)	Consumer Durables and Apparel
Yarn, thread, and fabric mills (221-224, 228)	Consumer Durables and Apparel
Miscellaneous textile mill products (229)	Consumer Durables and Apparel
Apparel and accessories, except knit (231-238)	Consumer Durables and Apparel
Miscellaneous fabricated textile products (239)	Industrials
Pulp, paper, and paperboard mills (261-263)	Paper and Forest Products
Miscellaneous paper and pulp products (267)	Paper and Forest Products
Paperboard containers and boxes (265)	Paper and Forest Products
Newspaper publishing and printing (271)	Media
Printing, publishing, except newspapers (272-279)	Media
Plastics, synthetics, and resins (282)	Oil and Gas Refining
Drugs (283)	Pharmaceuticals
Soaps and cosmetics (284)	Household Personal
Paints, varnishes, and related products (285)	Chemical Composite

Table 3.A5: ANES to S&P Conversion	
ANES (SIC) Industry	**S&P Sector Index**
Agricultural chemicals (287)	Chemical Composite
Industrial and miscellaneous chemicals (281, 286, 289)	Chemical Composite
Petroleum refining (291)	Oil and Gas Refining
Miscellaneous petroleum and coal products (295, 299)	Oil and Gas Refining
Tires and inner tubes (301)	Transportation
Other rubber products, and plastics footwear and belting (302-306)	Materials
Miscellaneous plastics products (308)	Materials
Leather tanning and finishing (311)	Consumer Durables and Apparel
Footwear, except rubber and plastic (313, 314)	Consumer Durables and Apparel
Leather products, except footwear (315-317, 319)	Consumer Durables and Apparel
Logging (241)	Paper and Forest Products
Sawmills, planing mills, and millwork (242, 243)	Paper and Forest Products
Wood buildings and mobile homes (245)	Paper and Forest Products
Miscellaneous wood products (244,249)	Paper and Forest Products
Furniture and fixtures (25)	Household Personal
Glass and glass products (321-323)	Consumer Discretionary
Cement, concrete, gypsum, and plaster products (324, 327)	Construction Materials
Structural clay products (325)	Construction Materials
Pottery and related products (326)	Construction Materials
Miscellaneous nonmetallic mineral and stone products (328, 329)	Construction Materials
Blast furnaces, steelworks, rolling and finishing mills (331)	Primary Metals and Mining
Iron and steel foundries (332)	Primary Metals and Mining
Primary aluminum industries (3334, part 334, 3353-3355, 3363, 3365)	Primary Metals and Mining
Other primary metal industries (3331, 3339, part 334, 3351, 3356, 3357)	Building Products
Cutlery, handtools, and general hardware (342)	Building Products
Fabricated structural metal products (344)	Building Products
Screw machine products (345)	Building Products
Metal forgings and stampings (346)	Building Products
Ordnance (348)	Aerospace and Defense
Miscellaneous fabricated metal products (341, 343, 347, 349)	Primary Metals and Mining
Not specified metal industries	Primary Metals and Mining
Engines and turbines (351)	Electrical Equipment
Farm machinery and equipment (352)	Farm Equipment and Machines
Construction and material handling machines (353)	Construction and Engineering
Metalworking machinery (354)	Industrials
Office and accounting machines (3578, 3579)	Technology Hardware
Computers and related equipment (3571-3577)	Technology Hardware
Machinery, except electrical, n.e.c. (355, 356, 358, 359)	Industrials

Table 3.A5: ANES to S&P Conversion	
ANES (SIC) Industry	**S&P Sector Index**
Not specified machinery	Industrials
Household appliances (363)	Household Personal
Radio, TV, and communication equipment (365, 366)	Electrical Equipment
Electrical machinery, equipment, and supplies, n.e.c. (361, 362,	Electrical Equipment
Not specified electrical machinery, equipment, and supplies	Electrical Equipment
Motor vehicles and motor vehicle equipment (371)	Automobiles
Aircraft and parts (372)	Aerospace and Defense
Ship and boat building and repairing (373)	Transportation
Railroad locomotives and equipment (374)	Road and Rail
Guided missiles, space vehicles, and parts (376)	Aerospace and Defense
Cycles and miscellaneous transportation equipment (375, 379)	Transportation
Scientific and controlling instruments (381, 382, exc. 3827)	Health Care Equipment
Medical, dental, and optical instruments and supplies (3827, 384, 385)	Health Care Equipment
Photographic equipment and supplies (386)	Consumer Discretionary
Watches, clocks, and clockwork operated devices (387)	Consumer Durables and Apparel
Toys, amusement, and sporting goods (394)	Consumer Durables and Apparel
Miscellaneous manufacturing industries (39 exc. 394)	Consumer Durables and Apparel
Not specified manufacturing industries	Industrials
Railroads (40)	Road and Rail
Bus service and urban transit (41, except 412)	Transportation
Taxicab service (412)	Transportation
Trucking service (421, 423)	Transportation
Warehousing and storage (422)	Containers and Packaging
U.S. Postal Service (43)	Containers and Packaging
Passenger Water transportation (44)	Airlines
Air transportation (45)	Airlines
Pipe lines, except natural gas (46)	Oil and Gas Equipment
Services incidental to transportation (47)	Transportation
Radio and television broadcasting and cable (483, 484)	Media
Telephone communications (481)	Telecommunications
Telegraph and miscellaneous communications services (482, 489)	Utilities
Electric light and power (491)	Utilities
Gas and steam supply systems (492, 496)	Utilities
Electric and gas, and other combinations (493)	Utilities
Water supply and irrigation (494, 497)	Utilities
Sanitary services (495)	Utilities
Not specified utilities	Utilities
Motor vehicles and equipment (501)	Automobiles
Furniture and home furnishings (502)	Consumer Durables and Apparel
Lumber and construction materials (503)	Building Products

Table 3.A5: ANES to S&P Conversion	
ANES (SIC) Industry	**S&P Sector Index**
Professional and commercial equipment and supplies (504)	Commercial Services
Metals and minerals, except petroleum (505)	Primary Metals and Mining
Electrical goods (506)	Electrical Equipment
Hardware, plumbing and heating supplies (507)	Building Products
Machinery, equipment, and supplies (508)	Construction and Engineering
Scrap and waste materials (5093)	Utilities
Miscellaneous wholesale, durable goods (509, exc. 5093)	Trading Wholesale
Paper and paper products (511)	Paper and Forest Products
Drugs, chemicals and allied products (512, 516)	Chemical Composite
Apparel, fabrics, and notions (513)	Trading Wholesale
Groceries and related products (514)	Consumer Staples, Food
Farm-product raw materials (515)	Consumer Staples, Food
Petroleum products (517)	Oil and Gas Consumables
Alcoholic beverages (518)	Food, Beverage, Tobacco Production
Farm supplies (5191)	Farm Equipment and Machines
Miscellaneous wholesale, nondurable goods (5192-5199)	Trading Wholesale
Not specified wholesale trade	Trading Wholesale
Lumber and building material retailing (521, 523)	Retailing
Hardware stores (525)	Retailing
Retail nursuries and garden stores (526)	Retailing
Mobile home dealers (527)	Automobiles
Department stores (531)	Retailing
Variety stores (533)	Retailing
Miscellaneous general merchandise stores (539)	Retailing
Grocery stores (541)	Consumer Staples, Food
Dairy products stores (545)	Consumer Staples, Food
Retail bakeries (546)	Consumer Staples, Food
Food stores, n.e.c. (542, 543, 544, 549)	Consumer Staples, Food
Motor vehicle dealers (551, 552)	Automobiles
Auto and home supply stores (553)	Automobiles
Gasoline service stations (554)	Oil and Gas Consumables
Miscellaneous vehicle dealers (555, 556, 557, 559)	Automobiles
Apparel and accessory stores, except shoe (56, except 566)	Retailing
Shoe stores (566)	Retailing
Furniture and home furnishings stores (571)	Retailing
Household appliance stores (572)	Retailing
Radio, TV, and computer stores (5731, 5734)	Retailing
Music stores (5735, 5736)	Retailing
Eating and drinking places (58)	Hotels, Restaurants, and Leisure
Drug stores (591)	Retailing

Table 3.A5: ANES to S&P Conversion	
ANES (SIC) Industry	**S&P Sector Index**
Liquor stores (592)	Food, Beverage, Tobacco Production
Sporting goods, bicycles, and hobby stores (5941, 5945, 5946)	Retailing
Book and stationery stores (5942, 5943)	Retailing
Jewelry stores (5944)	Retailing
Gift, novelty, and souvenir shops (5947)	Retailing
Sewing, needlework and piece goods stores (5949)	Retailing
Catalog and mail order houses (5961)	Retailing
Vending machine operators (5962)	Retailing
Direct selling establishments (5963)	Retailing
Fuel dealers (598)	Oil and Gas Consumables
Retail florists (5992)	Retailing
Miscellaneous retail stores (593, 5948, 5993-5995, 5999)	Retailing
Not specified retail trade	Retailing
Banking (60 exc. 603 and 606)	Banks
Savings institutions, including credit unions (603, 606)	Banks
Credit agencies, n.e.c. (61)	Banks
Security, commodity brokerage, and investment companies (62, 67)	Diversified Financial
Insurance (63, 64)	Insurance Composite
Real estate, including real estate-insurance offices (65)	Real Estate
Advertising (731)	Media
Services to dwellings and other buildings (734)	Commercial Services
Personnel supply services (736)	Commercial Services
Computer and data processing services (737)	Software Services
Detective and protective services (7381, 7382)	Homeland Security
Business services, n.e.c. (732, 733, 735, 7383-7389	Commercial Services
Automotive rental and leasing, without drivers (751)	Transportation
Automobile parking and carwashes (752, 7542)	Transportation
Automotive repair and related services (753, 7549)	Transportation
Electrical repair shops (762, 7694)	Commercial Services
Miscellaneous repair services (763, 764, 7692, 7699)	Commercial Services
Private households (88)	Hotels, Restaurants, and Leisure
Hotels and motels (701)	Hotels, Restaurants, and Leisure
Lodging places, except hotels and motels (702, 703, 704)	Hotels, Restaurants, and Leisure
Laundry, cleaning, and garment services (721 exc. part 7219)	Hotels, Restaurants, and Leisure
Beauty shops (723)	Consumer Discretionary
Barber shops (724)	Consumer Discretionary
Funeral service and crematories (726)	Consumer Discretionary
Shoe repair shops (725)	Consumer Discretionary
Dressmaking shops (part 7219)	Consumer Discretionary
Miscellaneous personal services (722, 729)	Consumer Discretionary

Table 3.A5: ANES to S&P Conversion	
ANES (SIC) Industry	**S&P Sector Index**
Theaters and motion pictures (781-783, 792)	Media
Video tape rental (784)	Media
Bowling centers (793)	Hotels, Restaurants, and Leisure
Miscellaneous entertainment and recreation services (791, 794)	Hotels, Restaurants, and Leisure
Offices and clinics of physicians (801, 803)	Health Care
Offices and clinics of dentists (802)	Health Care
Offices and clinics of chiropractors (8041)	Health Care
Offices and clinics of optometrists (8042)	Health Care
Offices and clinics of health practitioners, n.e.c. (8043, 8049)	Health Care
Hospitals (806)	Health Care
Nursing and personal care facilities (805)	Health Care
Health services, n.e.c. (807, 808, 809)	Health Care
Legal services (81)	Commercial Services
Elementary and secondary schools (821)	Consumer Discretionary
Colleges and universities (822)	Consumer Discretionary
Vocational schools (824)	Consumer Discretionary
Libraries (823)	Consumer Discretionary
Educational services, n.e.c. (829)	Consumer Discretionary
Job training and vocational rehabilitation services (833)	Consumer Discretionary
Child day care services (part 835)	Consumer Discretionary
Family child care homes (part 835)	Consumer Discretionary
Residential care facilities, without nursing (836)	Consumer Discretionary
Social services, n.e.c. (832, 839)	Consumer Discretionary
Museums, art galleries, and zoos (84)	Hotels, Restaurants, and Leisure
Labor unions (863)	Consumer Discretionary
Religious organizations (866)	Consumer Discretionary
Membership organizations, n.e.c. (861, 862, 864, 865, 869)	Consumer Discretionary
Engineering, architectural, and surveying services (871)	Construction and Engineering
Accounting, auditing, and bookkeeping services (872)	Commercial Services
Research, development, and testing services (873)	Consumer Discretionary
Management and public relations services (874)	Commercial Services
Miscellaneous professional and related services (899)	Commercial Services
Executive and legislative offices (911-913)	Consumer Discretionary
General government, n.e.c. (919)	Consumer Discretionary
Justice, public order, and safety (92)	Protective Services
Public finance, taxation, and monetary policy (93)	Consumer Discretionary
Administration of human resources programs (94)	Consumer Discretionary
Administration of environmental quality and housing programs (95)	Consumer Discretionary
Administration of economic programs (96)	Consumer Discretionary
National security and international affairs (97)	Homeland Security

Table 3.A5: ANES to S&P Conversion	
ANES (SIC) Industry	**S&P Sector Index**
Army	Homeland Security
Air Force	Homeland Security
Navy	Homeland Security
Marines	Homeland Security
Coast Guard	Homeland Security
Armed Forces, Branch not specified	Homeland Security
Military Reserves or National Guard	Homeland Security
Last worked in 1984 or earlier	Missing