NEW MEMBERS, NEW BURDENS: BURDEN-SHARING WITHIN NATO

A Dissertation
Submitted
to the Temple University Graduate Board

In Partial Fulfillment
of the Requirements for the Degree of
Doctor of Philosophy

By
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August, 2009

ABSTRACT

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Temple University, 2009
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The purpose of this dissertation is to examine the burden-sharing behavior of new NATO members and the impact of enlargement on NATO burden-sharing. Qualitative and quantitative methods are used to test several hypotheses. The findings suggest that large NATO members are burden-sharing at a greater rate than smaller NATO members when looking at military expenditures and air contributions to NATO missions, in accordance with the logic of collective action. Contribution of troops to NATO missions depends on the mix of private and public benefits received, in accordance to the joint product model. The findings support the hypothesis that new NATO members are burden-sharing at a greater rate than older NATO members. An analysis of the burden-sharing behavior of NATO's new members reveals that new NATO members have demonstrated the willingness to contribute to NATO missions, but are often constrained by their limited capabilities. However, new member contributions to NATO have improved and, in comparison to older NATO members, the new members are doing quite well. Finally, NATO expansion did not lead to greater free-riding behavior in NATO.

ACKNOWLEDGMENTS

There are countless people to whom gratitude is due for the successful completion of this dissertation. Limited space and failing memory preclude a complete acknowledgment here. To those omitted, I offer my sincere apologies. In fairness, I must first thank my advisor and mentor, Professor Mark Pollack. He is a respected expert in international relations, but more importantly a consummate teacher. Affable and insightful at all times, he successfully guide me through this process, improving the quality of the dissertation and teaching me how to present and conduct rigorous research. Professors Orfeo Fioretos and Kevin Arceneaux, members of my dissertation committee and outstanding scholars in their own right, also contributed immeasurably to my education as a political scientist and to the completion and quality of this dissertation. Their patience and ability to teach are only equaled by the power of their intellect. I am honored and privileged to call these three scholars friends and mentors. I am also thankful to the entire Political Science faculty and staff at Temple University, especially Tammey Duckett. They are an amazing group of professionals. Finally, I am grateful to Professor Jeffrey Groh, a scholar, soldier, and my colleague at the U.S. Army War College, for contributing as the outside reader on my committee. His rigorous examination of the dissertation and contributions to the quality of my defense are commendable.

I would also like to thank Colonels Charles Van Bebber, Josef Kopecky, Krzysztof Mitrega, Vasile Roman, and Indrek Sirel for graciously agreeing to read parts of my manuscript. Their insights and suggestions were invaluable to the accuracy of this research. This dissertation would not have been successful without the assistance of Colonels Michael Klingele and Jeff

Shivnen; Steve Mirr, Heather Wagner, Caroline Brady, Susan Vranckx, Dorothy Nevins and Dominique Vanmarsnille in assisting with my interviews. A special thanks goes to my friend, Sherwood McGinnis, for helping me get in the door with the Deputy Secretary General and members of his staff. Sherwood is a true diplomat and gentleman.

My colleagues at the United States Army War College and National Defense University were also instrumental in the completion of this project. Their encouragement and camaraderie made the task more bearable. I owe a great debt to the Strategic Studies Institute for providing me a research grant and for publishing my monograph on NATO. Lieutenant Colonel Dave Barsness was extremely helpful in this regard. I would also like to thank my friend, Dr. Antulio Echevarria, for his assistance with the research grant. Finally, I have to thank Dr. Clayton Chun for giving me the opportunity and resources to pursue this dissertation. Dr. Chun is an inspiration to me and my fellow instructors. I would also like to thank the great library staff at the United States Army War College, especially Diane, Kathy, and Jeanette. They are great professionals and wonderful people! John Wheatley also provided prompt and succinct feedback that enabled me to complete this dissertation on time and on target.

Last, but not least, I have been blessed with a supportive and loving family. Throughout my military career, especially the last four years, they have had to make many sacrifices for me, my job and the country. Thank you! I am especially grateful for my loving wife, Stacie. She spent countless hours reviewing chapter drafts, discussing ideas, preparing documents, and providing me feedback and encouragement. Stacie even sacrificed our twenty-fifth anniversary trip so that I could complete this dissertation. Any success and joy I have, I owe to her.

I would like to dedicate this dissertation to my loving family: Stacie, Nathan, Dena, and Claire. Their patience, encouragement, and support were essential to completing this project. They make all things worthwhile.

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CHAPTER 1

INTRODUCTION

Burden-sharing debates have been an enduring feature of the North Atlantic Treaty Organization (NATO) since its founding in 1949. The fall of the Soviet Union and the recent enlargement of NATO have increased the burden-sharing challenges faced by the transatlantic alliance. These challenges include garnering sufficient political support and resources to support NATO's missions and required capabilities. Burden-sharing is important because the notion of shared risk and shared responsibility is a "founding principle of the Alliance."[1] Resolving issues of burden-sharing is fundamental to the continued survival of the alliance as it enters its seventh decade. This dissertation looks at burden-sharing issues in the context of NATO's recent enlargement and more ambiguous threat environment.

This research systemically examines patterns of burden-sharing behavior within NATO. As expected, free-riding behavior was more prevalent among smaller allies. However, this was not always the case. There was also a significant difference in burden-sharing between new and old members of the alliance. In general, while limited capability constrained new member burden-sharing, their willingness to contribute to the alliance often exceeded that of older members. In addition, new member burden-sharing increased after accession into NATO. Finally, NATO enlargement has not led to greater free-riding behavior in NATO. These findings address a lacuna in the burden-sharing literature and provide salient insights to policy-makers.

Burden-sharing can be defined as "the distribution of costs and risks among members of a group in the process of accomplishing a common goal."[2] Burden-sharing is essentially a collective action problem. Much research has been devoted to whether or not institutions can compel or cajole rational, egotistical actors to contribute to the provision of a collective good in the absence of an international enforcer. More specifically, the problem of burden-sharing between the U.S. and other alliance members has been extensively studied in the context of NATO. NATO is a unique military and political alliance. In fact some suggest that the transatlantic alliance has actually evolved into a security community. Not only has it endured for almost 60 years, but it has also withstood significant challenges and controversies over the years. Yet, the changes which have occurred over the past twenty years have challenged the very *raison d'être* of the alliance and threatened its ability to act as a coherent alliance.

The rapid fall of the Soviet Union and the subsequent increase in the number of NATO members provides a unique opportunity to test the theoretical impact of these changes on burden-sharing within NATO. While much has been written about burden-sharing between the United States and Europe, little has been written on the variations in burden-sharing within Europe. There is an additional lacuna in the literature surrounding the impact of increased membership on burden-sharing among European NATO states. Theoretically, all of these changes should have increased the collective action problems within NATO. This project explores the overall impact of NATO enlargement on burden-sharing, the difference in levels of burden-sharing among new and old members, between large and small members, and the variation in levels of burden-sharing between European NATO members and the United States.

Why study burden-sharing in NATO?

This inquiry is intrinsically important because burden-sharing concerns have been salient and recurring issues for the NATO alliance since its inception. The United States, as the leader of the alliance, has frequently complained about the low level defense expenditures of its allies. In addition, some NATO members have repeatedly come under criticism for not providing adequate forces and for imposing restrictions on forces committed to the recent NATO mission in Afghanistan. The costs and benefits of NATO enlargement have also been a topic of discussion in policy circles since the dissolution of the Soviet Union. If new members are relatively more likely to share burdens than existing members, this finding would partially allay fears concerning the detrimental effects of expansion on alliance cohesion and capability.

The recent addition of new members, the end of the cold war and the expansion of NATO's role into peace enforcement operations represent a departure from the assumptions made during previous studies in the collective action literature. This research differs from existing literature in that it addresses these varied aspects of burden-sharing in NATO and expands the scope of research from a dichotomous United States and Europe analysis to an examination of burden-sharing within Europe. On the heels of a new round of expansion, this project contributes to the literature on burden-sharing and provides essential information on the effects of enlargement. These findings should inform decision makers about the behavior of NATO members and help them to make appropriate decisions in regards to further expansion.

Where this fits in the larger IR literature - Rational Choice vs. Constructivism

In addition to its policy relevance, the burden-sharing issue is theoretically interesting because different theoretical approaches make competing predictions about burden-sharing. The question of burden-sharing in NATO fits into the much larger theoretical debate among international relations scholars concerning the proper approach to conducting social inquiry. This project contributes to this debate by testing hypotheses generated from rationalism against those generated by a more constructivist ontology.[3] While Chapter 2 discusses the rationalist project and its counterpart in greater detail, it is useful to summarize the key elements of the debate. In their insightful article on European Union, Jupille, Caporaso, and Checkel discuss two main assumptions of rationalism: individualism and optimality. This first assumption means that state actions can be explained in terms of individual properties. This project focuses on the later assumption, optimality. The optimality assumption is essential to the development of testable hypotheses about burden-sharing.

Optimality merely means that rational actors weigh the cost versus the benefits of any decision and choose the course of action which yields the best return for them: the optimal solution. Thus states seek to maximize their utility functions at all times and their actions are based on a rational assessment of the situation. This fundamental assumption means that actors use a logic of consequences.[4] This logic of consequences underpins much social research in economics and international relations. The literature on collective action and burden-sharing in particular largely falls within this rationalist camp and emphasizes the impact of rational incentives to *free ride* and the problems that occur when the size of the group expands. The theoretical basis for this project is discussed in greater detail in Chapter 2.

There are two basic tenets of constructivism relevant to this project.[5] The first main assumption of the constructivist approach is that interaction takes place in both a social and material environment. Unlike rationalism, this approach does not necessarily give tangible benefits a place of primacy over relationships and the social construction of meaning. In this case, burden-sharing decisions might be more accurately explained by the relationships between alliance members than the relative net benefits. Secondly, constructivism assumes that actors and their interests are mutually constituted by their environment. Therefore, actors' identities are an important focus of study. Understanding an actors' identity and preference formation is as important as predicting behavior. Therefore, it is not enough to know only the relative power of actors or the potential gains in a social interaction. Sometimes ideas trump power and the pursuit of relative gains. The sociological institutional approach, which builds on these constructivist assumptions, emphasizes a logic of appropriateness over consequences.[6] The most productive constructivist research on institutions takes a sociological institutional approach. This approach examines the processes of persuasion and socialization in constructing actor interests and identities.[7]

While both sociological institutionalism and rationalism have been used to examine institutions in general, the literature on burden-sharing in NATO has primarily adopted a rationalist approach to inquiry.[8] While this project primarily adopts a rational approach to developing hypotheses, it also tests these against more sociological approaches to better understand the nature of burden-sharing. Chapter 6 in particular examines both the rational choice and constructivist-sociological approaches to understanding burden-sharing behavior within NATO.

Collective Action Problems

Most scholars studying issues of burden-sharing have relied on the theory of collective action to inform their work. Collective action theory looks at how actors behave in pursuit of a common goal (see Chapter 2). Perhaps the most famous work on collective action is *The Logic of Collective Action*, by Mancur Olson.[9] Past research on collective action in NATO focused on the contributions made by the United States relative to Europe in providing the public good of security. However, little has been written about how the enlargement of NATO has affected burden-sharing or how well new member states contribute to the overall capability and performance of NATO.

The existing literature suggests that international organizations, such as the North Atlantic Treaty Organization (NATO), have difficulties in overcoming the logic of collective action.[10] This literature suggests that free-riding behavior is likely to increase as these organizations increase their membership. All members face incentives to *free ride* and should be less inclined to share common burdens as the size of the organization increases. One can extrapolate from this that new members of the alliance would also be expected shirk their responsibilities and *free ride* once they have attained membership.

This project examines whether or not the theory of collective action explains current burden-sharing behavior in NATO and under what conditions. Variations in the level of free-riding behavior within the NATO alliance are also analyzed. As in previous studies, this project analyzes the factors that affect the level of burden-sharing within the NATO alliance. It also examines whether or not larger member states exhibit different burden-sharing behavior than smaller states and why. While these questions remain the same as in previous studies, the strategic context has changed. In addition, this project examines the burden-sharing behavior of new members. This analysis takes place in a period of reduced conventional threats in comparison with the bi-polar distribution of power during the late Cold War period.

Purpose and Scope of Inquiry

The purpose of this dissertation is to examine burden-sharing issues in light of the current strategic environment and in the context of NATO enlargement. The following chapters use an analytical approach to break down burden-sharing issues into their component parts and to evaluate each in kind. This analysis reveals the following general insights. First, that larger NATO states often, though not always, shoulder a disproportionate share of the burdens (e.g. military expenditures or contributions to NATO missions) in relative terms than smaller allies. Second, though results varied depending upon the measure used and the relative capabilities of the states, new members generally burden-share at a greater level than older members, ceteris paribus. Finally, the analysis revealed that free-riding behavior did not increase due to NATO enlargement.

The first question examined in this dissertation concerns the impact of size on burden-sharing behavior in NATO. The logic of collective action states that larger, more powerful states bear a greater proportion of the costs in producing a public good.[11] In theory, the amount of the public good that a larger state produces on its own exceeds the amount needed by smaller states. This creates the propensity for the small states to exploit the larger ones. Another explanation of burden-sharing, called the joint product model, was examined by Todd Sandler and Keith Hartley in their 1999 book, *The Political Economy of NATO.* Sandler and Hartley found that the level of free-riding in NATO varied by the nature of the output (e.g. degree of publicness) and the distribution of benefits.

This study confirms Olson's findings that, on average, the larger NATO members assume a greater share of NATO burdens than smaller members. This was especially true for military expenditures and air contributions to NATO missions. The disparity in air contributions can be attributed to an implicit division of labor within the alliance and the maximization of comparative advantage. When looking at troop contributions to NATO peacekeeping missions, the joint product model provides greater insight into burden-sharing behavior. This research found that burden-sharing increased when states were pursuing private benefits that coincided with NATO's alliance-wide goals. This was true for both military expenditures and contributions to NATO missions.

An analysis of the burden-sharing behavior also reveals that free-riding behavior increases with the length of membership in an organization. For new members, this implies a greater willingness to bear burdens than older members. This can be attributed to the fact that all international cooperation relies on the ability of states to make credible commitments. New member states have a strong desire to demonstrate their reliability to other members (especially the leaders of the alliance) in order to establish their reputation and secure their influence in the organization. Additionally, there appears to be a normative component to burden-sharing based on the extensive socialization efforts in NATO. Therefore, it is not surprising that new members feel compelled to bear a greater relative share of the collective burdens than older members as their capability increases. It is also interesting that new member burden-sharing did not decline after accession into NATO. The desire to prove themselves and a sense of obligation to NATO enabled new members to overcome the rational incentives to *free ride*.

Finally, this dissertation tests the hypothesis that free-riding behavior should increase with NATO enlargement, as suggested by the logic of collective action.[12] The empirical evidence is mixed. However, the analysis suggests free-riding behavior did not increase after NATO enlargement. Even though NATO has expanded significantly, it is more actively engaged in international affairs than at any time in its history. Concurrently, all NATO nations are contributing to some extent to the various ongoing alliance missions. Quantitative and qualitative analysis of the contributions of NATO members indicates that most NATO members (large and small; new and old) are, on average, bearing their relative share of the burdens in NATO. This study seeks to explain why that is the case.

Research Design

Having discussed the research questions and the theoretical basis for this dissertation, it is important to explain the research design used to answer these questions. This dissertation is designed to analyze burden-sharing behavior in NATO. To do so, it was necessary to establish some measurable, objective criteria for which data was collected and analyzed. NATO's established burden-sharing norms and standards were used to guide the data selection and evaluation. Since burden-sharing is ultimately a subjective assessment, this dissertation uses mixed methods, both qualitative and quantitative, to examine burden-sharing. This research design integrates multiple methods and measures relevant to the questions asked. The multi-method design increases the accuracy of the findings and better explains the dynamic nature of burden-sharing.

One measure of burden-sharing, military expenditures, lends itself to quantitative analysis. Therefore, regression models were used to analyze military expenditures. The regression models controlled for numerous factors, including omitted variables, and provided measures of significance and reliability for inferences made in the dissertation. Using the regression model, data is examined during two periods: the Cold War and the post-Cold War. The Cold War period serves as a control due to a distinct threat environment and limited expansion in NATO during this timeframe. Military expenditures are also analyzed using the method of comparison in order to triangulate the findings. Military expenditures are compared based on the size of the NATO ally. However, not all questions under study were amenable to quantitative techniques.

Another key measure of burden-sharing examined is the contribution of member states to NATO peacekeeping operations. The case study method is used to analyze these contributions. Case studies allow for the systematic analysis of the background, environment and nature of contributions to various NATO missions. The case studies are framed around the four hypotheses outlined in the previous section. These case studies have substantial variance in both the dependent and independent variables. They also span the period before and after both waves of NATO enlargement.

Finally, this dissertation used structured open-ended interviews and case studies to examine why and how burden-sharing decisions are made and to distinguish between the components of burden-sharing behavior. The structured open-ended interviews provide a mechanism to examine how burden-sharing behavior is perceived by various NATO actors. These interviews also facilitate the systematic collection and analysis of subjective assessments of burden-sharing. The case studies not only describe the context in which burden-sharing occurs, they also enable the research to distinguish between capability and willingness to share burdens.

Methods of Social Inquiry

As already discussed, this dissertation examines some key issues of burden-sharing and tests the competing predictions made by such theoretical approaches as the logic of collective action, rational choice institutionalism and sociological institutionalism (see Chapter 2). A quantitative analysis is conducted in Chapters 3 and 4 to look for general factors that might influence burden-sharing behavior and to examine alternative explanations that might be offered. The main quantitative model consists of ordinary least squares (OLS) and generalized least squares (GLS) regression analyses of burden-sharing using aggregate quantitative measures (i.e. military expenditures as a % of GDP, size of the country). The statistical models are derived based on several theoretical sources. Each model examined is evaluated based on statistical significance, empirical fit, parsimony and the logical coherence with the basic theory of collective action. Key results are also tested for robustnesss using different statistical methods.

These chapters also compare military expenditures as a percentage of GDP between large versus small states and new versus old NATO members. In comparing countries, the most similar system design is utilized. This allows for more precise control (especially for size) when examining burden-sharing of new member states versus older members. However, due to the complex nature of modern states it is impossible to establish a perfect match. Rather, theory is used to identify those factors with the most impact on burden-sharing behavior. Controls are then included for these factors. The analysis primarily focuses on the countries admitted to NATO in the first post-Cold War round of expansion in 1999 (the Czech Republic, Hungary and Poland). These cases were chosen for both practical and theoretical reasons. The main reason is that these cases provide sufficient time series data to identify any possible trends or changes in burden-sharing behavior. To a lesser degree, this project also examines those states in the 2004 round of NATO expansion. The key dependent variable in chapters 3 and 4 is military expenditure as a percentage of GDP. This measure is used as a proxy for the level of burden-sharing. The key independent variables are a one-year lagged dependent variable, economic growth (as measured by changes in GDP), threat, spillovers (as measured by the level of burden-sharing by other alliance members) and size of the country (as measured by GDP, population, and area).

A different methodology is used to examine contributions to NATO missions in Chapter 5. This chapter uses both ratios (contributions to population) and discrete contributions (number of troops) for comparison. First, the relative contributions of the NATO states are compared against their percentage of NATO population: percentage of NATO force vs. percentage of combined NATO population. Second, new member contributions are compared to the contributions of existing NATO members, controlling for population size (average number of troops committed by new members vs. average number of troops committed by old members). The key dependent variables are relative air and troop contributions to NATO missions. The key independent variables are size of the country and membership status (new vs. old).

In addition to the quantitative analyses, Chapter 6 utilizes a qualitative approach to look more closely at the rationale for burden-sharing decisions. The intent of the first portion is to better understand the findings from Chapters 3 through 5. Discourse of NATO and national officials is analyzed to determine what rationale is used most often to describe burden-sharing decisions. The second portion of the chapter uses a case-study methodology to describe burden-sharing behavior of individual new NATO members. These case studies begin with a systematic analysis of the factors that are captured under unit fixed effects in Chapters 3 and 4. The case studies then look at the military expenditures and contributions to NATO missions over time. The first three cases cover the 1999 wave of new members. The last two case studies examine two of the seven new members from the 2004 wave. The case studies are also examined to distinguish between willingness to contribute and capability to contribute to NATO missions.

The case study method facilitates the analysis of the individual constraints on burden-sharing behavior.

Much of the data for this study comes from primary sources (NATO and national materials); a limited number of standardized open-ended interviews of NATO officials and representatives of NATO nations; and pertinent secondary literature. The interviews help identify how decisions are made about military expenditure levels, troop contributions, and other burden-sharing issues. They also give insights into how NATO elites view burden-sharing.

The Road Ahead: Content by Chapter

This dissertation consists of seven chapters. The theoretical foundation is laid out in Chapter 2 with a concise literature review of burden-sharing. Much of the chapter is devoted to describing the previous studies on burden-sharing in NATO. A preponderance of this literature revolves around the notion of public collective goods and the rational incentives for burden-sharing within the NATO alliance. These past studies provide the initial hypotheses that are tested in this project. In addition to said literature, rational choice and sociological institutional approaches to state behavior are examined and used to develop additional testable hypothesis concerning burden-sharing in NATO. Alternative explanations for burden- sharing behavior are also explored.

Chapter 3 examines burden-sharing behavior in NATO during the late Cold War period. This chapter develops a statistical model to test the first hypothesis that large states will share greater relative proportion of burdens than small states. This hypothesis is directly derived from the logic of collective action discussed in depth in Chapter 2. This chapter also tests the second and third hypotheses whether new members or old members of NATO share a greater relative proportion of burdens. Finally, this chapter develops a base model of the demand for military expenditures as a percentage of GDP to be applied to the post-Cold War period. Comparing the results of chapters 3 & 4 can also give insights into the impact of a reduced threat environment on burden-sharing behavior.

In Chapter 4, the model developed in Chapter 3 is applied to data from the post-Cold War period. This dataset includes the two most recent waves of NATO expansion: 1999 and 2004. Including these countries in the data set beginning in 1992 gives some insight into how burden-sharing behavior of new members might have changed after membership. Chapter 4 uses the same statistical model to test the first three hypotheses. It also uses a most similar system methodology to test the second and third hypotheses for the 1999 wave of new NATO members. Chapter 4 concludes with a test of the hypothesis that free-riding behavior should increase with NATO enlargement.

Chapter 5 takes a different approach to the question of burden-sharing. This chapter examines contributions to various NATO missions from 1999 to 2008. During this timeframe there were two waves of NATO enlargement. This chapter analyzes burden-sharing behavior during NATO missions and examines the "publicness" of the benefits derived from the contributions to these missions. Contributions of member states to NATO peacekeeping operations are analyzed during four NATO missions: one humanitarian and three peacekeeping.

The two on-going NATO peacekeeping missions suggest that the pursuit of private benefits, including credibility, can mitigate the incentives to *free ride*.

In Chapter 6, interviews with NATO elites and case studies of new member countries are analyzed. The beginning of the chapter examines some possible explanations of burden-sharing behavior. The logic of collective action assumes that states are rational, egoistic actors and that decisions are always made on a cost-benefit basis. However, there are other plausible theoretical explanations for burden-sharing behavior. This chapter takes a closer look at these explanations to better understand the logic(s) behind burden-sharing behavior. Finally, the chapter analyzes the distinction between limited capability and the lack of political will in burden-sharing behavior.

Chapter 7 concludes this project and summarizes the results of this study by hypothesis. It also makes some predictions about expected burden-sharing behavior after the next round of NATO expansion. Finally, this chapter lays out an agenda for future research on NATO burden-sharing.

NATO has come a long way since its third wave of enlargement in 1999 (the first in the post-Cold War era). At that time, three new members were asked to join the alliance (the Czech Republic, Hungary, and Poland). In 2004, seven additional new members joined the alliance (Bulgaria, Estonia, Latvia, Lithuania, Romania, Slovenia and the Slovakia). At the Bucharest Summit in April 2008, NATO agreed on a third wave of NATO enlargement. While the Former

Yugoslav Republic of Macedonia is still pending accession, Albania and Croatia became members on April 1, 2009. Therefore, examining the impact of the most recent waves of enlargement on burden-sharing in NATO will provide lessons for future rounds of NATO expansion. This project builds on previous studies to determine how burden-sharing has changed with the addition of new members.

[1] Victoria Nuland (U.S. Ambassador to NATO), “Ambassador Discusses Security Issues on Eve of NATO Ministerial,” 5 December 2007. http://www.america.gov/st/washfile-english/2007/December/20071205163651eaifas0.8371393.html (accessed on 27 February 2008).

[2] Peter K. Forster, and Stephen J. Cimbala. *The US, NATO and Military Burden-Sharing.* New York: Frank Cass, 2005, 164.

[3] Jupille, Joseph, James A. Caporaso, and Jeffrey T. Checkel. "Integrating Institutions: Rationalism, Constructivism, and the Study of the European Union." *Comparative Political Studies* 36, no. 1 (2003).

[4] James Fearon and Alexander Wendt. “Rationalism v. Constructivism: A Skeptical View,” in *Handbook of International Relations*, edited by Walter Carlsnaes, Thomas Risse, and Beth Simmons. London: Sage Publications, 2002.

[5] Jupille, Joseph, James A. Caporaso, and Jeffrey T. Checkel. "Integrating Institutions: Rationalism, Constructivism, and the Study of the European Union." *Comparative Political Studies* 36, no. 1 (2003).

[6] Ibid.

[7] Jupille, Joseph, James A. Caporaso, and Jeffrey T. Checkel. "Integrating Institutions: Rationalism, Constructivism, and the Study of the European Union." *Comparative Political Studies* 36, no. 1 (2003).

[8] See, for example, Olson and Zeckhauser, “An Economic Theory of Alliances,” (1966); Oneal and Elrod, “NATO Burden Sharing and the Forces of Change,” (1989); Oneal, “The theory of collective action and burden sharing in NATO,” (1990); Sandler, “Impurity of Defense: An Application to the Economics of Alliances,” (1977), “NATO Burden Sharing: Rules or Reality?” (1987), and “The Economic Theory of Alliances: A Survey,” (1993); Sandler and Forbes, “Burden Sharing, Strategy, and the Design of NATO,” (1980); Hartley and Sandler, *The Political Economy of NATO*, (1999); and Murdoch and Sandler, “Nash-Cournot or Lindahl Behavior?: An Empirical Test for the NATO Allies,” (1990).

[9] Mancur Olson, Jr., *The Logic of Collective Action*, revised edition (New York: Schocken Books, 1971).

[10] See, for example, Olson and Zeckhauser, “An Economic Theory of Alliances,” (1966); Hartley and Sandler, *The Political Economy of NATO*, (1999).

[11] Olson, Mancur, Jr. *The Logic of Collective Action: Public Goods and the Theory of Groups.* revised. New York: Schocken Books, 1971.

[12] Ibid.

CHAPTER 2

LITERATURE, THEORY, AND HYPOTHESES

Literature on Collective Action, Reputations, and Socialization

An extensive literature on NATO burden-sharing stretches back to the late 1960s.[1] This literature was largely based on the theories of "collective action" developed by Mancur Olson. In *The Logic of Collective Action*, Olson examines the difficulty of maintaining cooperation within groups pursuing common interests.[2] He also demonstrates why actors who share a common interest are willing to bear the costs of establishing and supporting organizations that foster cooperation and provide a public good. First, he acknowledges that actors have both individual and common interests in certain goods. Provision of any level of a good will depend upon the marginal cost and benefit provided by each additional unit of the good produced. The logic is somewhat different for public goods.

Public Goods in other disciplines

Olson states that "the achievement of any common goal … means that a public or collective good has been provided for that group. The very fact that a goal or purpose is common to a group means that no one in the group is excluded from the benefit."[3] The notion of a public good is central to Olson's logic. A public good is any item or service that has two distinct qualities: non-excludability and non-rival consumption. Non-excludability means that those who do not contribute to the provision of a particular good or service cannot feasibly be kept from benefiting from it. For example, once a levee is built to prevent flooding everyone in that flood plain benefits whether or not they contributed to the levy being built. Non-rival consumption means that consumption of the good or service by one actor does not diminish the amount available to others. Using one of Olson's examples, the number of people watching a parade on television does not diminish the entertainment value provided to each. Thus a good or service that has both non-excludability and non-rival consumption is characterized as a public good.

In the field of organizational behavior, the notion of public goods has been used to explain cooperation in social groupings. In an experiment involving undergraduate and graduate students, Rapport and Eshed-Levy demonstrated that both fear of loss and greed motivated free-riding behavior in the provision of public goods.[4] During their research, they found that greed was the stronger incentive of the two. This project built on an earlier experiment by van de Kragt, Orbell, and Dawes which found that intragroup communication was able to overcome the rational incentives to *free ride*.[5] Their concept of a minimal contributing set suggested that members recognized that their contributions were critical to the successful provision of the public good.

Public goods theory has been studied extensively in international political economy. Robert Gilpin discussed how an open and liberal global economy required a hegemonic power to establish and maintain the system.[6] In this theory, the hegemon or dominant power in the system provides public goods such as maintaining the global finance and trade system. Public goods theory has also been used at the micro level to explain economic cooperation. Bandiera, Barankay, and Rasul found that workers cooperated more when they were in small groups and were more homogeneous.[7] In a 2008 work, Drope and Hansen used public goods theory to look at the impact of political spending by businesses and policy outcomes (reduced tax rates).[8] In this study they found that smaller firms were free riders on larger firms.

The notion of the public good has also been widely used in other fields. The well-known tragedy of the commons metaphor has been used to describe the incentives to prevent negative externalities normally associated with a public good, such as a common grazing land. In this metaphor, individual herders have incentives to over-graze the pasture even though this might be against their long term interest and detrimental to other herders. If all herders act rationally, then they all suffer from the loss of the pasture. In his chapter on international environment, Ronald B. Mitchell uses the tragedy of the commons metaphor to analyze environmental issues.[9] In these situations, those that pollute benefit, while the society at large suffers the consequences. Many other authors, including Robert Smith, have used this construct to justify privatization of these public natural resources.[10] In an interesting study, Dionisio and Gordo find a link between the public good dilemma in economics and evolutionary biology.[11]

Finally, public goods models have also been used in explaining institutional cooperation. These studies might provide some insights when looking at alliances such as NATO. Using an experimental design, Sefton, Shupp, and Walker discussed the effectiveness of rewards and sanctions in the provision of public goods. [12] In general, they found that sanctions might be necessary for promoting cooperation and could be sufficient for sustaining cooperation. However, rewards were less effective in the long term in overcoming free-riding behavior. This is an interesting finding for this project in that NATO lacks formal sanctioning mechanisms, though it does have several social reward mechanisms (e.g. flags to post, command assignments, venue hosting). Using a game theoretic approach, Hovi suggested that cooperation in the provision of “inclusive” (non-rival) public goods depended upon the situation at hand. [13] In particular, his alliance game suggested that small states could have rational incentives to support “cost-sharing arrangements” in an alliance with a larger state.

Public Goods in NATO

The North Atlantic Treaty outlines the commitment of signatory states to contribute to the collective security of the alliance. Article 5 of the NATO treaty states that an attack against any member is regarded as an attack against all members. Therefore, deterrence provided by NATO is considered a public good within the alliance. While non-members are excluded from the guarantees of Article 5, all member states benefit from the security provided by NATO regardless of their individual contributions (non-excludability). In addition, the deterrence provided to one state does not diminish the deterrence value of the alliance to another member, meeting the conditions of non-rival consumption. Thus, NATO deterrence has the characteristics of a public good.

Ideally, the costs of providing a public good would be borne in proportion to the amount of benefit received. However, the nature of a public good makes this problematic, since non-contributors cannot be excluded. This often leads to suboptimal levels of public good provision and an inequitable distribution of costs or burdens of providing the good. This phenomenon is known as the free-rider problem. A free-rider is an actor that doesn't bear an equitable share of the burden to provide a collective good, such as deterrence.

Olson used these factors to make predictions about the provision of public goods. First, he showed that the larger the size of a group, the more suboptimal the level of public goods supplied. Therefore as membership increases, free-rider problems should also increase.[14] This argument was maintained by scholars after the demise of the Soviet Union. "These difficulties, moreover, are likely to grow as NATO expands, because a larger group is likely to be less militarily cohesive and politically decisive than a smaller one."[15]

Second, Olson demonstrated that the willingness to bear the burdens of providing public goods would be a function of the relative benefit the actor received in relation to the benefit received by the group. Thus, larger states would tend to benefit more from a public good and would be willing to bear a greater proportion of the costs. In Olson's own words, "Once a smaller member has the amount of the collective good he gets free from the largest member, he has more than he would have purchased for himself, and has no incentive to obtain any of the collective good at his own expense."[16] This phenomenon results in what he called the exploitation of the great by the small. Olson suggested that burden-sharing in NATO and the

United Nations were examples of this tendency. In support of this hypothesis, he noted that "there is a significant positive correlation [between gross national product (GNP) and defense budgets as a percentage of GNP] indicating that large nations in NATO bear a disproportionate share of the burden of the common defense."[17]

Initially, the characteristics of the NATO alliance seemed to fit the assumptions of the logic of collective action. Over time however, the relationship between burden-sharing and national income weakened; it was not statistically significant from the mid-1960's to the mid-1970s. This empirical finding led to an ongoing debate about whether or not the theory of collective action could successfully explain military expenditures of NATO members, or burden-sharing within the alliance. Oneal and Elrod found that empirical data showed a declining statistical significance between GDP and defense expenditures in NATO since 1968.[18] This suggested that NATO no longer conformed to the predictions of collective action theory.

Private Goods and Hegemonic Stability within NATO

Oneal and Elrod also suggested that the more recent empirical trends could be explained by certain NATO nations pursuing private goods. Unlike public goods, private goods are excludable and rival. Oneal and Elrod found that some countries increased their defense expenditures in pursuit of private goods. For example, struggles between Greece and Turkey revolved around conflicts in the Aegean Sea and Cyprus. Defense expenditures in support of this conflict supported the pursuit of particular state interests that were excludable and rival to other members of the alliance and thus private goods. Similarly, Portugal's military involvement during the 1960s and 1970s in Angola and Mozambique had the characteristics of private goods. In both cases, the pursuit of private goods was correlated to increased military expenditures thereby masking the incidence of free-riding within NATO.[19] Consequently, Oneal and Elrod excluded data from these countries during the periods they were pursuing these secondary security interests.

Once these countries were excluded from the analysis, Oneal and Elrod suggested that the empirical data still reflected the prevalence of free-riding. This finding reinforced Olson's theory of exploitation of the strong by the weak. Oneal and Elrod used two measures to conduct their analysis: defense burdens as a fraction of NATO average and standard deviation of defense burdens. The defense burden fraction was derived by dividing the ratio of military expenditures to GDP by the ratio of total NATO military expenditures to total NATO GDP. A fraction less than one represented a light defense burden and a fraction greater than one represented a heavy defense burden. Oneal and Elrod also suggested that the declining association between economic size (GDP) and defense burden reflected increased interdependence and cooperation within NATO. Oneal and Elrod attributed this increased coordination to frequent contacts and cooperation within European organizations. In support of this argument, they demonstrated a decline in the standard deviation of defense burdens of European countries, which they suggested was a proxy measure for testing cooperation.[20]

Oneal and Elrod built upon Olson's concept of a uniquely privileged group. "A group is said to be uniquely privileged when there is one member very much larger than the others who can profitably provide the good acting alone."[21] As a uniquely privileged group, NATO members would therefore have even stronger incentives to *free ride* on the U.S. Conversely, as the relative power of the U.S. declined, so too should free-riding behavior. As the United States became less economically dominant, it would be less willing to bear a disproportionate share of the defense burden. As its relative economic position weakened, the U.S. received less relative benefit from NATO and had a diminishing capacity to bear the costs. Therefore, rising European economies would be expected to increase their proportion of the defense burden to compensate for the U.S. decline and to protect their own increasing economic growth. This does not imply that NATO states would collectively provide an optimal amount of security, only that the distribution of costs would adjust to this new balance of economic power.

An alternative explanation – the Joint Product Model

James Murdoch and Todd Sandler challenged Oneal and Elrod's hypothesis concerning the effect of declining hegemonic power on defense expenditures of NATO allies. Murdoch and Sandler claimed that between 1979 and 1987, the U.S. share of NATO Gross Domestic Product (GDP) increased slightly (2.16%) while its share of NATO military expenditures rose by 11.9%.[22] They suggested that this was inconsistent with the declining hegemony argument.[23]

Using expenditure data reported by NATO and GDP figures obtained from the International Monetary fund, Figure 2.1 presents the defense expenditure and economic data of the U.S. in relation to NATO, from 1975 until 2005. This figure suggests that changes in ratio of U.S. to NATO defense expenditures are positively correlated with changes in the ratio of U.S. to

NATO GDP. However, the U.S. share of NATO GDP decreased 13% from 1975 to 1980, while its share of NATO military expenditures only decreased 5%. From 1980 to 1985, the U.S. share of NATO GDP increased 24%, while its share of NATO military expenditures increased only 18%. This data supports Murdoch and Sandler's arguments counter the hegemonic decline theory. However, there is a divergence after 2000. While the U.S. share of NATO military expenditures increased between 2000 and 2005, the U.S. share of NATO GDP actually declined.

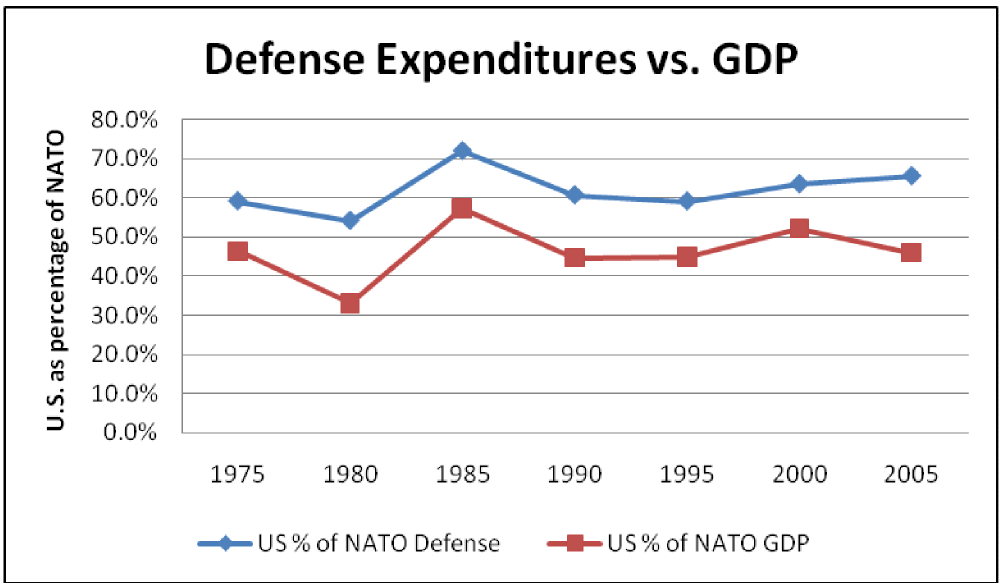

Figure 2.1: Military Spending in relation to GDP[24]

Murdoch and Sandler inferred from these patterns that U.S. military expenditures were better explained by the joint product model. According to this model, "the military activity of an ally may yield pure public, impure public, and/or private benefits (joint products)."[25] For example, conventional forces could provide a public good (deterrence), or they could be committed to the defense of one country and thus unavailable for use elsewhere (therefore, rival).

Murdoch and Sandler suggested that earlier studies may have distorted burden-sharing analyses by counting all alliance expenditures as public goods. Murdoch and Sandler suggested that when the U.S. pursued private or imperfect public goods, other allies had to compensate for alliance shortfalls. Murdoch and Sandler attributed the spike in the relative U.S. military expenditures in 1985 to a new flexible response strategy and a shift in U.S. spending towards more public goods (strategic weapons) under President Reagan (see Figure 2.1). Both of these changes increased the public security goods provided by the U.S. and therefore increased the opportunity for free-riding among NATO allies. More recently, from 2000 to 2005, the U.S. share of NATO GDP decreased by 6%, while its share of NATO military expenditures increased by 2% (see Figure 2.1). This suggests that the U.S. might have been pursuing private benefits during this period. This explanation is examined in further detail in Chapter 4.

Murdoch and Sandler also used a different methodology to examine burden-sharing than Oneal and Elrod. They looked at total demand for military expenditures of each state as a function of relative prices, GDP and spillovers from other NATO members in the previous year. Spillover represents the security benefit received by an alliance member due to the provision of military capability (and thus deterrence) by other members. Murdoch and Sandler measured spillover as the average NATO military expenditures. It is the spillover effect that explains why utility maximizing states will be able to *free ride.*

In none of these early studies did scholars try to explain varying state preferences for security goods, other than within the collective action paradigm. These rational actor approaches assumed homogenous state preferences and ignored second image explanations for varying state behavior. For example, the burden-sharing literature did not attempt to link U.S. military expenditures to political considerations such as domestic interest group pressure (e.g. the defense industry), or bureaucratic pathologies of the Department of Defense. Nor did they examine the free-riding behavior of NATO allies by looking for path dependent explanations such as the post-war aversion to militarism in Germany. Therefore, some of these alternative explanations are examined later in this project to control for other factors that might influence individual state burden-sharing behavior.

Non-Article 5 Missions as Private or Impure-Public Goods

Formed primarily as a defensive alliance, NATO found itself in an identity crisis after the fall of the Soviet Union. The *raison d'être* of the alliance was embodied in Article 5 of the North Atlantic Treaty. Article 5 states that an attack on one member was considered an attack on all members of the alliance. Having invested considerable resources and effort into maintaining the alliance and facing a great deal of uncertainty, NATO members revised their Strategic Concept. This new concept moved away from focusing purely on Article 5, collective defense missions based on a Soviet threat. Rather, NATO would now focus on crisis management and non-Article 5 missions both within and outside the NATO area of operation. In doing so, NATO added a new dimension to collective action problems within the alliance. Some argued that due to these problems, NATO members would be reluctant to support these discretionary, out-of-area missions.[26]

Joseph Lepgold characterized the nature of these new missions (humanitarian and peacekeeping), as either private or impure public goods and analyzed how their unique characteristics, risks, and resources requirements would impact burden-sharing.[27] Traditional security goods provided by NATO (e.g. deterrence) are excludable outside of the alliance and non-rival within the alliance. Therefore, once provided, these goods could be consumed by many states without diminishing the protection given to existing allies. Lepgold theorized that these characteristics facilitated cooperation in burden-sharing. Among NATO's new missions, Lepgold considered humanitarian operations as public goods (both non-excludable and non-rival) so long as they were of short duration and limited scope. As pure public goods, these operations lend themselves to free-riding, especially by states outside of the alliance. Alternatively, humanitarian operations could be characterized as a series of private goods if actors had different substantive objectives. Therefore, one would expect greater contributions by those who benefit the most from the humanitarian operation or have the most ambitious objectives.

Peacekeeping operations are potentially even more detrimental to alliance burden-sharing since they are both non-excludable and rival. "Goods that are non-excludable yet rival, such as peace operations … pose quite different incentives as compared to either public or private goods… They tend to be undersupplied because they are non-excludable, but they also tend to be over-consumed because they are rival in consumption."[28] Politically, this is quite intuitive. It is difficult to mobilize political will and resources to defend people in a far away land. It is even more difficult when the assisted state is not an ally, or if a direct security threat is absent. Even if alliance members reach consensus on conducting a peacekeeping mission, individual incentives will often encourage free-riding in the execution of that mission. To make matters worse, even if members do not contribute fully or bear proportional risk, they still receive the benefit of the ensuing peace.

There are two main reasons these missions were characterized as rival: output rivalry and input rivalry. Output rivalry refers to the fact that once peacekeeping forces are committed to an operation, they are effectively unavailable for use elsewhere and thus rival in consumption. For example, forces committed in the Balkans are unavailable for other missions elsewhere and do not provide a deterrent effect in other troubled areas such as Afghanistan. Input rivalry refers to the competition for scarce military resources required in peacekeeping operations. These operations often require specialized military assets (i.e. Special Forces, military police and reconstruction units) that are neither fungible nor easily replaced by conventional defense forces. These specialized units are scarce and once committed are unavailable for other operations. This exacerbates the collective action problem in that the supply of these forces constrains alliance flexibility. If NATO were to commit to an operation and then subsequently find itself unable to accomplish the mission due to insufficient troop contributions, this would not only undermine NATO’s credibility in both Article 5 and non-Article 5 scenarios, but also jeopardize the cohesion of the alliance itself.

Dimensions of costs and risk for burden-sharing

Forster and Cimbala's more recent study of burden-sharing expanded the definition of burden-sharing to encompass economic and political burdens in addition to the military burdens emphasized in past research.[29] Forster and Cimbala identify three dimensions of burden-sharing: implications of non-involvement and failure; hidden burdens; and increasing violence against peacekeeping units. These last two dimensions raise the costs of burden-sharing. Forster and Cimbala examine these burdens in three cases of multinational operations outside of NATO's area. This is an important contribution to the literature because it centers on the political risk of troop contributions. While military expenditures are certainly very political, the deployment of forces to another country carries even greater political risk. This risk is exacerbated when the mission does not pose a direct threat to the security of the intervening states. As Forster and Cimbala point out, the relatively small number (though very public) casualties suffered by the U.S. and Pakistan in Somalia in 1993 had a significant impact on public opinion and resulted in the decision to withdraw American troops. Thus the acceptance of political risk in contributing to NATO peacekeeping missions has become an important aspect of burden-sharing.

The literature on burden-sharing within NATO is rich and extensive, but there is a noticeable lacuna in two areas related to NATO. First, as efforts to strengthen the European pillar of the alliance increase, burden-sharing issues among the non-U.S. states of NATO are becoming more relevant. To date, few scholars have unpacked the data to examine burden-sharing among the non-U.S. members of the alliance (other than to exclude outliers such as Greece, Portugal, and Turkey).[30] The main focus of the literature has been on the proportion of the defense burden shouldered by the United States versus the Western European states. This study aims to address this gap. Secondly, current literature does not address the impact of NATO enlargement on burden-sharing despite the fact that alliance membership increased from 16 states to 19 in 1999 and to 26 in 2004. It is important to understand whether or not an increase in membership led to greater free-riding behavior in NATO. Rational choice and sociological institutionalism provide greater insight into this important issue.

Theoretical implications of NATO enlargement: burden-sharing

Rational choice institutionalism (RCI) provides additional insights into cooperation within international organizations such as NATO. Rational choice institutionalism provides a functional explanation for why states are able to cooperate in spite of international anarchy and the endemic fear for survival. These functionalist approaches, most commonly associated with the work of Robert Keohane, identify uncertainty and lack of information as key factors inhibiting interstate cooperation. Rational choice has been described as a "methodological approach that explains both individual and collective (social) outcomes in terms of individual goal-seeking under constraints…"[31] RCI goes beyond the logic of collective action in that it recognizes the ability of institutions to change the incentives actors face. International organizations, such as NATO, are able to facilitate cooperation by providing information, reducing transaction costs, and monitoring compliance with the norms and rules of the organization. In an institution such as NATO, one would expect all states to pursue common goals (such as deterrence and defense cooperation) in an attempt to maximize their utility and to enhance their chances of survival. International organizations also provide guidelines for actor behavior and shape expectations of the behavior of other actors in the organization. For these reasons, RCI has important implications for the burden-sharing debate which are not merely extensions of the logic of collective action.

The rational choice literature also discusses the role of credibility and reputation in explaining international cooperation. Robert Keohane's *After Hegemony* set the foundation for explaining how the functional benefits of institutions could overcome incentives to defect from commitments and could lead to concerns over reputation. The shadow of the future argument, used in game theory, also supported this concern over reputation.[32] In another study, Layna Mosley suggested that, in order for states to cooperate extensively, they must first be able to make credible commitments to their fellow allies. "In the post-World War II era, intergovernmental institutions often helped solve the free-rider problem, allowing relevant actors to commit credibly to assist in the provision of public goods."[33] As in any cooperative situation, a good reputation reduces uncertainty, increases the clarity of promises, and enhances the credibility of commitments. Once an ally has a reputation for meeting its commitments, it is easier for that state to make additional commitments and to deepen the level of cooperation within the alliance. As Keohane explains, "a good reputation makes it easier for a government to enter into advantageous international agreements; tarnishing that reputation imposes costs by making agreements more difficult to reach."[34] In fact, states sometimes sacrifice short term goals to maintain their reputation in view of future needs.[35] In order for reputation to matter, an institution has to have a mechanism to provide information about burden-sharing and monitor compliance with institutional decisions and norm.

NATO institutions and procedures facilitate the sharing of information and the monitoring of ally compliance. NATO has a civilian and military organization and a Secretary General to oversee alliance operations. The Supreme Headquarters Allied Powers Europe (SHAPE) and the NATO Military Committee identify necessary capabilities and forces, coordinate state contributions, and perform a monitoring function for the alliance. NATO has a systematic defense review process that assesses force capabilities and financial plans against mutually agreed upon NATO force goals. According to the NATO Handbook, this defense review provides “an evaluation of the extent to which the burden of contributing to Alliance capabilities and military operations is equitably distributed among member countries.”[36]

NATO also has a unified command structure and STANAGs (standardization agreements) to ensure interoperability, reduce transaction costs and provide increasing returns from alliance participation. After fifty plus years of security cooperation, NATO allies have also incurred significant costs by investing in NATO operating procedures, facilities, a fleet of early warning aircraft, and a large military staff. NATO has also established an elaborate system of common funding mechanisms to distribute alliance costs on an agreed upon ability to pay criteria. These institutional features provide functional benefits to member states by providing information, monitoring compliance, and reducing the transaction costs of cooperation.

These institutional features also provide clues as to the incentives facing new NATO members. In some respects, new members in an international organization such as NATO begin at a disadvantage. Lacking the many years of close interaction and security cooperation that established members have enjoyed, their position within the alliance is more uncertain. Wanting to fully benefit from the security guarantees of NATO, RCI would lead us to believe that new members would be especially sensitive to establishing a good reputation. New members should therefore be more willing to share the burdens of collective security in order to enhance their credibility and prove their worth to the other allies. This burden-sharing would include troop contributions to NATO missions. As noted in a recent work on burden-sharing, “the willingness to participate in out-of-area actions has almost become a rite of passage for new Alliance states and those seeking membership.”[37]

Sociological Institutionalism: a normative explanation of cooperation

In contrast, sociological institutionalism privileges ideas and knowledge over material forces. Friedrich Kratochwil and John Ruggie emphasize the inter-subjective quality of institutions and the role of knowledge in explaining the demand for cooperation versus the functional emphasis of RCI.[38] Socialization is especially influential for new or novice members of any interaction.[39] Jeffrey Checkel identified three different mechanisms of socialization.[40] The most basic type, strategic calculation, involves using social incentives (such as status and shaming) and material incentives (such as aid and membership) to change actor preferences. For example, aspiring members might resolve outstanding border disputes in order to improve chances for membership in NATO. What begins as rational adaptation eventually leads to an internalization of norms and a change in preference. This internalization requires what John Ruggie called “dynamic density,” or a prolonged, sustained, and intense degree of cooperation. This process not only occurs within the international institutions, but also within domestic institutions.

The next socialization mechanism is role playing. In role playing, institutions influence state behavior through the logic of appropriateness.[41] Actor behavior depends on who the actor is, what the situation is, and what is appropriate behavior given their role and the situation.[42] This identity is shaped by many factors including history, culture and religion. When a state begins to learn, accept and operate within the norms and rules of an institution, role playing suggests that the state’s behavior will change over time as it imitates other members of the new group. For example, new members states might feel compelled to eliminate conscription seeing that other NATO members have moved to professional military forces. As Checkel notes, instrumental adaptation is prevalent during both of these two mechanisms.

The final social mechanism is normative suasion.[43] Under normative suasion, states are not only rational actors, but also self-reflective. This means that states are open to persuasion through discourse and argumentation.[44] States behavior under normative suasion transcends instrumental adaptation and reflects an internalization of rules and norms of an institution over time. The longer and more intensely an actor is socialized, the more its behavior is expected to conform to accepted social norms of the institution. For example, a new NATO member might feel compelled to offer forces to a NATO mission based on their internalization of NATO burden-sharing norms.

In her 2005 article in *International Organization,* Alexandra Gheciu examined socialization processes in NATO for two aspiring NATO states: the Czech Republic and Romania. Gheciu found that extensive, systematic and persistent teaching and persuasion efforts were directed by NATO toward eastern European states prior to NATO accession. In various forums, including the Partnership for Peace Program (PfP) and the more comprehensive Membership Action Plan (MAP) programs, NATO officials sought to teach appropriate behavior and liberal democratic norms; promote organizational reforms; and encourage changes in domestic laws and institutions to embed these norms in aspiring NATO states. In addition to socializing elites, NATO also sought to persuade the public at large that NATO accession and reforms were in their best interests. Given this extensive effort, beginning years prior to accession, an argument could be made that new members have been so thoroughly socialized in NATO norms that they would be expected to burden-share at a higher level than established members, in a similar manner as converts are often more devout and meticulous in observing their faith than those born into a religion.

The question is whether or not the scope conditions exist in NATO for these socialization mechanisms to be effective. Some of these scope conditions include novice actors in a novel and uncertain environment (which certainly applied to the immediate post-Cold War period) and an authoritative socializing institution (e.g. NATO). Within NATO and its partnership programs, extensive socialization efforts for new members occurred over extended periods of time and seemed to meet these two pre-conditions.

The political structure of NATO is multilayered and integrated fully with a parallel military structure. All NATO decisions are based on consensus. The norms of the alliance stress consultation, shared burdens, multilateralism and political solidarity. There is also a shared common identity that permeates the alliance. A press release from the 2006 NATO summit in Riga encapsulates the NATO self-conception. "The principle of the indivisibility of Allied security is fundamental, and our solidarity gives us the strength to meet new challenges together."[45] Frequent interaction across a wide spectrum of issues over extended periods of time has instilled trust and common expectations among NATO members. The shared common identity and the prolonged, sustained, and intense cooperation within NATO satisfies the scope conditions for socialization.

Since the end of the Cold War, NATO has made enlargement and cooperation with non-member countries a priority. An integral part of this strategy has been NATO's two programs to socialize new and prospective members and non-alliance partners. The Partnership for Peace Program (PfP) was designed to facilitate interoperability, promulgate civilian control over the military, and other democratic norms and procedures. The Membership Action Plan (MAP), approved at the 1999 Washington Summit, was specifically designed to prepare candidate members for accession. It entails reporting requirements by prospect countries and feedback on progress from NATO on political and economic reform, defense reform, military resource requirements, information security and the compatibility of domestic legislation with NATO requirements. These programs help to teach liberal-democratic norms and persuade prospective members to adopt more representative and transparent institutions. Using sociological institutionalism, one might predict that new NATO members would be more prone to *free ride* than existing members who have been more fully socialized into accepting and supporting NATO norms such as burden-sharing.

Hypotheses

Based on these theoretical insights, it is possible to put forward some hypotheses about burden-sharing within the context of NATO. According to the logic of collective action and the rational choice institutional approach, larger states should receive a greater relative benefit from the public goods provided by an alliance. Because they have more area, people and wealth to protect, larger countries should be willing and able to spend more to receive the public goods of the alliance (security) than economically smaller or less populous states. Conversely, the amount of public goods (security) provided by the larger states satisfies most of the demand for smaller states. Therefore, these smaller states would maximize their utility by free-riding or contributing less to the alliance than would be optimal for the collective. Therefore:

H1: Large states (with a % of population and GDP greater than the NATO mean) should, on average, share a greater relative proportion of burdens (defense expenditures as % GDP and contributions to NATO missions) than smaller states.

Rational choice institutionalism also predicts that not all small states will be able to contribute to burden-sharing to the same degree. However, the recent expansion of NATO adds a new variable that might impact these utility functions. For example, new member states might have a fear of abandonment or desire to enter into other multilateral institutions, such as the European Union (EU). Therefore, new member states have a strong desire to demonstrate their reliability to their fellow NATO members. These states may have feared that free-riding would weaken their credibility and could possibly result in an exclusion of their state from security guarantees or membership in the EU. Therefore, their concern for establishing credibility and demonstrating capability should result in stronger incentives to share burdens within NATO, despite outside constraints such as relatively less developed economies.

H2: New member states should, on average, share a greater relative proportion of burdens (defense expenditures as % GDP and contributions to NATO missions) than older members of the alliance, controlling for size and threat.

Yet a rational choice explanation could be used to suggest that new member burden-sharing would decline after membership. Judith Kelley, in a study of the influence of European institutions on East European countries after the fall of the Soviet Union, found that conditionality was more effective than socialization in changing domestic policy. While acknowledging that socialization efforts often guided these decisions, Judith Kelley demonstrated that membership conditionality was highly correlated with desired policy outcomes.[46] Thus, instrumental actors weighed the costs and benefits of membership versus the domestic political cost of implementing reforms. Given this strategic calculation, one would expect that once membership was attained domestic elites would revert to their prior preferences and attempt to shirk their responsibilities.

This argument differs from the previous rational choice institutional prediction in that concerns for establishing credibility or maintaining reputation are outweighed by incentives to *free ride* after accession. Once a state has gained membership, NATO loses its leverage over new members and the new state might be expected to shirk their responsibilities and *free ride*. The way to distinguish whether incomplete socialization of newer members or the removal of constraints led to this outcome would be to examine state behavior before and after accession. If conditionality is responsible, there should be a decline in burden-sharing in new member states (compared to older members) after formal accession into NATO. This leads to the following corollary hypothesis:

H2a: New member states should, on average, bear a declining relative proportion of burdens after accession into NATO.

As suggested earlier, the sociological institutionalism approach, using the logic of appropriateness, often supports different predictions about new member states. Older members of NATO have been exposed to extensive and routine social interaction over the life of the alliance. Consequently, they should have internalized the norms of burden-sharing more extensively than newer members. Since burden-sharing is a fundamental, well-established norm within NATO, one should expect that older members of NATO would be more willing to share burdens than newer members that have yet to be fully socialized. This generates a third, competing hypothesis:

H3: Old member states should, on average, share a greater relative proportion of burdens (defense expenditures as % GDP and contributions to NATO missions) than new members of the alliance, controlling for size and threat.

The recent enlargement of NATO should also generate some observable implications for burden-sharing if the logic of collective action is a valid theoretical approach. The logic of collective action states that as the size of the group grows, the more suboptimal the level of public goods supplied. Thus, as the size of NATO increased from 16 members to 19 and eventually 26 members, there should have been an increase in free-riding behavior leading to suboptimal provision of security. This is especially true given NATO's reliance on consensus decision making and lack of sanctioning mechanisms. As Celeste Wallander pointed out, "nearly alone among international institutions, NATO does not have procedures for dealing with members that violate its rules and standards."[47] The increasing size of membership and lack of a formal sanctioning mechanism within NATO generates a fourth hypothesis:

H4: Free riding within NATO should increase with the addition of new members.

In order to adequately test these hypotheses, they are evaluated against the null hypotheses (that these variables have no statistically significant effect) and other rival explanations. Not only are these hypotheses competively tested against each other using statistical models, but this project also attempts to control for rival explanations based on competing theoretical explanations.[48] A summary of these hypotheses and the tests are listed in Table 2.1.

Table 2.1: Hypotheses on burden-sharing

		Theoretical basis	***Rival Explanations***
H1:	*Large states will share greater relative proportion of burdens than small states*	*Logic of Collective Action and RCI*	*Null Hypothesis or joint product model*
H2:	*New members will share greater relative burdens than old members*	*Rational Choice Institutionalism*	*Null Hypothesis or H3: Old > New*
H2a:	*New member burden-sharing declines after accession into NATO.*	*Rational Choice Institutionalism*	*Null Hypothesis or Burden-sharing increases to build credibility*
H3:	*Old members will share greater relative burdens than new members*	*Sociological Institutionalism*	*Null Hypothesis or H2: New > Old*
H4:	*Free riding behavior should increase with NATO enlargement*	*Logic of Collective Action*	*Null Hypothesis*

Additional Factors: Insights from Liberalism and Realism

A liberal theoretical perspective would offer alternative predictions for burden-sharing based on endogenous factors within each country. Rational choice assumes states to be unitary actors, often with fixed preferences. Liberalism makes fundamentally different assumptions about the status of states. In liberal theory, states are seen as representatives, not actors, whose preferences are determined by domestic political processes and bargaining.[49] Therefore, answers to state behavior are found at the domestic level versus the international level.[50] One such answer lies in public opinion. In representative forms of government, public opinion can be used as a "thermostat" or signal to policy makers to adjust public policy behavior.[51] In studies of the United States and the United Kingdom, Soroka and Wlezien found that changes in defense spending followed domestic public preferences in addition to external factors, such as threat perception.[52] They also found evidence of a "guns versus butter" trade-off in that levels of defense spending and domestic spending were inversely related.[53] Thus one might expect that as priorities shift to domestic programs, such as welfare spending, defense expenditures would decline.

Some liberal theorists suggest that partisan ideology, ordered on a left-right scale, impacts policy outcomes.[54] Parties adopt certain policies, consistent with their ideologies, to maximize votes. Traditional wisdom, at least in the United States, holds that left-wing governments are more likely to increase welfare spending over defense, while right wing parties are assumed to prioritize national security and defense over social welfare expenditures. Wlezien showed that partisan control of the U.S. Presidency and Congress was correlated to defense spending levels.[55] Additionally, Breunig found a relationship between the partisan composition of government and the distribution of the budget between policy sectors.[56] Therefore, changes in the partisan control of government might impact military expenditures captured as a part of burden-sharing.

However, the findings are mixed. Bräuninger's study of nineteen Oranization for Economic Co-Operation (OECD) countries demonstrate that a government's location on an ideological spectrum (left or right) was not correlated with their defense policies, but rather to a government's policy preference for defense.[57] In fact, there was very little deviation from year to year as compared to other budget sectors. In Soroka and Wleizen's study, the impact of the partisan composition of government is also insignificant in explaining defense expenditures. Finally, Budge et al. demonstrated in a cross-national analysis that defense expenditures consistently declined over a forty year period, beginning in 1945, regardless of the party in power.[58]

Realists would claim that they could explain state behavior within NATO by focusing on power and threat. Most realists would suggest that NATO norms and socialization had little if any effect on an individual members' military expenditures. Rather, they suggest that states balance against either power or threats, such as Russia. Therefore, Russian military expenditures have been used as a common measure of threat in studies of burden-sharing within NATO.[59] In these studies, military expenditures were seen as a measurable proxy for determining aggregate military power. This project also examines Russian military spending as one of the plausible measures of threat.

This project also incorporates several alternative proxy measures of threat to attempt to control for its effect on burden-sharing. A most promising challenge to the hypotheses in the last section comes from Stephen Walt's concept of balance of threat.[60] In this theory, threat is a function of four characteristics of the potential enemy: aggregate power, offensive power, offensive intent, and geographic proximity.[61] Any changes to the first two power variables for

Russia (aggregate power and offensive power) should have constant effects on all NATO nations and can therefore be excluded. Given Russia's relatively benign geopolitical relations with European nations during the post-Cold War period, Russia's intentions towards NATO nations during this timeframe could be considered peaceful, at best, or non-hostile. However, recent events (the cyber attack on Estonia in 2007 and the invasion of Georgia in 2008) as well as continuing disputes over natural gas and anti-missile defense systems suggest that Russian intent may not be benign after 2006. The only threat variable that definitely varies by country during this period is the proximity to Russia. This distance can be measured in kilometers (capitol to capitol) or as a dummy variable (contiguous borders or non-contiguous borders). Using these proxy measures, this project also attempts to account for threat effects on burden-sharing by controlling for proximity to Russia.

In the next two chapters, several independent variables are added to the statistical model to try to control for these alternative explanations of burden-sharing behavior. Again in Chapter 6, the case studies look at how varying domestic constraints and threat perceptions impact the behavior of new NATO members. While it is impossible to control for all independent variables, this study uses international relations theory to identify and control for the most likely influences on burden-sharing.

[1] See, for example, Olson and Zeckhauser, “An Economic Theory of Alliances,” (1966); Oneal and Elrod, “NATO Burden Sharing and the Forces of Change,” (1989); Oneal, “The theory of collective action and burden sharing in NATO,” (1990); Sandler, “Impurity of Defense: An Application to the Economics of Alliances,” (1977), “NATO Burden Sharing: Rules or Reality?” (1987), and “The Economic Theory of Alliances: A Survey,” (1993); Sandler and Forbes, “Burden Sharing, Strategy, and the Design of NATO,” (1980); Hartley and Sandler, *The Political Economy of NATO*, (1999); and Murdoch and Sandler, “Nash-Cournot or Lindahl Behavior?: An Empirical Test for the NATO Allies,” (1990).

[2] Mancur Olson, Jr., *The Logic of Collective Action*, revised edition (New York: Schocken Books, 1971).

[3] Ibid., 15.

[4] Ammon Rapport and Dalit Eshed-Levy, “Provision of Step-Level Public Goods: Effects of Greed and Fear of being Gypped,” *Organizational Behavior and Human Decision Processes* 44, no. 3 (December 1989): 325.

[5] Alphons J. Van De Kragt, John M. Orbell, and Robyn M. Dawes, “The Minimal Contributing Set as a Solution to Public Goods Problems,” *American Political Science Review*, no.77 (1983): 112.

[6] Robert Gilpin, *The Political Economy of International Relations* (Princeton: Princeton University Press, 1987), 72–80.

[7] Oriana Bandiera, Iwan Barankay, and Imaran Rasul, “Cooperation in Collective Action,” in *Economics of Transition Special Issue*, ed. A Banerjee and M. Ghatak, Symposium on Institutions and Economic Performance (July 2005). Internet accessed 29 September 2008. http://econ.lse.ac.uk/staff/bandiera/collective.pdf

[8] Jeffrey M. Drope and Wendy L. Hansen, “Futility and Free-Riding: Corporate Political Participation and Taxation Rates in the United States,” *Business and Politics* 10, no. 3 (2008).

[9] Ronald B. Mitchell, “International Environment,” in *Handbook of International Relations*, ed. Walter Carlsnaes, Thomas Risse, and Beth Simmons (London: Sage Publications, 2002).

[10] Robert J. Smith, “Resolving the Tragedy of the Commons by Creating Private Property Rights in Wildlife,” *CATO Journal* 1, no. 2 (Fall 1981). Internet accessed 28 September 2008. http://www.cato.org/pubs/journal/cj1n2-1.html

[11] Francisco Dionosio and Isabel Gordo, “The tragedy of the commons, the public goods dilemma, and the meaning of rivalry and excludability in evolutionary biology,” *Evolutionary*

Ecology Research 8 (2006): 321–332. Internet accessed 15 July 2008. http://webpages.fc.ul.pt/~fadionisio/dionisio_evol_econ_rivalry_excludability.pdf

[12] Martin Sefton, Robert Shupp, and James Walker, "The Effect of Rewards and Sanctions in Provision of Public Goods," (working paper #2006-005, Center for Applied Economics and Policy Research, 29 August 2006). Internet accessed 29 September 2008. http://ssrn.com/abstract=932683

[13] Jon Hovi, "Binary Games as Models of Public Goods Provision," *Scandinavian Political Studies* 9 (1986). Internet accessed 29 September 2008. http://www.tidsskrift.dk/visning.jsp?markup=&print=no&id=95530

[14] Olson, *The Logic of Collective Action*, 28–29.

[15] Joseph Lepgold, "NATO's Post-Cold War Collective Action Problem," *International Security* 23, no. 1 (1998): 104.

[16] Olson, *The Logic of Collective Action*, 35.

[17] Mancur Olson, Jr. and Richard Zeckhauser, "An Economic Theory of Alliances," *The Review of Economics and Statistics* 48, no. 3 (1966): 275.

[18] John R. Oneal and Mark A. Elrod. "NATO Burden Sharing and the Forces of Change," *International Studies Quarterly* 33 (1989): 435–456.

[19] Ibid., 447.

[20] See also Bruce M. Russett, *What Price Vigilance?: The Burdens of National Defense* (New Haven: Yale University Press, 1970).

[21] John R. Oneal, "The theory of collective action and burden sharing in NATO." *International Organization* 44, no. 3 (1990): 389.

[22] James C. Murdoch and Todd Sandler, "Controversy: Alternative Approaches to the Study of Alliance Burden Sharing," *International Studies Quarterly* 35 (1991): 113.

[23] Oneal and Elrod, "NATO Burden Sharing and the Forces of Change," 111.

[24] NATO Information for Press, "NATO-Russia Compendium of Financial and Economic Data Relating to Defence," NATO Headquarters, 20 December 2007, http://www.nato.int/issues/defence_expenditures/index.html (accessed 11 November 2008).

[25] Murdoch and Sandler, “Controversy: Alternative Approaches to the Study of Alliance Burden Sharing,”110.

[26] Lepgold, “NATO's Post-Cold War Collective Action Problem,” 78.

[27] Ibid., passim.

[28] Ibid., 95–96.

[29] Peter K. Forster, and Stephen J. Cimbala. *The US, NATO and Military Burden-Sharing.* (New York: Frank Cass, 2005).

[30] Ronald Krebs. “Perverse Institutionalism: NATO and the Greco-Turkish Conflict,” *International Organization*, 53, no. 2 (1999).

[31] Duncan Snidal, “Rational Choice and International Relations,” in *Handbook of International Relations,* ed. W. Carlnaes, B. Simmons, and T. Risse (New York: Sage Publishing, 2002), 74.

[32] For discussion of shadow of the future in repeated games see Axelrod, The Evolution of Cooperation. (New York: Basic Books, 1984); Axelrod and Keohane, “Achieving Cooperation under Anarchy” (1986); Keohane, "International Institutions: Can Interdependence work?" *Foreign Policy* Spring, no. 110 (1998): 82-96.

[33] Layna Mosley, “Private Governance for the Public Good? Exploring Private Sector Participation in Global Financial Regulation.” (Paper prepared for a Festschrift in Honor of Robert O. Keohane Conference at Princeton University, February 2005): 3.

[34] Robert Keohane, *After Hegemony: Cooperation and Discord in the World Political Economy* (Princeton: Princeton University Press, 1984), 105–106.

[35] Charles Lipson, “Why are some International Agreements Informal,” *International Organization* 45, no. 4 (1991): 495.

[36] NATO Public Diplomacy Division, *NATO Handbook* (Brussels, Belgium: NATO, 2006), 55.

[37] Forster, and Cimbala. *The US, NATO and Military Burden-Sharing*, 164.

[38] Andreas Hasenclever, Peter Mayer, and Volker Rittberger, *Theories of International Regimes* (Cambridge: Cambridge University Press, 1997).

[39] Alastair Iain Johnston, “Treating International Institutions as Social Environments,” *International Studies Quarterly* 45, no. 1 (2001); and Alexandria Gheicu, “Security Institutions as Agents of Socialization? NATO and the New Europe,” *International Organization* 59 (2005).

[40] Jeffrey Checkel, “International Institutions and Socialization in Europe: Introduction and Framework,” *International Organization* 59, no. 4 (2005).

[41] Johnston, “Treating International Institutions as Social Environments”

[42] Hasenclever et al, *Theories of International Regimes*.

[43] Checkel, “International Institutions and Socialization in Europe.”

[44] For persuasion through discourse see Johnstone, "Conclusions and Extensions: Toward Mid-Range Theorizing and Beyond Europe" (2005); for persuasion through argumentation, see Thomas Risse, "Let’s Argue! Communicative Action in World Politics” (2000).

[45] Press Release (2006) 105, Riga Summit Declaration, NATO, 29 November 2006, Brussels, Belgium. Internet accessed 29 January 2009. http://www.nato.int/docu/pr/2006/p06-150e.htm.

[46] Judith Kelley, "International Actors on the Domestic Scene: Membership Conditionality and Socialization by International Institutions,” *International Organization* 58 (2004).

[47] Celeste A., Wallander, “NATO's Price,” *Foreign Affairs* 81, no. 6 (November/December 2002): 2–8.

[48] Joseph Jupille, James A. Caporaso, and Jeffrey T. Checkel, “Integrating Institutions: Rationalism, Constructivism, and the Study of the European Union,” *Comparative Political Studies* 36, no. 1 (2003).

[49] Andrew Moravscik, “Taking Preferences Seriously: A Liberal Theory of International Politics.” *International Organization* 51 (1997).

[50] Helen V. Milner and Robert O. Keohane, “Internationalization and Domestic Politics,” in *Internationalization and Domestic Politics,* ed. Helen V. Milner and Robert O. Keohane (Cambridge: Cambridge University Press, 1996).

[51] Christopher Wlezien, “Dynamics of Representation: The Case of U.S. Spending on Defense.” *British Journal of Political Science* 26 (1996).

[52] Stuart Soroka, Stuart and Christopher Wlezien, “Opinion-Policy Dynamics: Public Preferences and Public Expenditure in the UK.” *British Journal of Political Science* 35 (2005): 677.

[53] Ibid., 682.

[54] See Downs, *An Economic Theory of Democracy* (1957); Hibbs, "Political Parties and Macroeconomic Policy" (1977)

[55] Wlezien, "Dynamics of Representation."

[56] Christian Breunig, "The more things change, the more things stay the same: a comparative analysis of budget punctuations," *Journal of European Public Policy* 13, no. 7 (2006).

[57] Thomas Bräuninger, "Partisan Veto Players, Party Preferences, and the Composition of Government Expenditures." (Paper prepared for the Annual meeting of the Public Choice Society. Nashville, 21–23 March, 2003).

[58] Hans-dieter Klingemann, Richard I. Hofferbert, and Ian Budge. *Parties, Policies, and Democracy* (Oxford: Westview Press, 1994).

[59] See Fritz-Assmus and Zimmerman, "West German Demand for Defence Spending"(1990); Looney and Mehay, "United States Defence Expenditures: Trends and Analysis" (1990); and Murdoch and Sandler, "Nash-Cournot or Lindahl Behavior?: An Empirical Test for the NATO Allies" (1990).

[60] Stephen M. Walt, "Alliance Formation and the Balance of World Power," *International Security* 9, no. 4 (Spring 1985).

[61] Ibid., 9.

CHAPTER 3

BURDEN-SHARING DURING THE COLD WAR: A BASELINE

Macro-level analysis of burden-sharing: A Baseline (1975- 1991)

The burden-sharing issue will continue to dog the Alliance either until we can successfully redistribute the burden or reduce it…

Jim Moody in Shifting into Neutral[1]

The last chapter identified the theoretical basis for the research questions in this project. This chapter develops a statistical model to test the major hypotheses. Multiple methods are used in this chapter to test the robustness of these findings. The findings during this Cold War period provide a good control for the post-Cold War findings examined in Chapter 4.

The first hypothesis is that large states will share a greater relative proportion of burdens than small states. This hypothesis is directly derived from the logic of collective action discussed in depth in Chapter Two. The findings concerning the first hypothesis are mixed. When using standard OLS regression, none of the results are statistically significant though three out of six coefficients are positive as expected. Using the Vector Decomposition method to account for the effects of time invariant variables, the first hypothesis is only supported for population size, both with and without the United States. Surprisingly, the first hypothesis is not supported for GDP when the U.S. is excluded and using Vector Decomposition. In fact, these results suggest that, as income increases, military expenditures as a percentage of GDP decrease on average. However this finding is not robust.

This chapter also tests the second and third hypotheses, whether new members or old members of NATO share a greater relative proportion of burdens. Since there was only one new member during this period, the results are not very generalizable. The results generally support the second hypothesis if the U.S. is excluded. The shorter the length of membership, the higher the military expenditures as a percentage of GDP. However, inclusion of the U.S. in the data set yields the opposite result, which supports the third hypothesis.

The model also yields an interesting finding about threat. Though U.S. and Russian military expenditures were correlated, it appears that Russian expenditures followed changes in U.S. military expenditures as a percentage of GDP. Not surprisingly, non-U.S. military expenditures were strongly correlated to changes in Russian military expenditures during the portion of the Cold War period examined. As Russian military expenditures increased, so too did non-U.S. NATO military expenditures as a percentage of GDP. This result was statistically significant. Finally, this chapter develops a reliable model of the demand for military expenditures as a percentage of GDP to be applied to the post-Cold War period.

Research Design

The following analysis of the effect of new membership on burden-sharing builds on Sandler and Hartley's 1999 book, <u>The Political Economy of NATO</u>. In this study, Sandler and

Hartley revised their earlier demand function for defense by adding a variable representing a change in military doctrine. The formula for that demand function is listed below:

DEF = f (INCOME, PRICE, SPILLINS, THREAT, STRATEGIC)[2]

In this demand function, DEF, the dependent variable, represents real military expenditure. INCOME represents a measure of real national income, such as gross domestic product. PRICE represents the relative price of defense goods in relationship to non-defense goods. The other independent variables were the key variables of interest in discussing free-riding behavior: SPILLINS and THREAT. SPILLINS was used as a measure of the impact of other allied spending on defense expenditures. This was measured in terms of real military expenditures. THREAT represented the defense outlays of alliance enemies (e.g. the USSR). Finally, a STRATEGIC variable was added to account for changes in military doctrines. This was an addition to their earlier model found in The Economics of Defense published in 1995.

This project uses Sandler and Hartley's demand function as a framework for examining burden-sharing behavior for new members. However, their model is adjusted to make it more policy relevant to the NATO burden-sharing issue among new members and to better incorporate available empirical data. First, this project uses percentage of military expenditures to gross domestic product (% GDP_{it}) as the dependent variable and a measure of burden-sharing instead of real defense expenditures. This is the most common measure of burden-sharing used in the literature on NATO.[3] This measure is also policy relevant and has been used by NATO and

NATO member states to evaluate contributions to the alliance. "In the 1980's NATO had a standard that military expenditures as a percentage of GDP should increase at a 3% annual rate."[4] At the Prague Summit in 2002, NATO established a new benchmark for allied military expenditures as 2% of GDP.[5] That standard is still relevant today, thus military expenditures as a percentage of GDP are substituted for real military expenditures.

Using military expenditures as a percentage of GDP also helps control for income effects by including national income in the denominator of the dependent variable. Therefore, there is no need to maintain an independent variable for INCOME in the base equation. PRICE is also excluded from this model largely due to the lack of accurate data on aggregate measures of defense prices across the alliance. As noted in previous works, "states do not maintain indices of the price of military activity, [therefore] data on price are typically not available"[6]. This should not bias the results so long as the price of military goods have varied at the same rate as non-defense goods or if demand for military goods is relatively inelastic. The bureaucratic nature of the military budget process and the domestic political considerations that influence military expenditures support the assumption of an inelastic demand function. The decision to remove PRICE is in line with Sandler and Hartley's earlier work on the demand for military expenditures and other quantitative studies that suggest this is appropriate when using military expenditures as a percentage of GDP as the dependent variable.[7]

This project also excludes the variable, STRATEGIC, from the demand function. Rather, two separate data sets are used to account for changed strategic environments and corresponding changes to the alliance military doctrine. The first data set covers the period from 1975 to 1991. Chapter 4 covers the period from 1992 to 2006.

Methodology

The ordinary least squares regression (OLS) model analyzes pooled cross sectional time series data on NATO members from 1975 to 1991. The year 1975 was selected as the start point for the first panel for several reasons. 1975 was the first year after Greece, Portugal, and Spain transitioned from dictatorships to democratic government. It was also the last year of U.S. involvement in Vietnam. Finally, 1975 was the year that the Conference on Security and Cooperation in Europe (CSCE) signed the Final Act, known as the Helsinki Accords.[8] Among other things, the participants in this accord agreed to greater cooperation in the peaceful settlement of disputes and to respect the sovereignty of national borders. This began a series of "voluntary confidence and security-building measures"[9] that helped to reduce tensions between NATO countries and the Warsaw Pact.

The "threat" environment during this period was one of moderately stable confrontation between the West and the Warsaw Pact. However this does not imply a benign strategic environment. The Soviet invasion of Afghanistan in 1979 certainly heightened tensions between east and west, as did the declaration of martial law in Poland in 1981.[10] The Reagan military buildup also occurred during this period. According to Sandler and Hartley, the demand equation for NATO defense expenditures also changed during this period due to NATO's transition first to the flexible response strategy and then to the forward defense strategy. These changes supposedly increased the complementarities between NATO member expenditures and reduced the incentives to *free ride*.[11] It was also during this period that Spain was admitted into NATO; the first enlargement of the alliance since 1955. The year 1991 was selected as the end date since that was the year that the Soviet Union collapsed and the Yeltsin government seized power. 1991 was also the year that the Baltic States claimed and won their independence.

This panel does not include data on new NATO members who joined after 1998 because reliable and accurate data on military expenditures of the former Warsaw Pact countries is unavailable. The model of burden-sharing used in this project is indicated in the equation below:

$$\%GDP_{it} = \beta_0 + \beta_1(\text{Economic Growth}_{it}) + \beta_2(\text{DVLag}_{it-1}) + \beta_3(\text{Spillover}_{it}) + \beta_4(\text{Size}_{it}) + \beta_5(\text{Threat}_{it}) + \Lambda_6(\text{Political Party}_{it}) + \Lambda_7(\text{NATO}) + \Lambda_8(\text{EU}) + \beta_9(\text{Member Age}) + \sum_{j=1}^{k} \gamma_i \text{Country}_i + e_{it}$$

$\%GDP_{it}$ is the percentage of military expenditures to GDP (dependent variable).[12] Subscript *i* represents a specific country, *t* denotes time, and the other variables are:

1. Economic Growth_{it} is a variable representing change in GDP from time *t-1* to *t* for country *i*. This measures the impact of changes to the denominator of the dependent variable (GDP) on burden-sharing as a percentage of GDP. This is represented by ***gdpchg*** in the STATA model.[13]

2. $\%DVLag_{it-1}$ is a lag variable of the percentage of military expenditures to GDP in time t-1. This is represented by ***dvlag*** in the STATA model.

3. Spillover_{it} is a variable representing the average percentage of military expenditures to GDP of other NATO allies. This measure checks for benefits received from other members' spending. Various measures of spillover are used.

4. $Size_{it}$ is an ordinal variable to control for the size of a state's GDP, population, or physical area. This is an important measure in analyzing the large versus small state hypothesis of the logic of collective action.

5. $Threat_{it}$ is used to control for the independent role of threat in influencing military expenditures. Again several measures are tested sequentially.

6. Political $Party_{it}$ is a dummy variable for the partisanship of the government in power, as measured by the party of the Prime Minister.

7. $NATO_{it}$ is a dummy variable to control for the effect of membership in NATO. This is represented by ***nato*** in the STATA model.

8. EU_{it} is a dummy variable to control for the effect of membership in the European Union on burden-sharing. This is represented by ***eu*** in the STATA model.

9. Member Age_{it} is one of the main independent variables of interest used to measure the influence of the length of membership on burden-sharing behavior. It is measured by years of membership in NATO. This is represented by ***age*** in the STATA model.

10. $Country_{i}$ is a dummy variable to account for fixed, country specific effects that are consistent over time. This is important because OLS estimates of coefficients are often subject to omitted variable bias. In this model, the country dummy variable for the "***tu***" is left out and is reflected in the constant. As Turkey historically has a higher level of defense spending than its alliance partners, the value for the constant is positive and relatively large as a basis of comparison.

The data are initially explored using an autoregressive, ordinary least squares regression (OLS). The basic function used in all models includes the dependent variable and the independent variables of Economic growth ***(gdpchg)***, GDP lag ***(dvlag)***, and a Spillover variable. Since there have been different measures of spillover in previous studies, this project will also test multiple measures in the subsequent models. The next subsection examines three measures of spillover.

Testing the Logic of Collective Action in NATO: Spillover

Model 1, using a spillover variable derived from the average of other allies' defense expenditures as a percentage of GDP, explained approximately 96% of the annual variance in defense burdens. The first interesting result is that military expenditures, as a percentage of GDP, are not sensitive to changes in economic growth as measured by changes in GDP. Not only is the coefficient for GDP very small, but it is also not statistically significant. Model 1 suggests that the demand for military expenditures was relatively impervious to short term fluctuations in economic growth during this period. This is consistent with a threat based demand function. Not surprisingly, there is a statistically significant relationship (at the .001 level) between military expenditures as a percentage of GDP and the one year lag of the dependent variable, ***dvlag***. For every one percent increase in ***dvlag***, military expenditures as a percentage of GDP increase, on average, .497%. Finally, the variable for spillover is also positive and statistically significant (at the .001 level). On average, military expenditures as a percentage of GDP increases by .495% for every 1% increase in the other NATO states. This finding contradicts expectations of free-riding behavior in our fourth hypothesis. A possible explanation is that NATO allies defense contributions were complementary versus substitutable during this period; therefore security goods provided by allied countries complement but do not replace the individual states' requirements for military expenditures.[14] One indicator of this phenomenon would be increasing specialization within the alliance. However, further tests would be needed to make a definitive assessment.

In Model 2, spillover is measured using the interactive variable, ***dspll,*** which is merely the product of a lagged spillover variable and the dichotomous NATO member variable, where 1 = membership. In this model, changes in economic growth are inversely related to changes in military expenditures as a percentage of GDP, but the results are not statistically significant. The coefficient for ***dvlag*** increases slightly and remains statistically significant relationship (at the .001 level). The variable measuring the effects of spillover in this model is ***dspll***, which is merely the product of a lagged spillover variable and the dichotomous NATO member variable, where 1 = membership. While the value of the coefficient for ***dspll*** is much smaller than the previous spillover variable, it is statistically significant at the .001 level. The overall fit of the model decreases slightly to .958, therefore other spillover variables are more efficient.

Model 3 attempts to determine the spillover effect of U.S. defense expenditures as a percentage of GDP, ***uspill,*** (see Table 3.1). This model yields similar results to Model 2 for the first two independent variables (***gdpchg*** and ***dvlag***). However, as U.S. defense expenditures, as a percentage of GDP, increase so too do NATO military expenditures, as a percentage of GDP. This result is not in keeping with the predictions of the logic of collective action, but supports the hypothesis that the outputs of defense expenditures were complementary in NATO during this period. Like Models 1 and 2, the spillover results for Model 3 are statistically significant at the .01 level. However, the overall fit of the model decreases to .956. Because of higher value of the coefficient and the relatively higher adjusted r-squared value, the simple measure of spillover (Model 1) is used from this point forward.

Table 3.1: OLS Regression estimates of "spillover" effects on NATO military expenditures as a percentage of GDP using REG command, 1975 – 1991

Independent variables	*Model 1*	*Model 2*	*Model 3*
ECONOMIC GROWTH	.005 (.008)	-.007 (.008)	-.003 (.008)
DV LAG	.497*** (.041)	.534*** (.042)	.554*** (.042)
SPILLOVER ***(spillover)***	.495*** (.075)	--------	--------
SPILLOVER (***dspll***)		.157*** (.038)	--------
SPILLOVER (***usspill***)			.099** (.039)
ADJ R^2	.962	.958	.956

Note. Standard errors in parentheses
*   P < .05
**   P < .01
*** P < .001

Controlling for Threat

The following models attempt to test the impact of "threat" on military expenditures as a percentage of GDP. Since there are various measures of threat, different measures and combination of measures are tested sequentially to best account for the effect of threat on military expenditures as a percentage of GDP. These variables are largely based on realist theory. Model 4 introduces an ordinal variable, ***dist***, to account for the geographic proximity of states to their historical rival: Russia. This concept of threat is derived from the balance of threat theory developed by Stephen Walt.[15] Distance is the only factor Walt identifies that varies among NATO states in a specific year. Unfortunately, distance is time invariant and also highly collinear with the country dummy variables. Running collinearity diagnostics in STATA yielded tolerance value of .0000. Since this tolerance value is again lower than 0.1, ***dist*** can be considered as a linear combination of the country variables. Therefore, the country variables were left out of Model 4 in order to isolate the effects of threat as measured by distance in thousand kilometers (see Table 3.2).

Model 4 explained approximately 94% of the annual variance in defense burdens. In Model 4, the coefficient for GDP growth, ***gdpchg,*** is positive. However, the value is very small and it is not statistically significant. There remains a statistically significant relationship (at the .001 level) between military expenditures as a percentage of GDP and the one year lag of the dependent variable, ***dvlag***. For every one percent increase in military expenditures as a percentage of GDP at t-1, military expenditures as a percentage of GDP increases, on average, .964%. Finally, the coefficient for spillover, ***spillover,*** is positive, but not statistically significant.

The value of the independent variable, ***dist,*** represents the distance in thousand km between the NATO country's capital and Moscow, the capital of Russia.[16] As expected, there is an inverse relationship between distance from Russia, ***dist,*** and the level of military expenditures as a percentage of GDP. Military expenditures, as a percentage of GDP, decreased by .001%, on average, for every thousand kilometer increase in the distance between the NATO capital and Moscow. This is consistent with Walt's balance of threat theory, however, the result was not statistically significant.

Model 5 tests the relationship using a different measure of threat (see Table 3.2). The dichotomous variable, ***prox,*** is used to represent whether or not a state has a contiguous border with Russia. If the country did have a contiguous border with Russia, then ***prox*** = 0. If the country did not have a border with Russia, then ***prox*** = 1. Again, since ***prox*** is time invariant, this variable is also highly collinear with the country dummy variables. Running collinearity diagnostics in STATA yielded tolerance value of .0000. Since this tolerance value is again lower than 0.1, ***prox*** can be considered as a linear combination of the country variables. Therefore, the country variables were also left out of Model 5. Model 7 explained approximately 94% of the annual variance in defense burdens. The non-threat related results remain largely the same as in Model 4. As expected, those countries without a contiguous border with Russia, on average, had a .020% lower level of military expenditures as a percentage of GDP. However, the results were again not statistically significant.

Model 6 introduces a continuous threat variable, ***russia***, to account for the level of Russian military expenditures (in billions of dollars).[17] Military expenditures is an appropriate measure of threat since it can be seen as a concrete measure of power and as an investment in future military capability. This is also the measure of threat most widely used in the literature.[18]

A benefit of using Russian military expenditures as a measure of threat is that the dichotomous country variables can now be added back to the model to account for fixed effects. This model improves the explanatory power to approximately 96%. The non-threat related results remain largely the same, though the value of the **dvlag** decreases to .497 and the value of the coefficient for spillover increases to .496 and is statistically significant at the .001 level. More importantly, there appears to be a positive relationship between Russian military expenditures and levels of military expenditures as a percentage of GDP, however the effect is very small and is not statistically significant.

If we analyze the relationship between Russian military expenditures versus U.S. and non-U.S. NATO military expenditures as a percentage of GDP, the effect is not uniform. U.S. military expenditures as a percentage of GDP are positively and moderately correlated with Russian military expenditures, with a correlation coefficient of 0.56. This means that Russian military expenditures explain approximately 31% of the variance in U.S. defense military expenditures as a percentage of GDP and vis a versa. You can see this relationship graphically for the U.S. and Russia in Figure 3.1. In fact, it appears as if increases in U.S. military expenditures as a percentage of GDP in 1979 preceded increases in the rate of Russian military expenditures in1981 and that decreases in U.S. military expenditures as a percentage of GDP in 1986 preceded decreases in Russian military expenditures in 1989.

It is also interesting that non-U.S. NATO military expenditures as a percentage of GDP are strongly correlated with Russian military expenditures, with a correlation coefficient of 0.81.

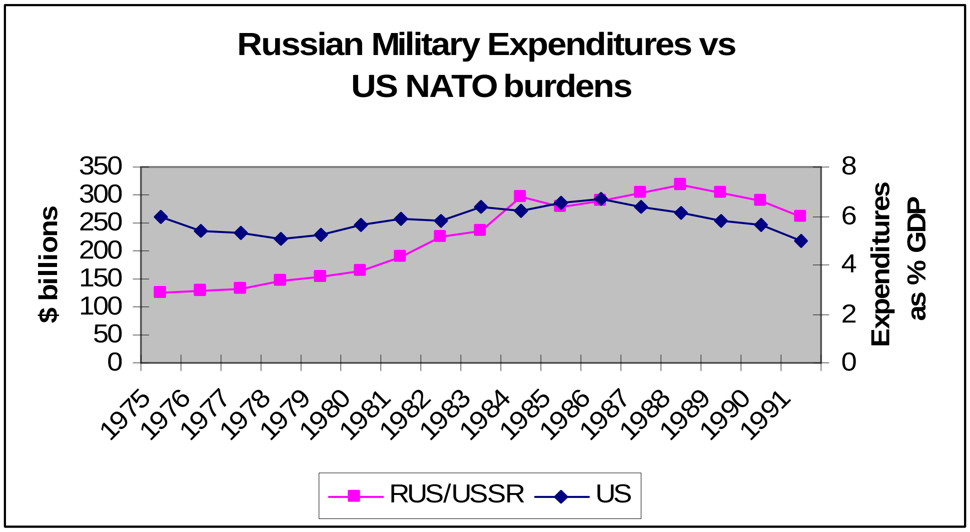

Figure 3.1: Impact of Threat on U.S. in the Cold War Period[19]

This means that Russian military expenditures explain 66% of the variance in non-U.S. NATO defense military expenditures as a percentage of GDP; which is a much stronger relationship than with U.S. defense expenditures. Therefore, NATO allies appear to be much more responsive to changes in Russian military expenditures. You can see this relationship graphically for the non-U.S. members of NATO in Figure 3.2.

Perhaps the effect of Russian military expenditures are conditioned by the distance between states. If Stephan Walt is correct, the closer a NATO state is to Russia the greater should be its perception of threat. Therefore in Model 7 (see Table 3.2), a new threat variable, ***threat***, is derived by dividing Russian military expenditures (in $1 billion) by the distance (in 1,000 km) between the NATO capital and Moscow. In Model 7, the non threat variables change

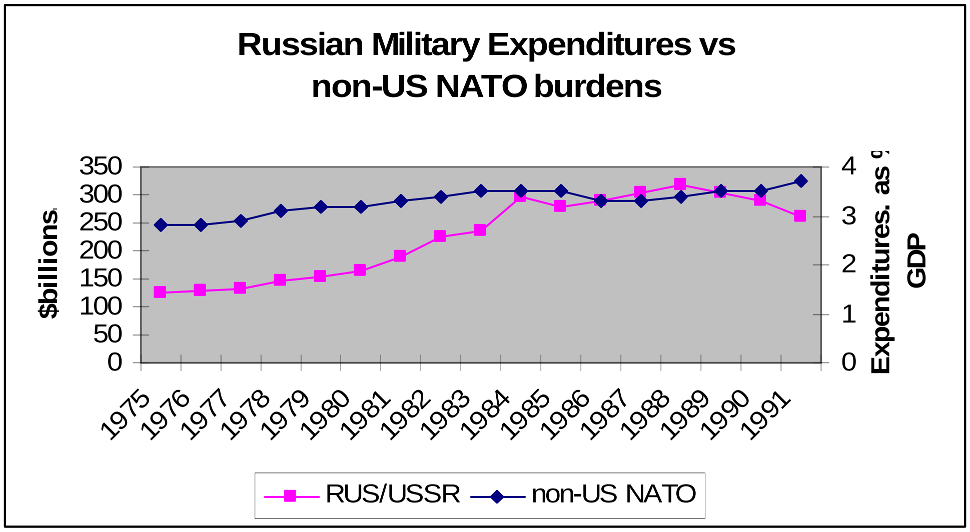

Figure 3.2: Russian military expenditures versus non-U.S. NATO expenditures as a percentage of GDP[20]

little. Surprisingly, the coefficient for the new threat variable is negative, meaning that as the value of threat increases (either due to increased Russian military expenditures or a closer distance to Moscow) the level of military expenditures as a percentage of GDP decreases. However this result is not statistically significant. From this point forward, Model 7 will be used as the base model. With an adjusted R^2 of .962, this model has one of the highest explanatory powers. It is also logically coherent with the theories of threat discussed earlier. This model will be used in the following sections to test the hypotheses generated in Chapter 2.

Testing the "exploitation of the great"

Having set the base model of military expenditures as a percentage of GDP, it is now time to test some of the hypotheses about burden-sharing in NATO. The first hypothesis concerns the "systematic tendency for 'exploitation' of the great by the small."[21] An

Table 3.2: OLS Regression estimates of "threat" effects on NATO military expenditures as a percentage of GDP using REG command, 1975 – 1991

Independent variables	*Model 4*	*Model 5*	*Model 6*	*Model 7*
ECONOMIC GROWTH	.012 (.009)	.012 (.009)	.005 (.008)	.006 (.008)
DV LAG	.964*** (.016)	.964*** (.016)	.497*** (.041)	.497*** (.040)
SPILLOVER (***spillover***)	.140 (.086)	.140 (.087)	.496*** (.088)	.434*** (.086)
THREAT (***dist***)	-.001 (.012)	--------	--------	--------
THREAT (***prox***)		-.020 (.092)	--------	--------
THREAT (***russia***)			.0000 (.0003)	--------
THREAT (***threat***)				-.001 (.0007)
R^2	.939	.939	.962	.962

Note. Standard errors in parentheses
* P < .05
** P < .01
*** P < .001

An extrapolation of this tendency, as first formulated by Mancur Olson Jr., suggests that large states will share a greater relative proportion of burdens than small states, H1. This assumption is intuitive in that the larger, wealthier allies have more to gain from the alliance and therefore should be more willing to pay their share of the defense burdens. Many studies have merely defined larger states by the size of their GDP. However, other factors influence a country's demand for security. Using concepts from economics, the other factors of production, land and labor, should also be a good measure of relative gain from military expenditures. For example, Murdoch and Sandler used population as an independent variable in their study of defense expenditures in Sweden.[22] The geographic size of the country should also relate to the demand for defense expenditures. The more land and coastline a country has to defend, the greater its demand for military expenditures. Therefore in the following models, three different independent variables measuring size are used to test the exploitation hypothesis: ***gdpcat***, ***popcat***, and ***areacat***.[23]

In Model 8, an ordinal variable is generated to account for absolute size of the economy in constant U.S. dollars, **gdpcat**. These values were generated by taking the log of the actual GDP in $billions, as reported by the International Monetary Fund (IMF) for 1980 to 1991 and by International Institute for Strategic Studies (IISS) for 1975 to 1979. A collinearity test between the variable **gdpcat** and the country variables was also run. Since the tolerance values were all lower than 0.1 the GDP categories could be considered as a linear combination of the country variables. This is largely due to the fact that the size of the economy is relatively time invariant within cases. Therefore, the country variables are deleted from the model while testing this hypothesis. In Model 8, the coefficient for **gdpcat** was positive but was not statistically significant. This result suggest that, on average, as the size of the country's GDP increases (richer countries) they should have higher levels of military expenditures as a percentage of GDP, on average. This finding is consistent with the logic of collective action in that wealthier states should, on average, spend relatively more on defense than smaller states.

Model 9 introduces an ordinal variable to account for population size, **popcat**. The four categories used were: very small (under 7 million population), small (between 7 and 20 million), medium (greater than 20 but less than 50 million) and large (50 million or greater). Because population size is relatively invariant during this time span, this variable is also highly collinear with the country dummy variables which account for all of the fixed effects. Therefore, country variables are again removed. In this model, as the population category increased, military expenditures as a percentage of GDP increased by .005%. However, the result was not statistically significant. This finding is also consistent with expectations that larger states should, on average, spend relatively more on defense than smaller states.

In Model 10, a variable is used to account for absolute size of a country, measured in square kilometers, **areacat**. These values were generated by taking the log of the area of the country, in square kilometers, as reported in the CIA World Factbook.[24] The results of this model were similar to Models 8 and 9. Of note, the coefficient for **areacat** was positive but was not statistically significant. This finding is consistent with expectations that states with larger physical areas should, on average, spend relatively more on defense than smaller states. However, in all three cases, the results were not statistically significant and therefore inconclusive.

Table 3.3: OLS Regression estimates of "size" effects on NATO military expenditures as a percentage of GDP using REG command, 1975 – 1991

Independent variables	*Model 8*	*Model 9*	*Model 10*
ECONOMIC GROWTH	.012 (.009)	.012 (.009)	.011 (.009)
DV LAG	.959*** (.017)	.960*** (.017)	.958*** (.017)
SPILLOVER (***spillover***)	.134 (.095)	.118 (.092)	.126 (.093)
THREAT (***threat***)	-.0004 (.0005)	-.0004 (.0005)	-.0003 (.0005)
SIZE (GDP, POP, AREA)	.011 (.015)	.005 (.022)	.008 (.013)
R^2	.939	.939	. 939

Note. Standard errors in parentheses
* P < .05
** P < .01
*** P < .001

However, to test our first hypothesis, it is necessary to analyze these variables together. Including all three variables for size would help to control for the other aspects of size. Therefore, in the following chart, all three measures of size **(gdpcat**, **popcat, and areacat)** are included in the model, while excluding the country variables (see Table 3.4). In addition, the inclusion of the U.S., with the largest economy, population, and the second largest total area, could have skewed the results of the previous models.

Table 3.4: Impact of Size (GDP, Pop, Area) with and without the U.S., 1975 – 1991

Independent variables	*Regression OLS I*	*Regression OLS II*	*Vector Decomp I*	*Vector Decomp II*
Economy: (**gdpcat**)	.016 (.027)	-.006 (.029)	.018 (.021)	-.114*** (.023)
Population: (**popcat**)	-.016 (.034)	-.006 (.035)	.106*** (.027)	.238*** (.032)
Area: (**areacat**)	.004 (.018)	.027 (.021)	.086*** (.015)	.036* (.015)

Note. Standard errors in parentheses
Regression OLS I - indicates database including U.S. data
Regression OLS II - indicates database excluding U.S. data
Vector Decomposition I - indicates database including U.S. data
Vector Decomposition II - indicates database excluding U.S. data
* P < .05
** P < .01
*** P < .001

Therefore, the model is tested both with and without the U.S. included in the data set. Including all three size variables in the model increases its explanatory power to 94%. However, in neither case were the results are statistically significant. The coefficients for **gdpcat** and **areacat** are positive with the U.S. included, suggesting that as economic and physical size increased, military expenditures as a percentage of GDP also increase. However, the coefficient for **gdpcat** changes to negative when the U.S. is excluded (see Table 3.4, Regression OLS II). When all three size variables are included, the sign of the population variable, **popcat,** changes from positive to negative in both cases. However none of these results are statistically significant.

One shortcoming of these results is that the models excluded fixed effects in order to test the significance of the time invariant variables **(gdpcat**, **popcat, and areacat)**.   A process developed by Plumper and Troeger[25], called Vector Decomposition, allows estimation of time invariant variables in a panel using fixed effects. One of the problems with ordinary fixed effects models is that they cannot estimate the effects of time-invariant variables. Fixed effects models can also lead to inefficient estimation. Vector decomposition isolates those fixed effects attributable to time invariant variables through a three stage process. The first stage estimates unit effects. The second stage reduces the fixed effects to those explained by the time invariant variables and those effects that are unexplained   The third stage re-estimates the model including the time invariant variables and the unexplained fixed effects. Not only does this method permit the use of a fixed effects model, it can also result in a more efficient estimate. The vector decomposition method is used on both data bases (with and without the U.S.) in order to test the robustness of our findings.

Using the vector decomposition method increases its explanatory power of the model to 96%, with and without the U.S. data. The coefficient for **gdpcat** is positive with the U.S. included, however it is not statistically significant. As with OLS, the coefficient for **gdpcat** changes to negative when the U.S. is excluded (see Table 3.4, Vector Decomp II). This result is significant at the .001 level. With the U.S. excluded, as a country moves from one GDP category to a wealthier one, its military expenditures as a percentage of GDP decrease. However, this finding is not very robust.

Table 3.5: Initial Findings from OLS

		Results of Regression
H1:	*Large states will share greater relative proportion of burdens than small states*	*OLS results were not statistically significant;* *Mixed results using vector decomposition:* *Supported for population and area;* *Not supported for GDP if U.S.is excluded.*

Using vector decomposition, the sign of the population coefficient, **popcat,** changes to positive (with and without the U.S.) and is statistically significant at the .001 level. Thus as population size increases, so do military expenditures as a percentage of GDP. Finally, as with OLS, the coefficients for **areacat** are positive and statistically significant in both cases, suggesting that military expenditures rose as physical size increased. During this segment of the Cold War period, it appears that size was an important a determinant of military expenditures as a percentage of GDP as the logic of collective action would have predicted. Unfortunately, these results were not as robust as expected (see Table 3.5).

Path dependence and Domestic political influences

The base model, Model 7, appears to be highly path dependent. Much of the explanatory power of the model appears to come from the lagged dependent variable, **dvlag** . This finding is not surprising since military spending is relatively inelastic. Much military spending goes towards multi-year procurement contracts and non-discretionary personnel costs. There is also a great deal of bureaucratic inertia in military budgeting. In an earlier study on burden-sharing, Benjamin Goldsmith found that prior year spending had "a powerful effect, making large changes less likely than incremental ones."[26] It would be interesting to examine just how much explanatory power is driven by this variable and how the model would function without it. In Model 7, the R-squared was .962 and the coefficient for **dvlag** was .497. This means that, on average, current military expenditures as a percentage of GDP increase by .497 for every one percent increase in previous year's military expenditures as a percentage of GDP.

If this lagged dependent variable is removed from the model, see Model 11, the R-squared remains high at .94. The first independent variable (**gdpchg**) changes signs to negative with the removal of the lagged dependent variable, but remains statistically insignificant. The coefficient for **spillover** and the absolute value for the country dummy variables generally increase once the lagged dependent variable is removed. Finally, the coefficient for the threat variable, **threat**, remains the same but is not statistically significant. These findings suggest that the model is sound even without the lagged dependent variable, **dvlag.**

Table 3.6: OLS Regression estimates (without lagged DV) and with independent variable controlling for domestic effects using REG command, 1975 – 1991

Independent variables	*Model 11*	*Model 12*
ECONOMIC GROWTH	.003 (.007)	.006 (.008)
DV LAG	--------	.499*** (.041)
SPILLOVER (***spillover***)	.441*** (.082)	.438*** (.086)
THREAT (***threat***)	-.001 (.001)	-.001 (.001)
POLITCAL PARTY	--------	-.037 (.042)
R2	.938	.962

Note. Standard errors in parentheses
* P < .05
** P < .01
*** P < .001

Having built the basic model, this chapter will now test for impacts of domestic politics on military expenditure prior to testing the main hypotheses. In Model 12, a variable is added to account for a possible impact of the composition of the government (on a left-right scale) on military expenditures as a percentage of GDP. This model uses a dichotomous variable, ***lrparty,*** to represent whether or not the head of state (Prime Minister) is from a left or right party (see Chapter 2).[27] The overall explanatory power of the model is about the same as in Model 7. The values for the other independent variables remain the same as in the base model listed in Table 3.2. The key finding concerns the political party in power. As might be expected from the literature, a government with a prime minister from a left party (***lrparty=1)***, on average, will have a lower level of military expenditure as a percentage of GDP. However, the impact was not large and the results were not statistically significant. Thus the party variable is removed from subsequent models used to test the main hypotheses.

Testing for Autocorrelation

Prior to testing the main hypothesis, a check was made for autocorrelation in the model. Autocorrelation violates one of the assumptions in regression models that the error terms are independent of one another[28]. Autocorrelation is a frequent problem in working with panel data. Both GDP and military expenditures tend to change cyclically and therefore successive observations may be interdependent in this model. Reviewing the scatter plot of errors versus individual years, there appears to be serial correlation (See Figure 3.3). Therefore, another check in STATA was made using the ***xtserial*** command. The results of this test were significant, indicating that serial correlation is present:

```
Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation

     F(  1,   14) =     12.181
        Prob > F =      0.0036
```

While autocorrelation does not cause biased estimates, it can cause the model to underestimate the variance of coefficients which makes tests of significance suspect. In order to get rid of the serial correlation, the model will subsequently use a Generalized Least Squares (GLS) method versus Ordinary Least Squares (OLS). Later on in this chapter, panel corrected standard errors are used to account for autocorrelation.

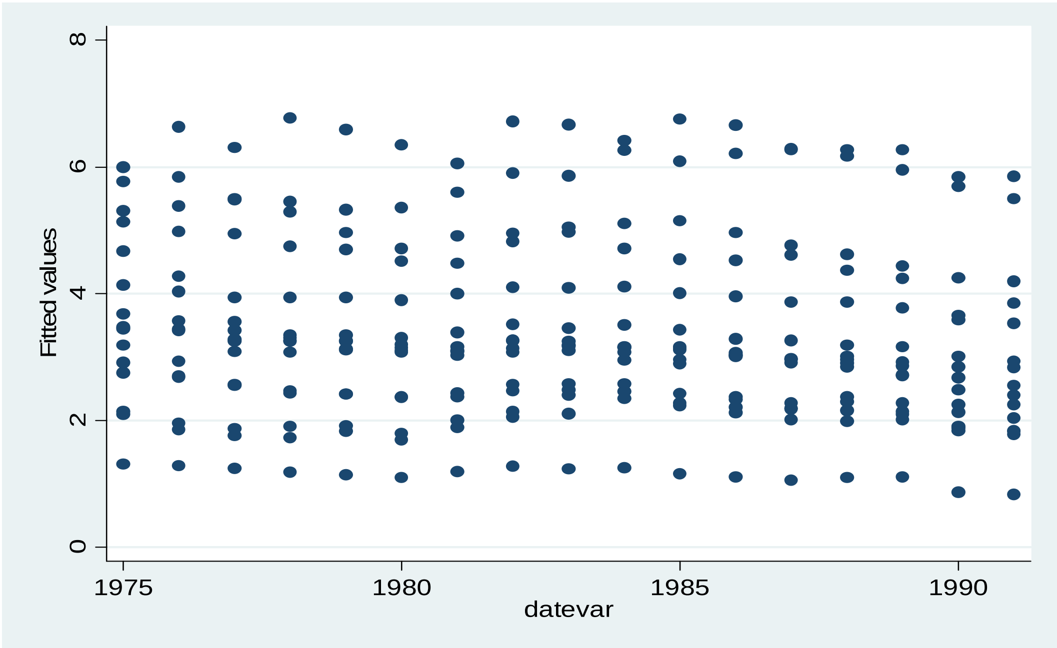

Figure 3.3: Scatter plot of predicted error versus Year

Controlling for Institutional Incentives: NATO and the EU

This section attempts to control for institutional incentives and disincentives to burden share within NATO. In Model 13, a dichotomous variable is added to account for whether or not a state is a member of NATO, ***nato***. NATO membership could yield rational incentives to *free ride*, since the allies are committed to defend each other. The coefficient for the NATO dummy variable is positive, suggesting a positive relationship with military expenditures as a percentage of GDP. In addition, the results are statistically significant at the .05 level. This suggests that, on average, NATO members had higher levels of military expenditures as a percentage of GDP than non-members. Since there was only one new member during this period, not too much weight should be given to this finding. In Model 14 a dichotomous variable is added to account for whether or not the state is a member of the EU, ***eu***. There were three new EU members during this period: Greece (1981), Spain (1986) and Portugal (1986). Like NATO, EU membership could also yield rational incentives to lower military expenditures, since the EU members are committed to economic cooperation and development, which often competes for fiscal resources with military spending. In this model, the value for the EU coefficient is also positive, but not statistically significant. This would suggest that, on average, members in the EU also had higher levels of military expenditures as a percentage of GDP than non-members.

Model 15 includes both two dichotomous variables, ***nato*** and ***eu,*** with similar results to Models 13 and 14. It is reasonable to explore whether or not the effect of membership in NATO is conditioned by EU membership. Normally the model would include independent variables for both NATO and EU membership and an interactive term. This interactive variable would be the product of the two dichotomous variables: ***nato*** and ***eu.*** However, there are no EU countries in this dataset that are not in NATO. Therefore, there is not enough leverage to test the interaction between NATO and EU; in fact, the eu variable captures the joint effect. Therefore, only the two dichotomous variables, ***nato*** and ***eu,*** will be retained in Model 16 and subsequent models.

Table 3.7: OLS Regression estimates of institutional and age effects on NATO military expenditures as a percentage of GDP using XTGLS command, 1975 – 1991

Independent variables	*Model 13*	*Model 14*	*Model 15*	*Model 16*
ECONOMIC GROWTH	.003 (.007)	.005 (.007)	.003 (.007)	.005 (.007)
DV LAG	.484*** (.039)	.497*** (.039)	.484*** (.039)	.489*** (.039)
SPILLOVER (***spillover***)	.441*** (.082)	.449*** (.084)	.445*** (.083)	.566*** (.127)
THREAT (***threat***)	-.001 (.001)	-.001* (.001)	-.001* (.001)	-.003* (.001)
NATO	.309* (.139)	--------	.294* (.147)	.311* (.147)
EU		.087 (.085)	.028 (.090)	.009 (.090)
NATO/EU				--------
MEMBER AGE				.143 (.011)

Note. Standard errors in parentheses
*   P < .05
**   P < .01
*** P < .001

Testing Burden-sharing: New versus Old Members

In Model 16, a continuous variable is added to account for the length of time (measured in years) that a state was a member of NATO, ***age***. With this change to the model, the non-threat variables remain largely unchanged (see Table 3.7). As in Models 14 and 15, the threat variable becomes negative and statistically significant. The major finding is that the value for the ***age*** coefficient was positive (.143), though the results were not statistically significant. This suggests that, on average, the longer a state remained in NATO the greater its military expenditures as a percentage of GDP.

In order to test the robustness of the findings in Model 16, three different methods of estimation are used in Table 3.8: Generalized Least Squares (GLS), Panel Corrected Standard Errors (PCSE) and Fixed Effects Vector Decomposition (FEVD). The data examined up to this point has been generated using either Ordinary Least Squares (OLS), or Generalized Least Squares (GLS). However, because we are using panel data, panel corrected standard errors (PCSE) may be more appropriate. First order autocorrelation is accounted for using the correlation (ar1) command with the STATA command, XTPCSE. Using Vector Decomposition is also appropriate since it allows estimation of time invariant variables in a panel using fixed effects, as discussed earlier. These methods are also applied to two different data sets (with and without the U.S.) .

The results for the first independent variable, ***gdpchg***, are mixed and only statistically significant in one of six cases. This suggests that economic growth had a minimal impact on military expenditures as a percentage of GDP during this period. Not surprisingly, the results for the lagged dependent variable are substantively the same and statistically significant using all three methods and in both data sets. This supports the earlier claim that military expenditures were highly path dependent. The results for the spillover variable, ***spillover***, are all positive and statistically significant if four of six cases. This supports the earlier claim that allied military

Table 3.8: Robustness check: Alternative estimation methods and alternative measures, 1975 – 1991

Independent variables	*Regression I*	*Regression II*	*PCSE I*	*PCSE II*	*FEVD I*	*FEVD II*
ECONOMIC: GROWTH	.005 (.007)	-.002 (.008)	-.018* (.011)	-.005 (.008)	.005 (.007)	-.0004 (.008)
DV LAG:	.489*** (.039)	.428*** (.040)	.566*** (.071)	.321*** (.065)	.464*** (.038)	.409*** (.040)
SPILLOVER: (***spillover***)	.566*** (.127)	.191 (.141)	.401*** (.124)	.151 (.155)	.547*** (.085)	.224** (.083)
THREAT: (***threat***)	-.003* (.001)	.0005*** (.0002)	-.001 (.003)	.0005*** (.0001)	-.002*** (.0005)	.0005*** (.0001)
NATO:	.311* (.147)	.175 (.146)	.098 (.130)	.275* (.165)	.277* (.140)	.169 (.138)
EU	.009 (.091)	.010 (.088)	-.217 (.185)	.037 (.147)	-.009 (.068)	-.011 (.070)
MEMBER AGE:	.014 (.011)	-.036*** (.011)	.016*** (.005)	-.042*** (.012)	.005* (.003)	-.034*** (.004)

Note. Standard errors in parentheses
I - indicates database including U.S. data
II - indicates database excluding U.S. data

* P < .05
** P < .01
*** P < .001

expenditures were complementary. The results for the threat variable will be discussed later. The result for the NATO variable is largely the same as in Model 16 and statistically significant in three of the six cases. Finally, the results for the independent variable, ***eu***, are not statistically significant. These findings suggest that the results are robust.

The most interesting finding concerns length of membership. The membership variable, ***age***, is positive in all three cases when the U.S. is included. This finding supports the third hypothesis, that old members will share greater relative proportion of the burdens than new members. These results were statistically significant in two of the three cases. However when the U.S. is excluded from the data set, ***age*** is negative and statistically significant using all three methods. When the U.S. is excluded, the level of military expenditures as a percentage of GDP decreases, on average, between .034% and .042% for every year that country has been a member of NATO. The findings suggest that the longer a member stayed in NATO, the more prone it was to free-riding behavior.

Since NATO added only one new member during this period, caution should be used in interpreting these results. Certainly Spain's military expenditures increased and remained above 2% of GDP during the five year period following accession to NATO: 1982-1987. This represented an increase over the previous five year period, 1977 – 1981, when Spain's average military expenditures were below 2% of GDP. Yet if Spain is compared to other non-U.S. NATO members, Spain's expenditures as a percentage of GDP, were consistently below the NATO average. The gap remains relatively constant in the five years following membership. However there also appears to be a substantial decline in military expenditures as a percentage of

GDP after 1987, or after 5 years of membership (see Figure 3.4). This could be an indicator that free-riding behavior has a lagged effect, kicking in after membership is attained.

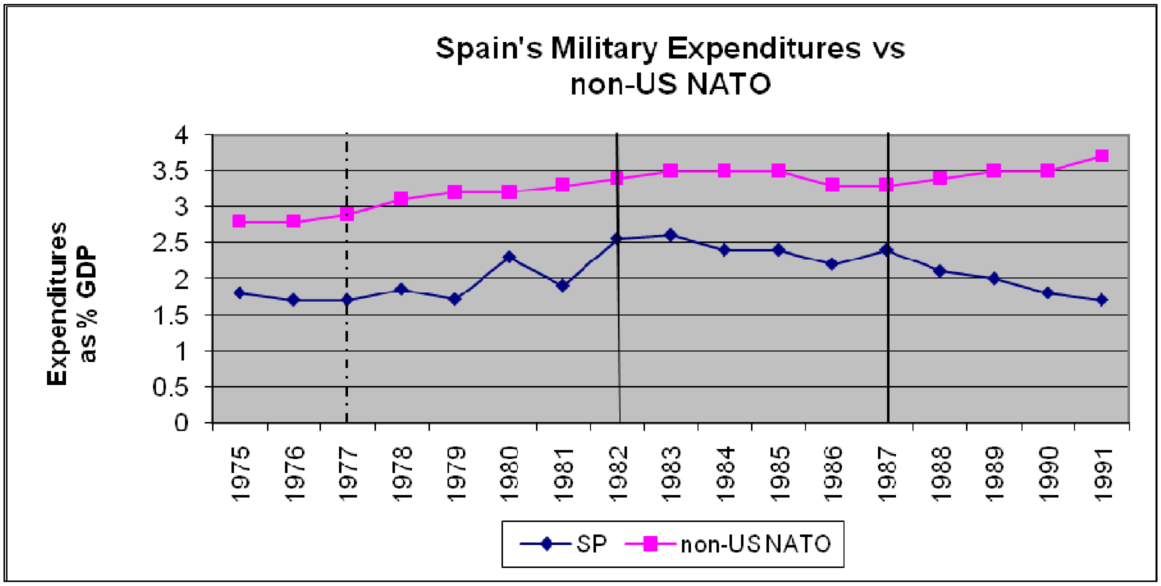

Figure 3.4: Spanish versus non-U.S. NATO expenditures as a percentage of GDP[29]

Further examination suggests something other than free-riding behavior affected Spain's military expenditures. Other states such as Germany show a similar drop off after 1987 (see Figure 3.5). Therefore the results for Spain could be attributable to other exogenous factors, such as a changed geostrategic environment or an expanding economy. Both countries' GDP growth during this period (1987-1991) doubled over the previous five years, which would account for the declining percentage of GDP being spent on the military. During this period, Spain's real defense expenditures increased approximately 37% from 1985 to 1990, while

Germany's increased 17%.   Therefore, the result concerning Spain are inconclusive during this period.

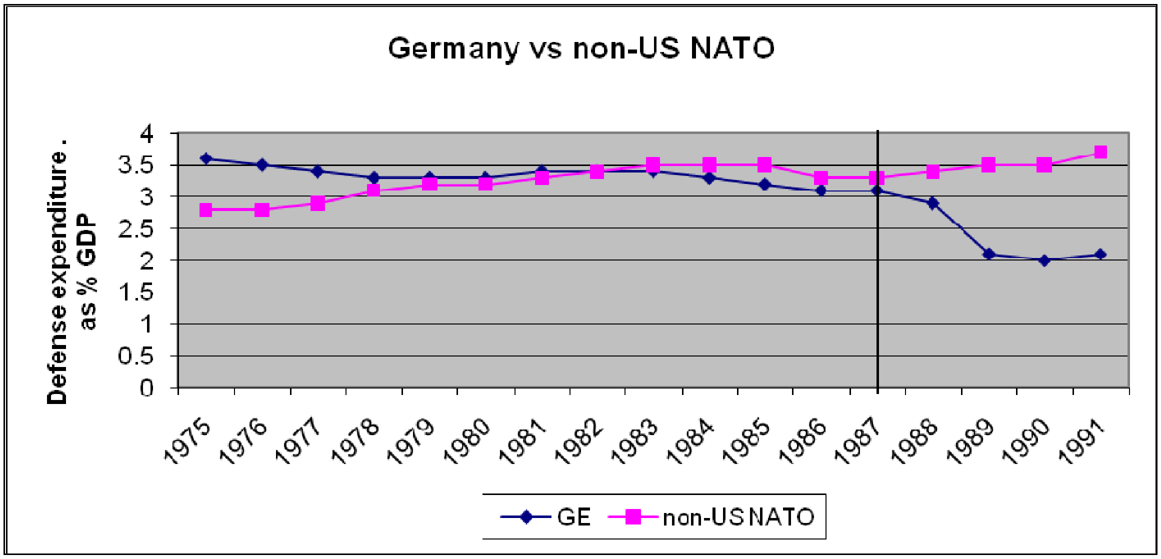

Figure 3.5: German versus non-U.S. NATO military expenditures as a percentage of GDP[30]

The results in Table 3.8 differ in two main areas depending upon whether or not the U.S. is included: threat and size. The first difference concerns the impact of threat on military expenditures as a percentage of GDP. When the U.S. is included in the data set, the value for all ***threat*** variables are negative and statistically significant in two of the three cases. On average, as Russian military expenditures increased, NATO members decreased their level of military expenditures as a percentage of GDP. However, this result is largely driven by the U.S.

When the U.S. is excluded from the data set, the value for all ***threat*** variables are positive and statistically significant at the .001 level. This finding supports the earlier analysis that

NATO allies appear to be much more responsive to changes in Russian military expenditures. On average, as Russian military expenditures increased, NATO allies also increased their level of military expenditures as a percentage of GDP. This is in line with theoretical expectations discussed earlier. Remember, the threat variable conditions the impact of Russian military expenditures by the distance to Russia. The positive value for ***threat*** when excluding the U.S. also means that states that are closer to Russia will have a higher level of military expenditure as a percentage of GDP, on average. This was not the case when the U.S. was included in the database. This suggests that the U.S. was *sui generis* in regards to threat and supports the suggestion made earlier that Russia reacts to U.S. expenditures as a percentage of GDP, not the other way around.

The second difference between data sets (with and without the U.S.) concerns how size affects military expenditures as a percentage of GDP. Using the Vector Decomposition method to account for the effects of time invariant variables (see Table 3.9), all three measures of size (GDP, population and area) are positive. Both population and area are statistically significant. These findings are consistent with the expectations of exploitation of the large by the small, as suggested by our first hypothesis, and with the results in Table 3.4.

However, when the U.S. is excluded from the data base, the first hypothesis is only supported for population size. This result is statistically significant at the .001 level. The results for area are not statistically significant. As in Table 3.4, the first hypothesis is not supported for GDP size when the U.S. is excluded. The coefficient is negative and statistically significant at the .001 level. As wealth increases, military expenditures as a percentage of GDP decrease on average. This finding does not support the first hypothesis. Perhaps the differences can be attributed to the pursuit of private goods by the United States. During this period, the U.S. was involved in several operations not related to NATO, such as Grenada and Panama.

Table 3.9: Impact of Size (GDP, Pop, Area) with and without the U.S., 1975 – 1991

Independent variables	*Vector Decomp I*	*Vector Decomp II*
Economy: (**gdpcat**)	.009 (.027)	-.074*** (.027)
Population: (**popcat**)	.122*** (.028)	.213*** (.032)
Area: (**areacat**)	.088*** (.023)	-.029 (.025)

Note. Standard errors in parentheses
Regression OLS I - indicates database including U.S. data
Regression OLS II - indicates database excluding U.S. data
Vector Decomposition I - indicates database including U.S. data
Vector Decomposition II - indicates database excluding U.S. data
* P < .05
** P < .01
*** P < .001

Conclusions

The results for the Cold War period are summarized in Table 3.10. The findings concerning the first hypothesis are mixed. When using standard OLS regression, none of the results are statistically significant though three out of six coefficients are positive as expected.

Using the Vector Decomposition method to account for the effects of time invariant variables (see Table 3.9), all three measures of size (GDP, population and area) are positive and both population and area are statistically significant. These findings are consistent with the expectations of exploitation of the large by the small, as suggested by our first hypothesis (see Table 3.10). However, when the U.S. is excluded from the data base, the first hypothesis is only supported for population size. Surprisingly, the first hypothesis is not supported for GDP using Vector Decomposition. In fact, these results suggest that, excluding the United States, as income increases military expenditures as a percentage of GDP decrease on average. This suggests that wealthier non-U.S. NATO states tend to spend less, as a percentage of GDP, than poorer states. However, this could be attributed to a couple of the poorest states (Greece, and Turkey) pursuing private goods during this period. This will be discussed further in Chapter 4. These findings support the notion of NATO as a uniquely privileged group in that the U.S. was considerably larger than its allies in all three measures of size.

The results of this chapter concerning age are also mixed. If the U.S. is excluded from the data set, the results support the second hypothesis that newer members of the alliance will share a greater relative proportion of burdens than old members. As length of membership increased, military expenditures as a percentage of GDP decreased. This result was statistically significant and robust across all three methods. The findings suggest that the longer a member stayed in NATO, all things being equal, the more prone it was to free-riding behavior (see H2, Table 3.10). However when the U.S. is included in the data set, the findings support the third hypothesis, that old members will share greater relative proportion of the burdens than new members. This result was statistically significant in two of the three methods. Since most existing members had over 30 years of membership by 1986 and Spain was the only new member during this period, caution should be used in trying to generalize these findings.

Table 3.10: Summary of Findings from Regression

		Results of Regression
H1:	*Large states will share greater relative proportion of burdens than small states*	*OLS results were not statistically significant;* *Vector decomposition: Supported for all 3 measures of size if U.S. is included;* *If the U.S.is excluded: Supported for population; not supported for GDP*
H2:	*New members will share greater relative proportion of burdens than old members*	*Supported if U.S. is excluded.*
H3:	*Old members will share greater relative proportion of burdens than new members*	*Supported if U.S. is included.*

Another interesting finding is the impact of threat perception on burden-sharing decisions. Though U.S. and Russian military expenditures were correlated, it appears that Russian expenditures followed changes in U.S. military expenditures as a percentage of GDP. Not surprisingly, non-U.S. military expenditures were strongly correlated to changes in Russian military expenditures during the portion of the Cold War period examined. When NATO is examined without the U.S., military expenditures as a percentage of GDP, on average, increase when Russian military expenditures increase. However, the impact is conditioned by the distance from Russia; the closer the state is to Russia the greater the impact. These findings were statistically significant at the .01 level and robust across all three methods. This result is consistent with the theoretical expectations discussed earlier. This relationship will be examined in the next chapter to see if the improving strategic environment for NATO lessens the impact of Russian military expenditures.

The burden-sharing model presented in this chapter is both theoretically and empirically sound . The findings for most of the independent variables were robust. It was also possible to test the first three hypotheses during the Cold War period. However with NATO adding only one new member during this period, Spain, it is difficult to make a conclusive argument about the fourth hypothesis: the impact of enlargement. For that, it is necessary to look at the post-Cold War period in Chapter 4. While this chapter did not look at the hypothesis that expansion of NATO would result in greater free-riding, this will be tested in the next chapter. During the post-Cold War period, NATO expanded from 16 to 26 members. This should provide sufficient data points to test this hypothesis. Chapter 4 will also relook the findings of Chapter 3 in the context of the new geostrategic environment.

[1] Jim Moody. “The Congress of the United States,” in *Shifting Into Neutral: Burden Sharing in the Western Alliance in the 1990s*, edited by Christopher Coker (London: Brassey’s, 1990), 52.

[2] Keith Hartley and Todd Sandler. *The Political Economy of NATO.* New York: Cambridge University Press, 1999, 31.

[3] See, Olson and Zeckhauser, “An Economic Theory of Alliances,” (1966); Sandler and Forbes, “Burden Sharing, Strategy, and the Design of NATO,” (1980); Hartley and Sandler, *The Political Economy of NATO*, (1999).

[4] NATO official speaking on background, based on interviews conducted on 1 February 2008. at NATO Headquarters, Brussels, Belgium.

[5] General John Craddock (Supreme Allied Commander Europe) interview by author, SHAPE Headquarters, Mons, Belgium, 1 February 2008. Also, Hendrickson, Ryan C., “The Miscalculation of NATO’s Death,” *Parameters*, Spring (2007): 105.

[6] Keith Hartley and Todd Sandler, 61.

[7] R.P. Smith. “Models of Military Expenditure,” *Journal of Applied Econometrics* 4, no. 4 (1989): 351.

[8] OSCE, “Conference on Security and Co-operation in Europe Final Act,”1975. http://www.osce.org/documents/mcs/1975/08/4044_en.pdf (accessed 30 July 2008).

[9] OSCE, “History of the OSCE,” OSCE Handbook, 11 October 2007. http://www.osce.org/publications/sg/2007/10/22286_955_en.pdf (accessed 30 July 2008).

[10] Ibid, 4-5.

[11] Keith Hartley and Todd Sandler, 38-40.

[12] NATO Information for Press, “NATO-Russia Compendium of Financial and Economic Data Relating to Defence,” NATO Headquarters, 20 December 2007, http://www.nato.int/issues/defence_expenditures/index.html (accessed 11 November 2008).

[13] International Institute for Strategic Studies. *The Military Balance.* London: Routledge, 1977-1991.

[14] See, Oneal and Elrod, “NATO Burden Sharing and the Forces of Change,” (1989): 451; Hartley and Sandler, *The Political Economy of NATO*, (1999): 37.

[15] StephenWalt. "Alliance Formation and the Balance of World Power," *International Security* 9, no. 4, (1985): 3.

[16] Central Intelligence Agency. "World Factboook," 2008. https://www.cia.gov/library/publications/the-world-factbook/index.html

[17] See, International Institute for Strategic Studies. *The Military Balance.* London: Routledge, 1977-1991;Global Security. "Russian Military Budget Expenditures." http://www.globalsecurity.org/military/world/russia/mo-budget-expenditures.htm (accessed 21 September 2008); Laxman Kumar Behera, "The US Defence Budget for 2008," Institute for Defence Studies, 21 February, 2007. (accessed 11 November 2008);

[18] See, Dieter Fritz-Assmus and Klaus Zimmermann. "West German Demand for Defence Spending," in *The Economics of Defense Spending*, edited by Keith Hartley and Todd Sandler. London: Routledge, 1990; Keith Hartley and Todd Sandler, *The Political Economy of NATO*, (1999).

[19] NATO Information for Press, "NATO-Russia Compendium of Financial and Economic Data Relating to Defence," NATO Headquarters, 20 December 2007, http://www.nato.int/issues/defence_expenditures/index.html (accessed 11 November 2008).

[20] Ibid.

[21]Mancur Olson, Mancur, Jr. *The Logic of Collective Action: Public Goods and the Theory of Groups.* revised. New York: Schocken Books, 1971, 29.

[22] James C. Murdoch and Todd Sandler. "Swedish Military Expenditures and Armed Neutrality," 1990, in *The Economics of Defence Spending*, edited by Keith Hartley and Todd Sandler (London: Routledge, 1995) 148.

[23] See, International Institute for Strategic Studies. *The Military Balance.* London: Routledge, 1977-1991; Central Intelligence Agency. "World Factbook," Undated. https://www.cia.gov/library/publications/the-world-factbook/geos/pl.html (accessed 5 November 2008).

[24] Central Intelligence Agency. "World Factbook," Undated. https://www.cia.gov/library/publications/the-world-factbook/geos/pl.html (accessed 5 November 2008).

[25] Thomas Plumper and Vera E. Troeger, "Efficient Estimation of Time-Invariant and Rarely Changing Variables in Finite Sample Panel Analyses with Unit Fixed Effects," *Political Analysis* 15(2007):124-139

[26] Benjamin E. Goldsmith, "Bearing the Defense of Burden, 1886-1989", *Journal of Conflict Resolution* 47, no. 5, (2003): 569.

[27] See Council on Foreign Relations, *Political Handbook of the World,* New York: McGraw-Hill, 1975-2007; Europa Publications. *Western Europe,* London: Routledge, 1989-2009 and *Central and South Eastern Europe*, London: Routledge, 2001-2009.

[28] A.H. Studenmund and Henry J. Cassidy. *Using Econometrics: A Practical Guide* (Boston: Little, Brown and Company Publishing, 1987), 209.

[29] NATO Information for Press, "NATO-Russia Compendium of Financial and Economic Data Relating to Defence," NATO Headquarters, 20 December 2007, http://www.nato.int/issues/defence_expenditures/index.html (accessed 11 November 2008).

[30] Ibid.

CHAPTER 4

BURDEN-SHARING AFTER THE COLD WAR:

NEW MEMBERS, NEW THREATS, NEW MISSIONS

Macro-level analysis of burden-sharing: Enlargement (1992-2006)

In the 1980's NATO had a standard that military expenditures as a percentage of GDP should increase at a 3% annual rate. Many nations tried to meet this goal. It is much harder now to meet the 2% target with more allied involvement in missions and EU pressures to reduce budget deficits.

NATO Official speaking on background[1]

Having examined military expenditures as a percentage of GDP during the Cold War in the last chapter, the model is now applied to the post-Cold War period. The main variables of this model will remain the same. The statistical model in this chapter is used to test the following hypotheses:

a. (H1) Large states will share greater relative proportion of burdens than small states.

b. (H2) New members will share a greater relative proportion of burdens than old members.

c. (H2a) New member burden-sharing will decline after accession into NATO.

d. (H3) Old members will share a greater relative proportion of burdens than new members.

e. (H4) Free-riding behavior will increase with NATO enlargement.

In the post-Cold War period, the findings support the first hypothesis that large states will share a greater relative proportion of burdens than small states. This is especially true using population and area as measures of size, though the results are mixed concerning economy size. The findings also support the second hypothesis that, on average, new NATO members will burden share at a greater rate than old NATO members. On average, as the length of membership in NATO increases, military expenditures decrease. Also, contrary to the expectations of the corollary hypothesis, H2a, new member burden-sharing does not decline after accession into NATO. Finally, the results for the fourth hypothesis, that free-riding behavior will increase with NATO enlargement, were mixed. However, given the findings in this chapter, we cannot reject null hypothesis that enlargement had no impact on free-riding behavior.

Research Design

The year 1992 is selected as the start point for the second data set to capture the beginning of the post-Cold War period. In 1992, NATO drew up its work plan for Dialogue, Partnership and Cooperation with the newly independent countries of Eastern Europe. This was also the first full year that the Baltic States and Slovenia were independent, sovereign states. The year 2006 was selected as the end point because it was the last year for which there was complete data at the time this research was conducted. It is also a suitable end point due to a recent shift in the threat environment and threat perceptions between NATO countries and Russia. While tensions have been building since the Iraq War in 2003, the year 2007 was marked by a number of significant events which indicate a shift in NATO-Russian relations.

These include the massive Russian cyber-attack on Estonia, President Putin withdrawing from the Conventional Forces in Europe (CFE) treaty and the resumption of Russian Bomber flights.[2] This tension was heightened in 2008 with the Russian invasion of Georgia. Russia was certainly upset by the two waves of NATO enlargement after the fall of the Soviet Union, one in 1999 and one in 2004. Additionally, the U.S. decision to place an anti-ballistic missile system in Poland and the Czech Republic, the continuation of NATO enlargement, and the support by many NATO countries for Kosovo's declaration of independence all increased Russian apprehension about NATO's true intentions.[3]

The strategic reasons for delineating this as a separate period of study are backed up by statistical rationale. A Chow Test was conducted to test whether or not the two time periods (pre and post Cold War) could be pooled together. Using 44 parameters in the data set, $f(44,598) = 2.14$. This was greater than the critical value (1.39) at .05 level of significance. Therefore we can reject the hypothesis that the function is the same in the two time periods.

The number of countries in the panel exceeds the number of time periods, making this a cross-sectional dominated panel. Iceland is not included in the data since it does not maintain a military force. This would normally be a slightly unbalanced panel due to the separation of Czechoslovakia into two separate states in 1992: the Czech Republic and the Slovak Republic. Therefore, there would be no data for the Slovak Republic in 1992. In order to balance the panel, data for Czechoslovakia is used for both the Czech Republic and the Slovak Republic in

1992 only. Due to the large number of observations in the panel, this should not significantly skew the final results.

As discussed in the previous chapters, the analytical framework of the burden-sharing debate is based on the notion of a public good.   To be considered a public good, a product must have the qualities of non-excludability and non-rival consumption. Non-excludability means that those who do not contribute to the provision of a particular good or service cannot feasibly be kept from benefiting from it. Non-rival consumption means that consumption of the good or service by one actor does not diminish the amount available to others. Much of the burden-sharing literature characterizes military expenditures as public goods. However, the reality is more complicated. Often these expenditures are for private benefits (to protect domestic industry, to maintain internal security, or to pursue national objectives) or mixed private and public benefits, called joint products. This project will use unit variables to help control for the consistent pursuit of private goods by individual countries.   In some cases, where countries were clearly pursuing private security concerns, their data will be excluded or adjusted to account for the non-public nature of these expenditures.

Methodology

As in the Cold War data set, the two key independent variables, SPILLINS and THREAT, are retained from Sandler and Hartley's demand function. The model is refined by sequentially adding various measures of spillover and threat. Once again, an independent variable is added to the model to account for country fixed effects.   The coefficients of the new members are then compared with the old members to determine their effect on burden-sharing behavior within NATO. An alternative measure is also used to account for the effect of length of membership on burden-sharing, ***age.*** This additional test makes the findings more robust. In addition, several control variables are added to account for alternative explanations of burden-sharing behavior. The model is then applied to a pooled cross sectional time series data on NATO members from 1992 to 2006. The proposed model of burden-sharing is indicated in the equation below:

$$\% \text{ GDP}_{it} = \beta_0 + \beta_1(\text{Economic Growth}_{it}) + \beta_2(\text{DVLag}_{it-1}) + \beta_3(\text{Spillover}_{it}) + \beta_4(\text{Size}_{it}) + \beta_5(\text{Threat}_{it}) + \Lambda_6(\text{Political Party}_{it}) + \Lambda_7(\text{NATO}) + \Lambda_8(\text{EU}) + \beta_9(\text{Member Age}) + \sum^{k}_{j=1} \gamma_i \text{Country}_i + e_{it}$$

$\%\text{GDP}_{it}$ is the percentage of military expenditures to GDP (dependent variable).[4] Subscript *i* represents a specific country, *t* denotes time, and the other variables are:

1. Economic Growth_{it} is a variable representing change in GDP from time *t-1* to *t* for country *i*. This measures the impact of changes to the denominator of the dependent variable (GDP) on burden-sharing as a percentage of GDP. This is represented by ***gdpchg*** in the STATA model.[5]

2. $\%\text{DVLag}_{it-1}$ is a lag variable of the percentage of military expenditures to GDP in time t-1. This is represented by ***dvlag*** in the STATA model.

3. Spillover_{it} is a variable representing the average percentage of military expenditures to GDP of other NATO allies. This measure checks for benefits received from other members' spending. Various measures of spillover are used.

4. $Size_{it}$ is an ordinal variable to control for the size of a state's GDP, population, or physical area. This is an important measure in analyzing the large versus small state hypothesis of the logic of collective action.

5. $Threat_{it}$ is used to control for the independent role of threat in influencing military expenditures. Again several measures are tested sequentially.

6. Political $Party_{it}$ is a dummy variable for the partisanship of the government in power, as measured by the party of the Prime Minister.

7. $NATO_{it}$ is a dummy variable to control for the effect of membership in NATO. This is represented by ***nato*** in the STATA model.

8. EU_{it} is a dummy variable to control for the effect of membership in the European Union on burden-sharing. This is represented by ***eu*** in the STATA model.

9. Member Age_{it} is one of the main independent variables of interest used to measure the influence of the length of membership on burden-sharing behavior. It is measured by years of membership in NATO. This is represented by ***age*** in the STATA model.

10. $Country_i$ is a dummy variable to account for fixed, country specific effects that are consistent over time. This is important because OLS estimates of coefficients are often subject to omitted variable bias. In this model, the country dummy variable for the "***tu***" is left out and is reflected in the constant. As Turkey historically has a higher level of defense spending than its alliance partners, the value for the constant is positive and relatively large as a basis of comparison.

The data are initially explored using an autoregressive, ordinary least squares regression (OLS). The basic function used in all models includes the dependent variable and the independent variables of Economic growth ***(gdpchg)***, GDP lag ***(dvlag)***, and a Spillover variable. Since there have been different measures of spillover in previous studies, this project will also test multiple measures in the subsequent models. The next subsection examines three measures of spillover.

Testing the Logic of Collective Action in the Post-Cold War Period: Spillover

Model 1, uses a spillover variable derived from the average of other allies' defense expenditures as a percentage of GDP. Not surprisingly, Model 1 affirms the demand function adapted from Sandler and Hartley.   The model explained approximately 82% of the annual variance in defense burdens. First, the relationship between economic growth (as measured by a change in GDP) and military expenditures as a percentage of GDP is negative and statistically significant at the .001 level. As mathematically expected, military expenditures as a percentage of GDP decrease when the denominator (GDP) increases. For every percentage that GDP grows, on average, military expenditures as a percentage of GDP decreases by .02%. This relationship will stay the same throughout the following models. This finding is different from our Cold War model in Chapter 3, where the coefficient for economic growth was rarely statistically significant and fluctuated between a positive and negative value depending upon the spillover variable used and whether or not the U.S. was included. This suggests that military expenditures are more sensitive to economic growth in the post-Cold War period. This will be examined further later in this chapter.

There is also a statistically significant relationship between military expenditures as a percentage of GDP and the one year lag of the dependent variable. For every one percent increase in military expenditures as a percentage of GDP at t-1, military expenditures as a percentage of GDP increase, on average, .498%. This general relationship remains consistent throughout the following models. Finally, the variable for spillover, ***spillover***, is also positive and statistically significant. On average, military expenditures as a percentage of GDP increases by .384% for every 1% increase in military expenditures as a percentage of GDP in the other NATO states. The spillover variable is positive and statistically significant at the .001 level. This finding suggests that the outputs of defense expenditures were complementary in NATO and is consistent with the findings in Chapter 3.[6]

In Model 2 the interactive variable, ***dspll***, is also positive and but not statistically significant. In addition the fit of the model decreases slightly to .811. Model 3, using the U.S. spillover variable, ***usspill,*** differs significantly from the other measures of spillover. The resulting coefficient is negative meaning as U.S. defense expenditures increase, as a percentage of GDP, NATO military expenditures as a percentage of GDP decreases. This result is in keeping with the predictions of the logic of collective action suggesting free riding behavior by the NATO allies. However these results are not statistically significant. Because of its level of significance and relatively higher adjusted r-squared value, the simple measure of spillover (Model 1) is used from this point forward.

Controlling for Threat

The next step was to test the impact of threat on military expenditures as a percentage of GDP. Since there are various measures of threat, they are sequentially tested using different

Table 4.1: OLS Regression estimates of effects on NATO military expenditures as a percentage of GDP using REG command, 1992 – 2006

Independent variables	*Model 1*	*Model 2*	*Model 3*
ECONOMIC GROWTH	-.020*** (.006)	-.029*** (.005)	-.029*** (.006)
DV LAG	.498*** (.041)	.582*** (.037)	.581*** (.037)
SPILLOVER ***(spillover)***	.384*** (.089)	--------	--------
SPILLOVER (***dspll***)		.003 (.039)	--------
SPILLOVER (***usspill***)			-.008 (.020)
ADJ R^2	.820	.811	.811

Note. Standard errors in parentheses
* P < .05
** P < .01
*** P < .001

measures and combination of measures to try to best account for the effect of threat on military expenditures as in Chapter 3. Model 4 introduces an ordinal variable, ***dist***, to account for the geographic proximity of states to their historical rival: Russia.[7] This concept of threat is derived from the balance of threat theory developed by Stephen Walt.[8] Distance is the only one of the four factors Walt identifies that varies between NATO states in assessing threat. Again, since distance is time invariant, this variable is also highly collinear with the country dummy variables. Running collinearity diagnostics in STATA yielded tolerance value of .0000. Since this tolerance value is again lower than 0.1, ***dist*** can be considered as a linear combination of the country variables. Therefore, the country variables were left out of Model 4 in order to isolate the effects of threat as measured by distance in kilometers (see Table 4.1).

In Model 4, the relationship between economic growth and military expenditures as a percentage of GDP remain the same as earlier models and is statistically significant at the .001 level. The relationship between GDP lag and military expenditures as a percentage of GDP appears stronger in this model and remains statistically significant at the .001 level. In this model, the spillover coefficient becomes negative and is no longer statistically significant. The most interesting result concerns threat. Unexpectedly, there is a positive relationship between distance from Russia and the level of military expenditures as a percentage of GDP in the post-Cold War period. However, this result is largely due to greater U.S. military spending especially after September 11, 2001. Since the U.S. is one of the furthest away (capital to capital), its inclusion in the data set distorted the results. When the model is run without the U.S. data included, the sign reverts to negative which is consistent with the balance of threat theory and the results from Chapter 3. With or without the U.S., the results are not statistically significant.

Model 5 tests the relationship using a different measure of threat. In this model, we use a dichotomous variable, ***prox,*** to represent whether or not a state has a contiguous border with Russia. If the country did have a contiguous border with Russia, then ***prox*** = 0. Again, since ***prox*** is time invariant, this variable is also highly collinear with the country dummy variables. Running collinearity diagnostics in STATA yielded tolerance value of .0000. Since this tolerance value is again lower than 0.1, ***prox*** can be considered as a linear combination of the country variables. Therefore, the country variables were also left out of Model 5. The non-threat related results remain largely the same. As expected, those countries without a contiguous border with Russia, on average, had a .029% lower level of military expenditures as a percentage of GDP. However, the results were not statistically significant.

Model 6 introduces a continuous threat variable, ***russia***, to account for the level of Russian military expenditures (in billions of dollars).[9] Military expenditures are an appropriate measure of threat since it can be viewed as a concrete measure of power and as an investment in future military capability. The results of Model 6 are also contained in Table 4.2 and explained approximately 82% of the annual variance in defense burdens. Another benefit of using Russian military expenditures is that the dichotomous country variables can now be added back to the model to account for fixed effects.

The results for the first two independent variables, economic growth and the lagged dependent variable, change only slightly. However, the variable for spillover in this model

Table 4.2: OLS Regression estimates of "threat" effects on NATO military expenditures as a percentage of GDP using REG command, 1992 – 2006

Independent variables	*Model 4*	*Model 5*	*Model 6*	*Model 7*
ECONOMIC GROWTH	-.023*** (.006)	-.022*** (.006)	-.019*** (.006)	-.018** (.006)
DV LAG	.831*** (.024)	.833*** (.024)	.495*** (.041)	.497*** (.041)
SPILLOVER (***spillover***)	-.012 (.080)	-.015 (.086)	.362*** (.093)	.364*** (.092)
THREAT (***dist***)	.009 (.015)	--------	--------	--------
THREAT (***prox***)		-.029 (.060)	--------	--------
THREAT (***russia***)			.0007 (.0009)	--------
THREAT (***threat***)				.001 (.002)
R^2	.782	.782	.822	.822

Note. Standard errors in parentheses
* P < .05
** P < .01
*** P < .001

switches to a positive value and is statistically significant at the .001 level. This suggests that defense expenditures increase with increases in ally spending. The relationship between Russian military expenditures and levels of military expenditures as a percentage of GDP is positive, as expected, but small. On average, for every $1 billion increase in Russian military expenditures, military expenditures as a percentage of GDP increase by .0006%. However, this result is not statistically significant.

Perhaps the effect of Russian military expenditures is conditioned by the distance between states. If Stephan Walt is correct, the closer a NATO state is to Russia the greater should be its perception of threat. Therefore Model 7 (see Table 4.2), includes a new threat variable, ***threat***, which is derived by dividing Russian military expenditures (in $1 billion) by the distance (in 1,000 km) between the NATO capital and Moscow. In this model, the value of the threat coefficient is positive, suggesting that as the value of threat increases (either due to increased Russian military expenditures or a closer distance to Moscow) the level of military expenditures as a percentage of GDP also increases. However this result is not statistically significant. Therefore, the relationship between Russian military expenditures and NATO defense expenditures bears further examination. Perhaps the threat environment has changed since the Cold War period examined earlier in Chapter 3.

In this period, Russian military expenditures and U.S. military expenditures as a percentage of GDP are positively and strongly correlated with each other, with a correlation coefficient of .87. This means that Russian military expenditures explain 75% of the variance in

U.S. defense military expenditures and vis a versa. You can see this relationship graphically for the U.S. in Figure 4.1. This relationship is stronger than in the Cold War period when Russian military expenditures explained only 31% of the variance in U.S. defense military expenditures. In both cases, increases in U.S. military expenditures as a percentage of GDP preceded increases in Russian military expenditures. Increased levels of U.S. military expenditures beginning in 2000 preceded increases in the rate of Russian military expenditures beginning in 2002. With the global strategic interests and commitments of the U.S., it is not surprising that U.S. military expenditures are based on a broader perception of threat than just Russian expenditures.

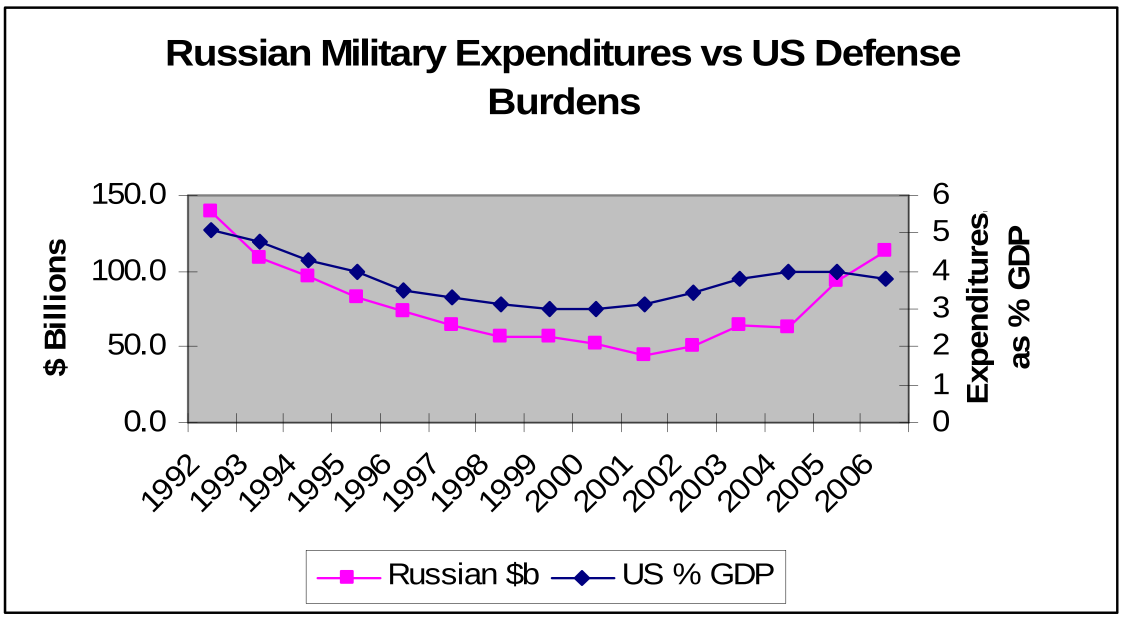

Figure 4.1: Impact of Threat on U.S. in Post-Cold War Period[10]

Non-U.S. NATO military expenditures as a percentage of GDP are also positively correlated with Russian expenditures, with a correlation coefficient of .34.   This means that

Russian military expenditures explain 11% of the variance in non-U.S. NATO defense expenditures. This is a significant decrease from the Cold War period when non-U.S. military expenditures were highly correlated with Russian military expenditures. In addition, non-U.S. defense burdens continued to decline after 2000 even as U.S. and Russian levels began to increase. This suggests that perhaps Canada and Europe have a different perception of threat than does Russia or the U.S. This conclusion was validated in interviews conducted with NATO officials and representatives from NATO countries and will be discussed in greater detail in later chapters. You can see this relationship graphically for the non-U.S. members of NATO in Figure 4.2.

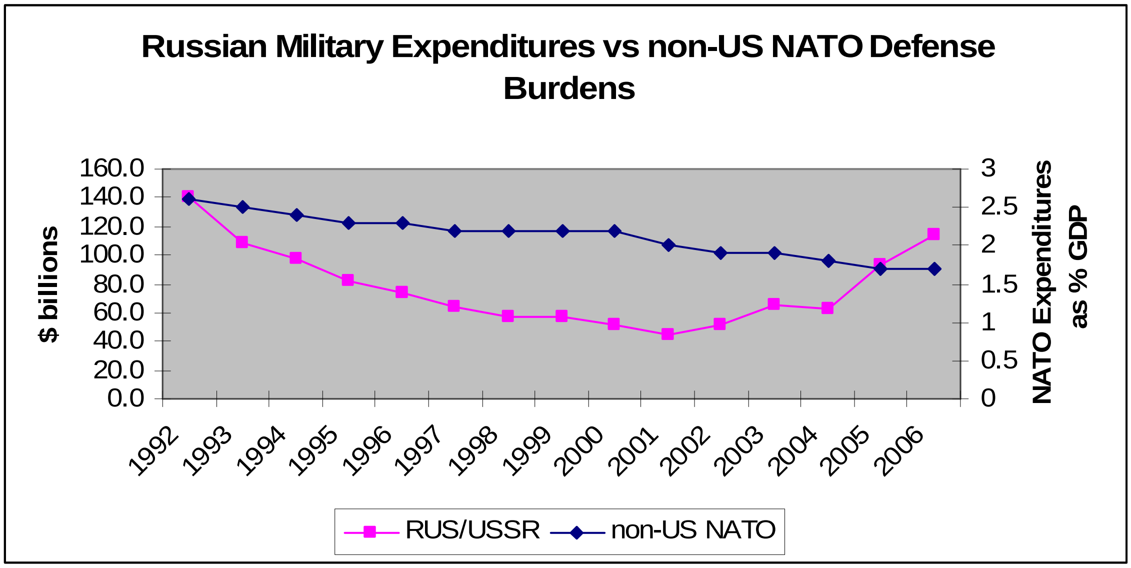

Figure 4.2: Impact of Threat on Non-U.S. NATO in Post-Cold War Period[11]

Testing the "exploitation of the great" hypothesis

Having set the base model of military expenditures as a percentage of GDP, it is now time to test the first hypotheses about military expenditures as a percentage of GDP in NATO in the post-Cold War period. This hypothesis stated that large states would share a greater relative proportion of burdens than small states. As in Chapter 3, three different independent variables are used to test this hypothesis: ***gdpcat***, ***popcat***, and ***areacat***.[12]

In Model 8, an ordinal variable is generated to account for absolute size of the economy in constant U.S. dollars, **gdpcat**. These values were generated by taking the log of the actual GDP in $billions, as reported by the International Monetary Fund (IMF) for 1992 to 2006. A collinearity test between the variable **gdpcat** and the country variables (which accounted for the fixed effects) was also run. Since the tolerance values were all lower than 0.1, the GDP categories could be considered as a linear combination of the country variables. This is largely due to the fact that the size of the economy is relatively time invariant within cases. Therefore, the country variables were removed from the model while testing this hypothesis.

In Model 8, the coefficient for **gdpcat** was positive. This result is not inconsistent with the assumption that, on average, as the size of the country's GDP increases (richer countries) they should have higher levels of military expenditures as a percentage of GDP. However, as in Chapter 3, the result was not statistically significant. Model 9 introduces an ordinal variable to account for population size, **popcat**. The same four categories were used as in Chapter 3: very small (under 7 million population), small (between 7 and 20 million), medium (greater than 20 but less than 50 million) and large (50 million or greater). Because population size is relatively invariant during this time span, this variable is also highly collinear with the country dummy variables which account for all of the fixed effects. Therefore, country variables are again removed. In this model, as the population category increased, military expenditures as a percentage of GDP increased by .061% on average. Unlike the Cold War period, this result was statistically significant at the .01 level. This finding supports the hypothesis that larger states should, on average, spend relatively more on defense than smaller states.

In Model 10, a variable is included to account for absolute size of a country, in square kilometers, **areacat**. These values were generated by taking the log of the area of the country, in square kilometers, as reported in the CIA World Factbook. In the post-Cold War period, the coefficient for **areacat** was positive and statistically significant at the .01 level. In this model, as the area category increased by one, military expenditures as a percentage of GDP increased by .045%, on average. This finding is consistent with expectations that states with larger physical areas should, on average, spend relatively more on defense than smaller states. Therefore, in two of three cases, the results were statistically significant and explained 76 to 78% of the variance in military expenditures as a percentage of GDP. Thus, these results support the first hypothesis.

However, to control for the impact of other size variables, it is necessary to analyze these variables further. Perhaps the results would differ if all three variables for size are included. It is also possible that the inclusion of the United States skewed the results of the model. Therefore, in the following chart, all three measures of size **(gdpcat**, **popcat, and areacat)** are included in the base model, while excluding the country variables. The model is then tested with and without the U.S. included in the data set. Including all three size variables in the model, the explanatory power is 78% with the U.S., and 76% without.

Table 4.3: OLS Regression estimates of "size" effects on NATO military expenditures as a percentage of GDP using REG command, 1992 – 2006

Independent variables	*Model 8*	*Model 9*	*Model 10*
ECONOMIC GROWTH	-.021** (.006)	-.020** (.006)	-.020** (.006)
DV LAG	.813*** (.024)	.813*** (.025)	.807*** (.025)
SPILLOVER (***spillover***)	-.017 (.087)	-.017 (.086)	-.008 (.086)
THREAT (***threat***)	.002 (.001)	.002* (.001)	.002* (.001)
SIZE (GDP, POP, AREA)	.022 (.015)	.061** (.024)	.045** (.016)
R^2	.782	. 785	.786

Note. Standard errors in parentheses
*   P < .05
**   P < .01
*** P < .001

When all three size variables are included, the coefficient for **gdpcat** was negative both with and without the U.S. included in the data set and statistically significant at the .05 level without the United States. On average, the richer a country was (as measured by GDP category), the more likely it was to *free ride.* This result does not support the assumption based on the logic of collective action that, on average, as the size of the country's GDP increases (richer countries) they should have higher levels of military expenditures as a percentage of GDP. Perhaps as the western European countries become more affluent, they are adopting more post-modern values and have less of a demand for military power. In contrast, the coefficient for **popcat** was positive and statistically significant at the .09 level, when including the U.S., and at the .04 level when the U.S. was excluded. This supports the argument that, on average, the larger a country was (as measured by population category), the greater its military expenditures as a percentage of GDP. This result supports the first hypothesis. Finally, the coefficient for **areacat** was positive for both datasets. However, it was not statistically significant when the U.S. was excluded from the data set.

One shortcoming of these results is that the model had to exclude fixed effects in order to test the significance of the time invariant variables **(gdpcat**, **popcat, and areacat)**. However, using a process developed by Plumper and Troeger, called Vector Decomposition, allows estimation of time invariant variables in a panel using fixed effects. Not only does this method permit the use of a fixed effects model, it can also result in a more efficient estimate. The Vector Decomposition method is used on both data bases (with and without the U.S.) in order to test the robustness of our findings using OLS. Using the Vector Decomposition method increases the explanatory power of the model to 83%, with the U.S., and 81% without the U.S. data. Vector decomposition also increases the statistical significance of the spillover variables.

Table 4.4: Impact of Size (GDP, Pop, Area) with and without the U.S., 1992 – 2006

Independent variables	*Regression OLS I*	*Regression OLS II*	*Vector Decomp I*	*Vector Decomp II*
Economy: (**gdpcat**)	-.026 (.023)	-.042* (.027)	-.107*** (.023)	-.141*** (.024)
Population: (**popcat**)	.053[1] (.038)	.074* (.040)	.172*** (.036)	.222*** (.039)
Area: (**areacat**)	.040* (.021)	.027 (.022)	.110*** (.020)	.068*** (.022)

Note. Standard errors in parentheses
Regression OLS I - indicates database including U.S. data
Regression OLS II - indicates database excluding U.S. data
Vector Decomposition I - indicates database including U.S. data
Vector Decomposition II - indicates database excluding U.S. data

[1] P < .10
* P < .05
** P < .01
*** P < .001

As in the OLS results, the coefficient for **gdpcat** was negative; however, the results were statistically significant at the .001 level both with and without the U.S. included in the data set. On average, the richer a country was (as measured by GDP category), the lower its military expenditures as a percentage of GDP. This result strengthens the findings using OLS. The coefficient for **popcat** was also positive and statistically significant in both cases. More importantly, population had the greatest impact of the three size variables on military expenditures as a percentage of GDP, especially when the U.S. was excluded. This also strengthens the OLS findings and strongly supports the first hypothesis. Finally, the coefficient for **areacat** was again positive and statistically significant for both datasets. These results are more consistent than in the Cold War period. These findings support the hypothesis that, on average, the larger states (as measured by population or area) will share a greater relative proportion of burdens than smaller states.

Table 4.5: Initial Findings from post-Cold War Period

		Results of Regression
H1:	*Large states will share greater relative proportion of burdens than small states*	*Supported, if size is measured by population or area;* *Not supported using GDP categories*

Path dependence and Domestic political influences

Before proceeding, it is necessary to examine the base model that will be used to test the remaining hypotheses. The base model, Model 7, appears to be highly path dependent. Much of the explanatory power of the model appears to come from the lagged dependent variable, **dvlag** . It would be interesting to examine just how much explanatory power is driven by this variable and how the model would function without it. In Model 7, the R-squared was .82 and the coefficient for **dvlag** was .497, similar to the Cold War model. This means that, on average, current military expenditures as a percentage of GDP increase by .497 for every one percent increase in previous year's military expenditures as a percentage of GDP. If this lagged dependent variable is removed from the model, the R-squared drops slightly to .74, but remains high. As with the Cold War dataset, the coefficients for **spillover** and the absolute value for the country dummy variables generally increase. The coefficient for the threat variable, **threat**, remains statistically insignificant and the economic growth variable, **gdpchg,** was relatively unaffected. This finding validates the strength of the base model.

As in the Cold War data set, it would be prudent to test for impacts of domestic politics on military expenditure prior to testing the main hypotheses. In Model 12, a variable is added to account for a possible impact of the composition of the government (on a left-right scale) on military expenditures as a percentage of GDP behavior. This model uses a dichotomous variable, ***lrparty,*** to represent whether or not the executive (prime minister) is from a left (social democratic) or right (conservative) party. The results of Model 17 are displayed in Table 4.6.

The overall explanatory power of the model is about the same as in Model 7, before the party variable was added. As might be expected from the literature, a government with a prime minister from a left party (***lrparty=1)***, on average will have a lower level of military expenditures as a percentage of GDP. However, the impact was not large and the results were not statistically significant. Therefore in order to maintain parsimony, the party variable is dropped when testing the main hypotheses.

Table 4.6: OLS Regression estimates (without lagged DV) and with independent variable controlling for domestic effects using REG command, 1992 – 2006

Independent variables	*Model 11*	*Model 12*
ECONOMIC GROWTH	-.014* (.006)	-.018** (.006)
DV LAG	--------	.497*** (.041)
SPILLOVER (***spillover***)	.889*** (.097)	.366*** (.093)
THREAT (***threat***)	.001 (.002)	.001 (.003)
POLITCAL PARTY		-.012 (.051)
R^2	.743	.820

Note. Standard errors in parentheses
*   P < .05
**   P < .01
*** P < .001

Prior to testing the main hypothesis, a check was made for autocorrelation in the model. Autocorrelation violates one of the assumptions in regression models that the error terms are independent of one another. [13] Autocorrelation is a frequent problem in working with panel data. Both GDP and military expenditures tend to change cyclically and therefore successive observations may be interdependent in this model. Reviewing the scatterplot of errors versus individual years, there appears to be serial correlation (See Figure 4.3). Therefore, another check in STATA was run using the xtserial command. The results of this test were significant, indicating that serial correlation is present:

Wooldridge test for autocorrelation in panel data

H0: no first-order autocorrelation

F(1, 23) = 17.493

Prob > F = 0.0004

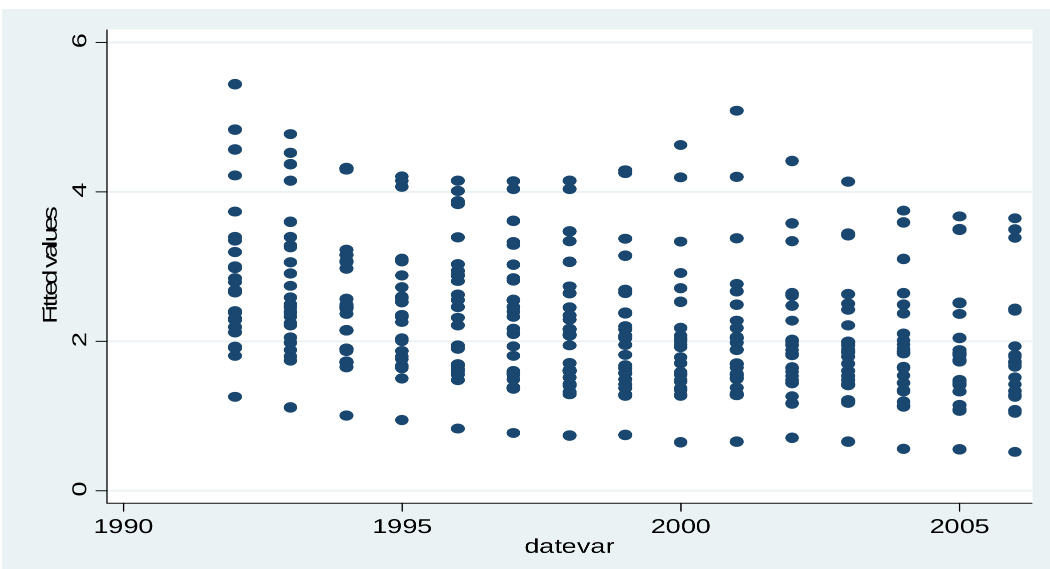

Figure 4.3: Scatterplot of predicted error versus Year

While autocorrelation does not cause biased estimates, it can cause the model to underestimate the variance of coefficients which makes tests of significance suspect. In order to get rid of the serial correlation, the model will subsequently use a Generalized Least Squares (GLS) method versus Ordinary Least Squares (OLS). Later on in this chapter, panel corrected standard errors will be used.

Controlling for Institutional Incentives: NATO and the EU

In Model 13 (see Table 4.7) a dichotomous variable is added to account for whether the state is a member of NATO. Using GLS and adding the **nato** variable, the other results remain largely unchanged, however the **nato** dummy variable is negative. This is consistent with the logic of collective action which suggests that states can *free ride* once they become NATO members. However the results are not statistically significant. In Model 14 a dichotomous variable is added to account for whether or not the state is a member of the EU. This should have an even greater influence during the post-Cold War period as the EU progressed towards economic and monetary union (EMU). As with the NATO dummy variable in Model 13, the value for the EU coefficient is negative. This would suggest that, on average, members in the EU are more prone to *free ride* than non-members. This is consistent with the rational choice expectations which suggest that EU economic incentives (e.g. penalties from the Stability Pact) encourage states to *free ride.* However the results are not statistically significant.

As in Chapter 3, model 15 includes both two dichotomous variables, ***nato*** and ***eu,*** with similar results to Models 13 and 14. It is reasonable to explore whether or not the effect of membership in NATO is conditioned by EU membership. Normally the model would include independent variables for both NATO and EU membership and an interactive term. This interactive variable would be the product of the two dichotomous variables: ***nato*** and ***eu.*** However, there are no EU countries in the dataset that are not in NATO. Therefore, there is not enough leverage to test the interaction between NATO and EU. Therefore, only the two dichotomous variables, ***nato*** and ***eu,*** will be retained in Model 16 and subsequent models.

Testing Burden-sharing: New versus Old Members

Now that the basic model is set, it is time to examine whether new member countries exhibit different burden-sharing behavior than older NATO members. Model 15 includes independent variables for economic growth, the dependent variable (lagged by one year), spillover, the threat variable and both NATO and EU membership variables. After running this model, the lincom command is used to estimate the mean linear combination of the coefficients estimated for the variables in our model. This allows inspection of the average country fixed effects for new NATO member countries (those who entered in 1999 and 2004) compared to older member countries controlling for threat and membership in NATO and the EU. However, since we already know that population size is positively correlated with military expenditures as a percentage of GDP, the five NATO countries with the largest populations (over 50 million) are removed. This left nine old nato members and ten new nato members to compare.

Using the lincom command, the average coefficients for the ten new NATO member states from 1999 (the Czech Republic, Hungary, and Poland) and 2004 (Bulgaria, Estonia, Latvia, Lithuania, Romania, Slovenia, and Slovakia) are compared with the average coefficients for the nine old NATO members of comparable size (less than 40 million). The old NATO members included: Belgium, Canada, Denmark, Greece, Luxemburg, Netherlands, Norway, Portugal and Spain. The lincom command was then run, subtracting the average coefficient for the new member countries from the average coefficient for the old nato members. The difference between these average coefficients was negative (-.032), indicating that, on average, older member states had lower levels of military expenditures as a percentage of GDP (***gdp***) than did newer members, controlling for population size, changes in GDP (***gdpchg***), spillover effects (***spillover***) and threat (***threat***). However, the results were not statistically significant.

However, this result may be skewed. In their previous study of burden-sharing in NATO, Oneal and Elrod controlled for states pursuing private goods. Defense expenditures in support of particular state interests were considered excludable and rival to other members of the alliance and thus private goods. For example, recurring tensions between Greece and Turkey over the Aegean Sea and Cyprus have been major security concerns for these two countries and therefore can account for much of their defense expenditures.[14] Similarly, Portugal's military involvement in Angola and Mozambique in the late 1960's and early 1970's had the characteristics of private goods. In both cases, the pursuit of private goods was correlated to increased military expenditures thereby masking the incidence of free-riding within NATO.[15] Therefore, Oneal and Elrod excluded data from these countries during the periods they were pursuing these secondary security interests. Similarly, both Greece and Turkey are excluded from this analysis. In the column titled *Less GR* on Table 4.7, a similar control is adopted by deleting the coefficient for Greece.

When the lincom command is used, excluding Greece, Model 15 supports the hypothesis that new member states should, on average, show higher levels of military expenditures as a percentage of GDP than older members of the alliance. The difference between these average coefficients was negative (-.163), indicating that, on average, older member states had lower levels of military expenditures as a percentage of GDP (***gdp***) than did newer members. However, the results were only statistically significant at the .08 level.

To further test these results, the lincom command is run by the population categories already established by the variable **popcat**. The smallest category was for states with less than 7 million people. For existing NATO members, this category included Denmark, Norway, and Luxemburg. These states were compared to the new member countries in the same population category: Slovakia, Slovenia and the Baltic countries. The results of that test are also listed in Table 4.7. After running the lincom command for the smallest nato states, the difference between the older member countries and the new member states was -.156, but was not statistically significant. The smaller average coefficient for the old member states suggests that they were more prone to *free ride* than new members, supporting the second hypothesis. However, these results are suspect given the inverse relationship between GDP size and military expenditures. These older members had a mean gdpcat of 4.13 versus 2.02 for the new members.

The next largest popcat is then tested, for states with greater than 7 million but less than 20 million people. For existing NATO members, this category included Belgium, Greece, Netherlands and Portugal. These states were compared to the new member countries in the same category: Bulgaria, the Czech Republic and Hungary. The difference between the average coefficients of old members and new members was positive (.156) but not statistically significant. In order to control for Greece's increased threat perception, Greece is again removed. After running the lincom command without Greece, the difference between the average coefficient for the older member countries and new member countries was -.118, though not statistically significant. The smaller average coefficient for the old member states suggests that they were more prone to *free ride* than new members, supporting the second hypothesis. However, the older member states had a mean gdpcat of 4.93 (without Greece) versus 3.09 for the new members. Therefore, the results could again reflect the effect of GDP size identified in Table 4.4.

The next largest popcat, states with greater than 20 million but less than 50 million, was also tested,. For existing NATO members, this category included Canada and Spain. These two states were compared to Poland and Romania. The results of that test are also listed in Table 4.7. After running the lincom command for this category, the difference between the average coefficients of old and new members was -.289 and was statistically significant at the .05 level. However, once again the older member states had a higher mean gdpcat of 6.13 versus .3.96 for the new members. While the results of Model 15 are consistent with the hypothesis that new member states should, on average, show higher levels of military expenditures as a percentage of

GDP than older members of the alliance, they are not statistically significant. More importantly, since it is not possible to control for the effect of GDP size using the lincom command, a new test is required to account for the length of membership.

In Model 16, a continuous variable is added to account for the length of time (measured in years) that a state was a member of NATO, ***age***. With this change to the model, the other coefficients remain largely unchanged. The only exception being that the spillover variable is no longer statistically significant. As in the Cold War, the value for the ***age*** coefficient was negative (-.015), suggesting that the longer a state remained in NATO the more prone it was to *free ride.* This is consistent with the rational choice institutional prediction in hypothesis two, that new members would share a greater relative burden than older members. While this model controlled for GDP size, the results were only statistically significant at the .10 level (see Table 4.7).

Table 4.8 shows the robustness of Model 16, using different methods of estimation and different data sets (with and without the U.S.). In this table, Model 16 is tested using three statistical methods: Generalized Least Squares (GLS), Panel Corrected Standard Errors (PCSE), and Fixed Effects Vector Decomposition (FEVD). The data examined up to this point has been generated using either Ordinary Least Squares (OLS), or Generalized Least Squares (GLS). However, because we are using panel data, panel corrected standard errors (PCSE) may be more appropriate. This method permits the use of a fixed effects model. In order to account for first order autocorrelation, the (ar1) command is used with the STATA command, XTPCSE. Using

Table 4.7: OLS Regression estimates of institutional and age effects on NATO military expenditures as a percentage of GDP using XTGLS command, 1992 – 2006

Independent variables	*Model 13*	*Model 14*	*Model 15*	*Lincom*	*Less GR*	*Model 16*
ECONOMIC	-.018**	-.017**	-.017**	-.017**	-.017**	-.019**
GROWTH	(.006)	(.006)	(.006)	(.006)	(.006)	(.006)
DV LAG	.497***	.497***	.497***	.497***	.497***	.496***
	(.039)	(.039)	(.039)	(.039)	(.039)	(.039)
SPILLOVER	.354***	.328***	.335***	.335***	.335***	.162
(***spillover***)	(.097)	(.098)	(.099)	(.099)	(.099)	(.165)
THREAT	.001	.002	.002	.002	.002	.003
(***threat***)	(.002)	(.002)	(.002)	(.002)	(.002)	(.002)
NATO	-.024	--------	.036	.036	.036	.007
	(.093)		(.113)	(.113)	(.113)	(.115)
EU		-.103	-.128	-.128	-.128	-.144
		(.114)	(.139)	(.139)	(.139)	(.139)
NATO/EU			dropped	--------	--------	--------
New Members				-.032	-.163[1]	--------
				(.110)	(.113)	
Very small				-.156	-.156	--------
				(.128)	(.128)	
Small				.156	-.118	--------
				(.115)	(.122)	
Medium				-.289*	-.289*	--------
				(.156)	(.156)	
MEMBER						-.015[1]
AGE						(.011)

Note. Standard errors in parentheses
[1] P < .10
* P < .05
** P < .01
*** P < .001

Vector Decomposition is also appropriate since it allows estimation of time invariant variables in a panel using fixed effects. Unlike the lincom command, this method can distinguish between the effect of new membership and the effect of size (GDP, Population and Area), which are time invariant.

The results for the independent variables are relatively consistent across all three statistical methods and in both data sets (with and without the U.S.). This robust finding supports the validity of the model.   This analysis also yields some interesting results in comparison with the Cold War. The first difference between the post-Cold War period and the Cold War period concerns the level of significance of economic growth, as captured in the model by the variable ***gdpchg***. In the post-Cold War period, the coefficient is negative and statistically significant in all six cases, unlike the results in Chapter 3.   These results support the earlier conjecture that military expenditures are more sensitive to economic growth after the Cold War. The next difference between the post-Cold War period and the Cold War period is that the results for spillover are not statistically significant. This weakens the earlier suggestion that defense goods were complementary during this period.[16] Finally, the threat variable was positive regardless of method or data set in the post-Cold War period and was statistically significant using the Vector Decomposition method, both with and without the U.S. data. In the Cold War period, the threat coefficients were only positive in the data sets excluding the United States. This reinforces the earlier assumption that the threat environment has changed in the post-Cold War period.

The main finding from Table 4.8 concerns the robustness of the results for age. Because of the limitations in using the lincom command discussed earlier, the variable ***age*** is the best proxy measure of new membership. As in Chapter 3, the ***age*** coefficient is in the expected direction (ranging from -.015 to -.016), suggesting that newer members, on average, have higher levels of military expenditures as a percentage of GDP. This result was consistent using GLS and PCSE and with and without the U.S. data included. However, none of these results were statistically significant. When controlling for size, using the Vector Decomposition method, length of membership is significant at the .001 level with and without the U.S. included. In sum, these finding are consistent with the hypothesis that new member states will burden share at a higher level than old member states.

The Vector Decomposition method also yields an interesting result concerning one of the time invariant variables for size: **gdpcat**. Unlike the results in Chapter 3, the sign for GDP size changes to positive when controlling for NATO and EU membership and age. This result suggests that, on average, as the size of the country's GDP increases (wealthier countries) their levels of military expenditures as a percentage of GDP also increase. This is consistent with the logic of collective action, however it contradicts the earlier findings in Table 4.4, which did not control for membership in NATO and the EU or for length of membership. All three of these independent variables are correlated with gdpcat. Since the findings for **gdpcat** are not robust, it is difficult to make any definitive conclusions about economy size (see Table 4.8).

Table 4.8: Robustness check: Alternative estimation methods and alternative measures for based model, 1992 – 2006

Independent variables	*Regression I*	*Regression II*	*PCSE I*	*PCSE II*	*FEVD I*	*FEVD II*
ECONOMIC: GROWTH	-.019** (.006)	-.019** (.006)	-.019* (.011)	-.019** (.011)	-.014** (.006)	-.013* (.006)
DV LAG:	.496*** (.039)	.477*** (.040)	.448*** (.090)	.433*** (.092)	.473*** (.039)	.455*** (.041)
SPILLOVER: (***spillover***)	.162 (.165)	.198 (.168)	.206 (.213)	.239 (.212)	.059 (.081)	.087 (.083)
THREAT: (***threat***)	.003[1] (.002)	.002[1] (.002)	.002 (.002)	.002 (.002)	.002* (.001)	.002* (.001)
NATO:	.007 (.115)	-.007 (.119)	-.005 (.127)	-.019 (.129)	.056 (.095)	.036 (.098)
EU	-.144 (.139)	-.134 (.140)	-.129 (.183)	-.121 (.183)	-.141[1] (.095)	-.128[1] (.096)
AGE	-.015[1] (.011)	-.015 (.011)	-.015 (.015)	-.015 (.015)	-.016*** (.003)	-.016*** (.003)

Note. Standard errors in parentheses
I - indicates database including U.S. data
II - indicates database excluding U.S. data

1 P < .10
* P < .05
** P < .01
*** P < .001

Table 4.9: Impact of Size (GDP, Pop, Area) with and without the U.S., 1992 – 2006

Independent variables	*Vector Decomp I*	*Vector Decomp II*
Economy: (**gdpcat**)	.116*** (.033)	.098** (.036)
Population: (**popcat**)	.078* (.038)	.110** (.040)
Area: (**areacat**)	.051** (.020)	.017 (.021)

Note. Standard errors in parentheses
Regression OLS I - indicates database including U.S. data
Regression OLS II - indicates database excluding U.S. data
Vector Decomposition I - indicates database including U.S. data
Vector Decomposition II - indicates database excluding U.S. data
* P < .05
** P < .01
*** P < .001

The findings up to this point are summarized in the Table 4.10. The model explained over 80% of the annual variance in defense burdens and the results were robust across methods. The results support the first hypothesis that large states will share a greater relative proportion of burdens than small states. This result was statistically significant in five of six cases. In addition, the findings in Chapter 4 support the second hypothesis that new member states should, on average, show higher levels of military expenditures as a percentage of GDP than older members of the alliance. However, the results were not statistically significant at the .05 level in two of the three methods used. It also follows that the results do not support the third hypothesis that old members will share a greater relative proportion of burdens than new members. Since the relationship between age of membership and military expenditures was only statistically significant using the vector decomposition method, it would be useful to look at alternative methods of comparison.

Table 4.10: Summary Findings from Regression

		Results of Regression
H1:	*Large states will share greater relative proportion of burdens than small states*	*Supported, for population and area. Mixed results for gdpcat.*
H2:	*New members will share greater relative proportion of burdens than old members*	*Supported and statistically significant using vector decomposition; not statistically significant using OLS & PCSE*
H3:	*Old members will share greater relative proportion of burdens than new members*	*Not Supported*

Alternative test: Comparing Similar Cases

In order to further test our findings that new members will share greater relative proportion of burdens than old members, it would be useful to look at an alternative means to control for outside factors. Another method of comparison is to look at the defense expenditures for the new members in comparison with old NATO members controlling for size. As discussed above, there is a statistically significant relationship between population size and military expenditures as a percentage of GDP. Therefore, this chapter will examine the three new NATO members from the 1999 wave with comparable older NATO members, controlling for population size. Using a most similar system (MSS) methodology, Belgium (10.3 million) and Hungary (10 million) are roughly the same population size as are Portugal (10 million) and the Czech Republic (10.3 million). In addition, Spain (39.5 million) compares closely with Poland (38.7 million). These same country pairs were used in an earlier study by Jeffrey Simon to evaluate the contributions of new NATO members.[17] While the physical size of these countries varies among each other, any impact of area should be constant over time as their size does not change with the exception of Czechoslovakia after 1992. This chapter will look at each of these dyads sequentially, starting with Hungary and Belgium, the two allies with one of the lowest levels of military expenditures as a percentage of GDP.

One caveat up front, is that Hungary and Belgium are not identical in GDP size. Belgium has a much more advanced and richer economy than does Hungary. Belgium's average GDP during this period, was $279.7 billion versus $61.7 billion for Hungary. As discussed in Table 4.4, there is a statistically significant, inverse relationship between GDP size and military expenditures as a percentage of GDP. While it is impossible to completely control for this disparity, the magnitude of the wealth difference is relatively constant throughout this period. Therefore, we can look at the relationship between these two countries before and after Hungary's accession to NATO and compare the effect of membership on military expenditures as a percentage of GDP.

Prior to joining NATO, Hungary's average GDP was $42.8 billion during this period, while Belgium's average GDP was $247.9 billion. This means that Hungary's economy was approximately 17% the size of Belgium's GDP. After joining NATO, Hungary's average GDP was $78.2 billion, while Belgium's average GDP was $301.9 billion. This means that Hungary's relative economic size increased to 26% the size of Belgium's GDP after accession to NATO. If economic size were the main factor in military expenditures as a percentage of GDP, we should expect that this would cause Hungary to have a lower relative demand for military expenditures than Belgium after 1998, all things being equal.

However, this is not the case. Hungary's average military expenditures as a percentage of GDP before becoming a NATO member was 1.66%, which was roughly similar to Belgium's average military expenditures as a percentage of GDP rate before 1999, 1.67 %. After accession to NATO, Hungary's average military expenditures as a percentage of GDP decreased to 1.55 %, while Belgium's average military expenditures as a percentage of GDP decreased to 1.25 % after 1998. While not meeting the NATO standard of 2% of GDP, Hungary did relatively better than Belgium after becoming a member of NATO (see Figure 4.4). This provides further support to the second hypothesis that new members will share greater relative proportion of burdens than old members, controlling for both population and economy size.

The comparison of the Czech Republic and Portugal has the same issue. Portugal also has a wealthier economy than does the Czech Republic. The Czech Republic's average GDP was $71.3 billion during this period, while Portugal's average GDP was $129.8 billion. Prior to joining NATO, the Czech Republic's average GDP was $49.6 billion, while Portugal's average GDP was $107.3 billion. This means that the Czech Republic's economy was approximately

46% the size of Portugal's GDP prior to accession. After joining NATO, the Czech Republic's average GDP was $90.3 billion, while Portugal's average GDP was $149.3 billion. This means that the Czech Republic's relative economic size increased to 60% the size of Portugal after accession to NATO. If economic size were the main factor in explaining military expenditures as a percentage of GDP, we should expect that this would cause the Czech Republic to have a lower relative demand for military expenditures than Portugal after 1998, all things being equal.

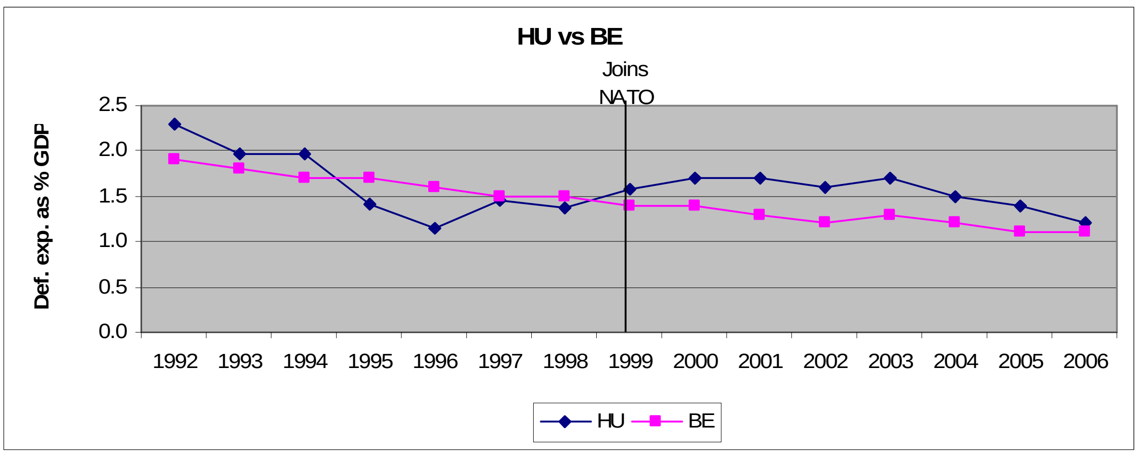

Figure 4.4: Hungarian versus Belgian military expenditures as a percentage of GDP[18]

As with the first dyad, this is not the case. The Czech Republic's average military expenditures as a percentage of GDP before becoming a NATO member was 2.7 %, which was about 0.2% higher than Portugal's average military expenditures as a percentage of GDP before 1999, 2.5%. After accession to NATO, the Czech Republic's average military expenditures as a percentage of GDP rate decreased to 2%. However, it remained higher than Portugal's average military expenditures as a percentage of GDP, 1.8 %, after 1998. Not only did the Czech Republic meet the NATO standard of 2% of GDP during most of this period, the Czech Republic did relatively better than Portugal after becoming a member of NATO (see Figure 4.5). This finding supports the hypothesis that new members will share greater relative proportion of burdens than older members.

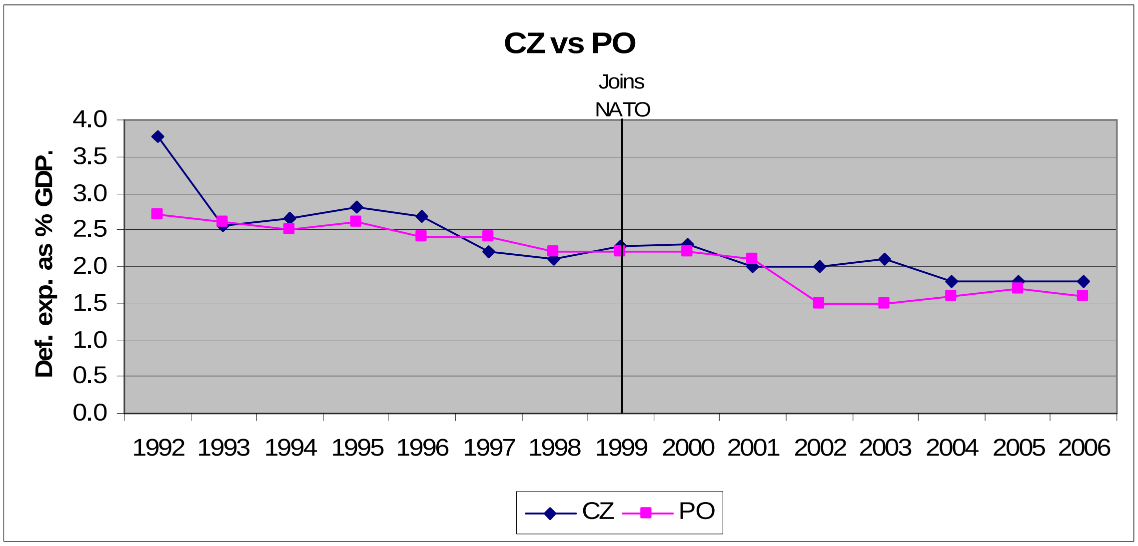

Figure 4.5: Czech versus Portuguese military expenditures as a percentage of GDP[19]

The final comparison looks at Poland and Spain. As with the earlier dyads, Spain has a wealthier economy than does Poland. Poland's average GDP was $183.3 billion during this period, while Spain's average GDP was $722.2 billion. Prior to joining NATO, Poland's average GDP was $129.6 billion, while Spain's average GDP was $577.0 billion. This means that the Poland's economy was approximately 22% the size of Spain's GDP prior to accession. After joining NATO, Poland's average GDP was $230.4 billion, while Spain's average GDP was $849.2 billion. This means that the Poland's relative economic size increased to 27% the size of Spain after accession to NATO. If economic size were the main factor in explaining military expenditures as a percentage of GDP, we should expect that this would cause Poland to have a lower relative demand for military expenditures than Spain after 1998.

In reality, Poland's average military expenditures as a percentage of GDP before becoming a NATO member was 2.4% versus Spain's average military expenditures as a percentage of GDP of 1.5%, before 1999. After accession to NATO, Poland's average military expenditures as a percentage of GDP rate decreased to 1.9%. However, it was higher than Spain's average military expenditures as a percentage of GDP, 1.2 %. While Poland's increased affluence might have lowered Poland's level of military expenditures as a percentage of GDP, its level of military expenditures as a percentage of GDP exceeded Spain's after becoming a member of NATO (see Figure 4.6) and was close to the NATO standard of 2% of GDP. These findings are consistent with the hypothesis that new members will share greater relative proportion of burdens than older members.

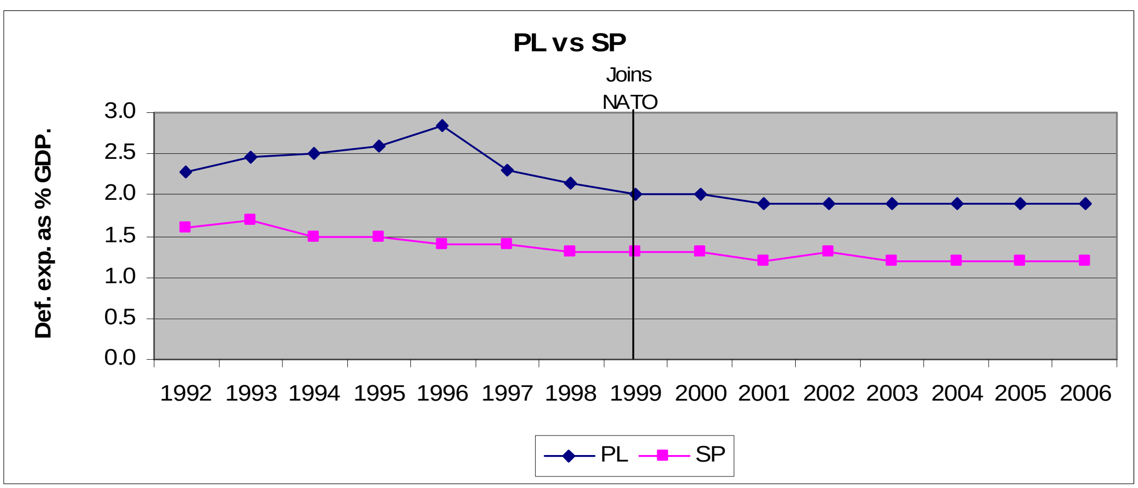

Figure 4.6: Polish versus Spanish military expenditures as a percentage of GDP[20]

Another factor to consider in these comparisons is that all three new members continued to use conscript forces during much of this period. Because conscripts are paid at below market rates, expenditure measures underestimate the true costs to states of their force structure. In earlier studies, Oneal adjusted defense spending by 10% to reflect the monetary value of conscription.[21] Therefore, new member contributions to NATO are underestimated using this measure. While Belgium ended conscription in 1994, Hungary continued to use conscripts until 2004.[22] Similarly, while Portugal ended conscription in 2003, the Czech Republic continued to use conscripts through 2005.[23] Finally, while Spain ended conscription in 2001, Poland continues to use conscripts.[24] If adjusted for conscription, Poland's levels of military expenditures as a percentage of GDP would meet the NATO goal. In sum, the Czech Republic, Hungary and Poland, while all not at the NATO goal of 2%, exceeded the expenditures of Belgium, Portugal, and Spain in the period following their membership into NATO (1999). While their levels of military expenditures dropped after attaining membership, they did so at a slower rate than older members.

Does new member burden-sharing decline after accession into NATO?

Related to the hypotheses about new versus old burden-sharing, hypothesis 2a states that new member burden-sharing should decline after accession into NATO. If this is true than the military expenditures for new member states, as a percentage of GDP, should fall below the average, non-U.S. NATO military expenditures after enlargement. In order to control for the unique role of the U.S. in NATO as the leader of the alliance and its sole superpower, the new members are compared only to their non-U.S. allies. New member states are compared in cohorts, based on their year of admission to NATO. In Figure 4.7, we can see that the military expenditures, as a percentage of GDP, of the new NATO members from 1999 (the Czech Republic, Hungary and Poland) decreased slightly in the years following NATO membership. However, this decline in military expenditures as a percentage of GDP is in line with the average expenditures of other NATO states which were declining at a similar rate.

This result differs from Spain's experience during the Cold War (see Chapter 3), when its level of military expenditures as a percentage of GDP diverged from the non-U.S. NATO average after the five year mark. In fact, there is a convergence of new member military expenditures as a percentage of GDP on the NATO average after accession for the 1999 wave of new members. This suggests that the decline in military expenditures as a percentage of GDP is not attributable to new member free-riding, but rather to some outside factor affecting all members of the alliance.

In Figure 4.8, we can see that the military expenditures of the 2004 wave of new NATO members. Again, military expenditures as a percentage of GDP do decline in absolute terms after accession into NATO. However, the military expenditures of the new NATO members from 2004 (Bulgaria, Estonia, Latvia, Lithuania, Romania, Slovakia, and Slovenia) are in line with the average expenditures of other NATO states (excluding the U.S.). Unlike the earlier wave, they begin to converge on the NATO average beginning about three years before joining NATO. As with the first wave, they have remained in line with other NATO states since accession. This finding contradicts Hypothesis 2a, that new member burden-sharing would decline after accession into NATO, due to the removal of conditionality.

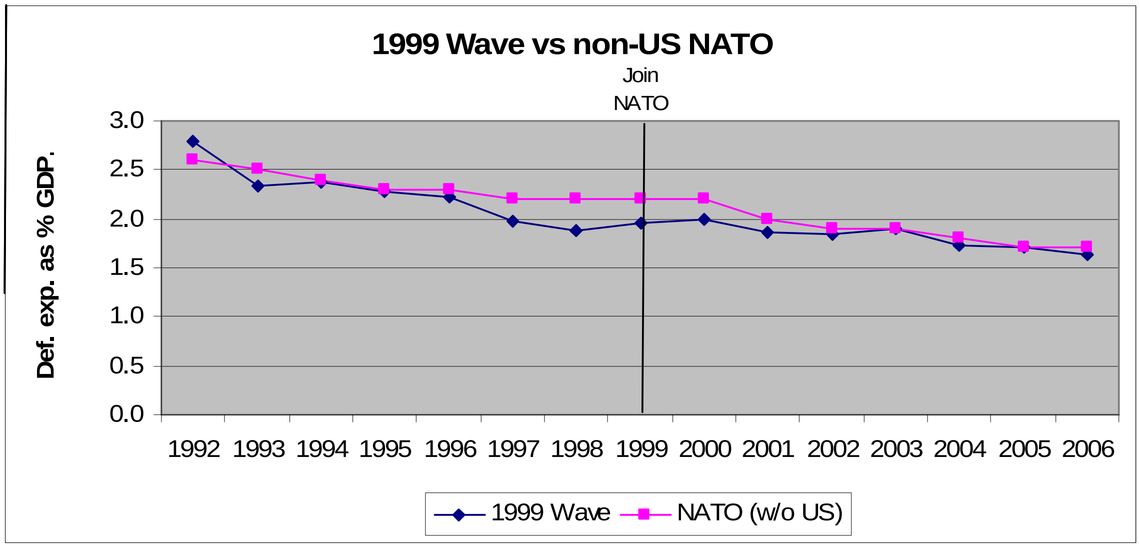

Figure 4.7: 1999 wave versus non-U.S. NATO military expenditures as a percentage of GDP[25]

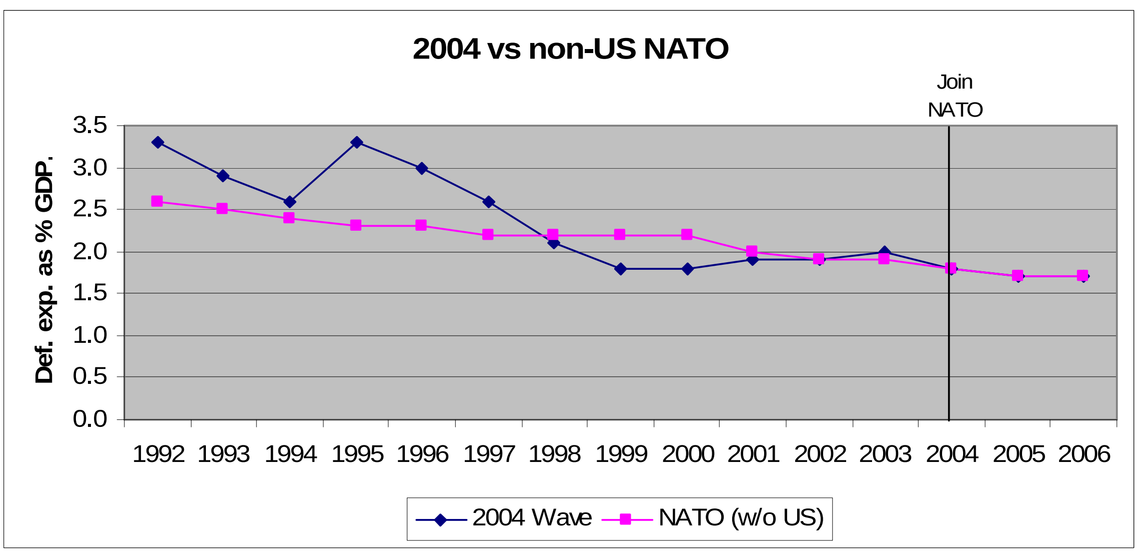

Figure 4.8: 2004 wave versus non-U.S. NATO military expenditures as a percentage of GDP[26]

Again, this finding is in contrast with NATO's previous experience with expansion in 1982. In Figure 4.9, we can see that the military expenditures of the Spain diverged from the average expenditures of other NATO states after becoming a member. What is also interesting is that Spain's military expenditures only begin to converge on the NATO average in 1992 after the end of the Cold War. Even then, this convergence resulted more from falling NATO expenditures than any change in Spain's military expenditures as a percentage of GDP.

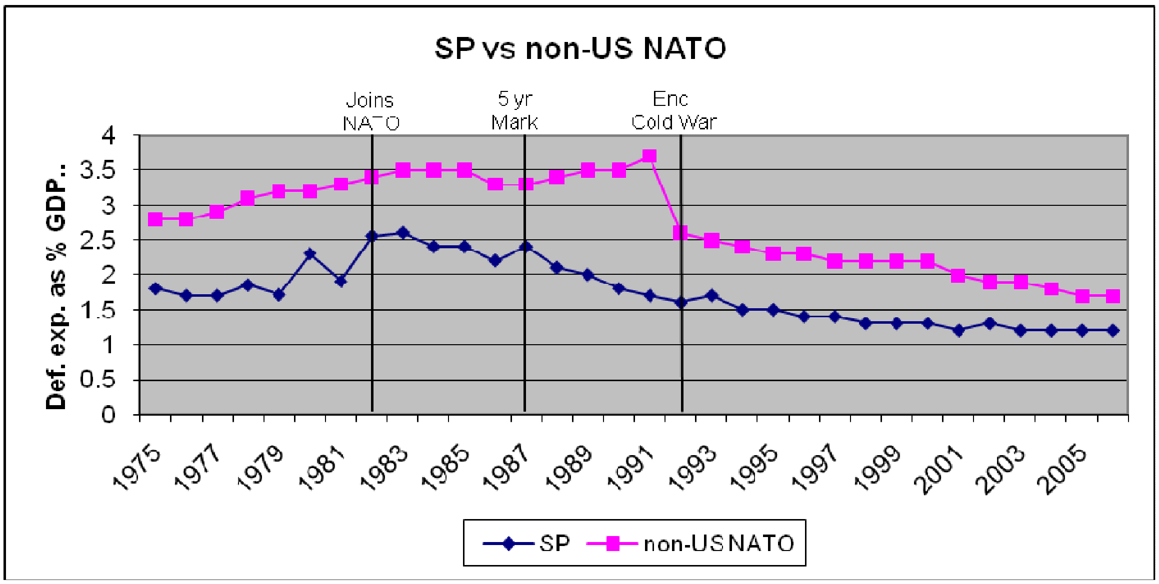

Figure 4.9: Spain versus non-U.S. NATO military expenditures as a percentage of GDP[27]

Perhaps it was easier for new members to *free ride* during the Cold War, when both super powers were vying for potential allies and proxies. However, in the post-Cold War period, that does not appear to be the case. In sum, all of the tests conducted so far in this chapter, support the hypothesis that new members will share greater relative proportion of burdens than old members. A summary status of the findings is presented in the Table 4.11.

Table 4.11: Initial Findings from Alternative Methods

		Results of Regression
H1:	*Large states will share greater relative proportion of burdens than small states*	*Supported, if size is measured by population or area;* *Mixed results using GDP*
H2:	*New members will share greater relative proportion of burdens than old members*	*Strongly Supported*
H2a:	*New member burden-sharing declines after accession into NATO.*	*Not Supported*
H3:	*Old members will share greater relative proportion of burdens than new members*	*Not Supported*

Controlling for Threat

At this point, it would be helpful to revisit an alternative explanation that could be made to explain these results. Realists might contend that NATO membership had nothing to do with the defense expenditures observed. Rather, the new members' greater military spending could be based on a desire to balance against their historic adversary, Russia. Since the Czech Republic, Hungary and Poland are all closer to Russia than Belgium, Portugal, and Spain, and since they all were occupied by Soviet troops in the post-World War II period, a compelling argument can be made that a stronger threat perception is responsible for their greater military expenditures. If this were the case, we would expect that military expenditures as a percentage of GDP levels would rise as Russian military expenditures increased and would decrease as Russian military expenditures decreased. In order to control for this alternative explanation, the average military expenditures as a percentage of GDP for the Czech Republic, Hungary and Poland are compared to Russia's military expenditures before and after accession to NATO (see Figure 4.10).

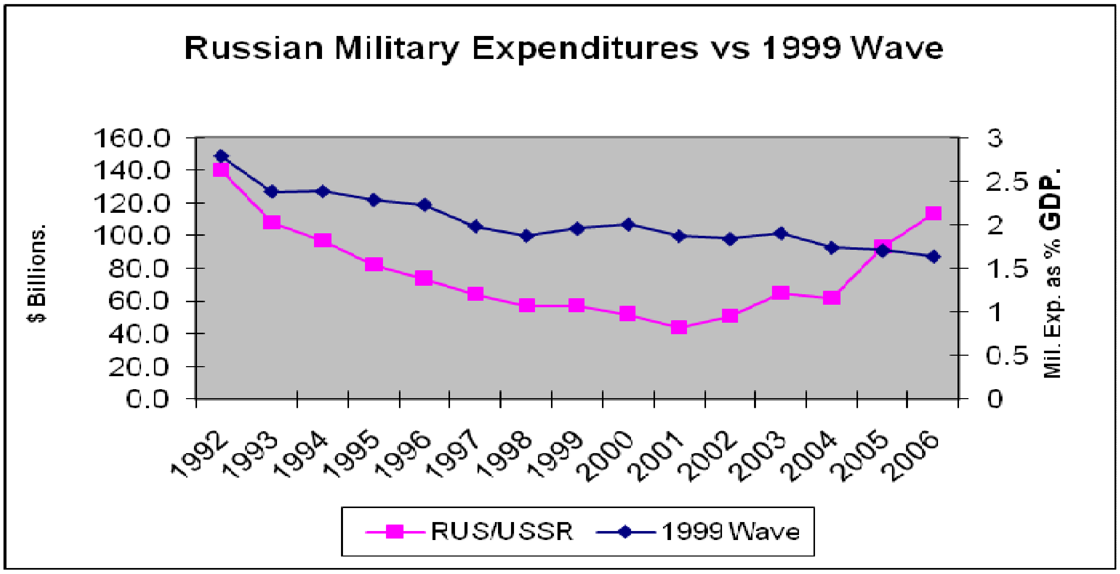

Figure 4.10: Russian military expenditures versus 1999 Wave Expenditures as a percentage of GDP[28]

As in our previous model, we find that the military expenditures of the new member states are not responsive to increases in Russian military expenditures. While Russian military expenditures begin to rise after 2001, the average defensive burden of these new members continue their gradual fall. This is not consistent with realist expectations. In fact, Russian military expenditures are inversely correlated to changes in military expenditures as a percentage of GDP levels in all three new members after accession. This means that as Russian military expenditures increased, on average, military expenditures as a percentage of GDP levels decreased for the new members following accession to NATO.

This finding does not support the realist explanation that threat is driving the higher levels of military expenditures. Additionally, if Russia were the main factor driving burden-sharing behavior, we would expect that these new member states would not participate in NATO missions out of fear for their own security. Rather, they would be expected to keep their troops at home for self-defense. However, this is also not the case. This element of burden-sharing will be explored in greater detail in the next chapter.

Effect of enlargement on free-riding

A simple method used in previous studies to examine free-riding was to look at the standard deviation between defense burdens.[29] The standard deviation represents the average deviation from the mean of NATO military expenditures as a percentage of GDP. In this earlier study, as the value of the standard deviation got smaller, it was interpreted that burdens were shared more equally among member states. The use of the standard deviation has been absent in the more recent literature on burden-sharing. One reason is that using standard deviation as measure of free-riding can be misleading. It is equally possible that declining standard deviations actually represent more uniform free-riding behavior. Given that few NATO countries are currently meeting the NATO benchmark of 2% of GDP for military expenditures, this might be a more plausible explanation. As the Supreme Allied Commander Europe, General Craddock told the author in 2008, "Since then [2002], we have actually regressed in levels of spending. Only six of 26 NATO members are meeting the 2% figure."[30] Therefore, other tests are necessary. This chapter will use two measures to test the hypothesis that enlargement increased free-riding behavior: average military expenditures versus the pre-enlargement trend, and NATO average military expenditures versus U.S. military expenditures.

NATO average versus pre-enlargement trend

Another test to examine free-riding after NATO enlargement would be to look at the average rate of change of military expenditures as a percentage of GDP before and after NATO enlargement. If enlargement of NATO did lead to greater free-riding, then we would expect that the rate of change (in this case decline) in military expenditures as a percentage of GDP for non-U.S. members would increase after enlargement. In Figure 4.11, average NATO military expenditures (as a % of GDP) are charted against the pre-enlargement averages and a linear trend line based on the pre-enlargement averages. If hypothesis four is correct, then the line representing the actual average NATO military expenditures should plot below the pre-enlargement trend line after NATO enlargement in 1999 and 2004. However, the results indicate that the rate of decline in military expenditures as a percentage of GDP did not increase after enlargement. This result does not support hypothesis four.

NATO average versus U.S. Spending

Another method of comparison would be to analyze the average annual, non-U.S. NATO military expenditures as a percentage of GDP versus the level of U.S. military expenditures as a percentage of GDP from 1992 to 2006. As seen in previous figures, the average level of military

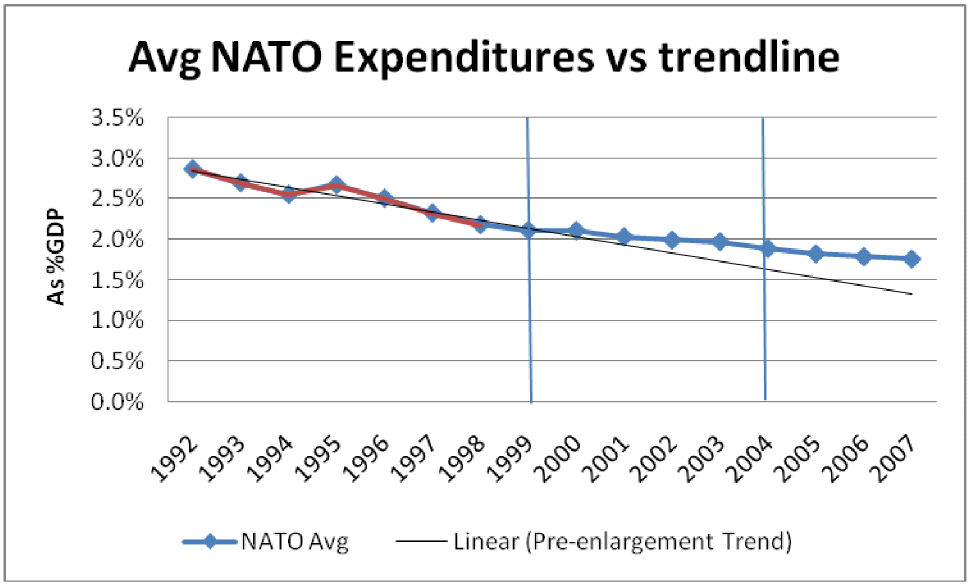

Figure 4.11: Average NATO military expenditures as a percentage of GDP versus trend line[31]

expenditures as a percentage of GDP declined in absolute terms throughout this period. Prior to the first wave of expansion, the average military expenditure levels dropped from 2.6% to 2.2%. This represents a 15% reduction. However, U.S. levels of military expenditures as a percentage of GDP also dropped during this period, declining from 5.1% in 1992 to 3.1% in 1998, a 39% reduction. After NATO expansion in 1999, the average military expenditures as a percentage of GDP for non-U.S. NATO members dropped from 2.2% to 1.7%. This represents a 23% reduction. However, U.S. levels of military expenditures as a percentage of GDP actually increased after 1999, from 3% in 1999 to 4% in 2004 (see Figure 4.12). Over the entire post-enlargement period, the annual rate of change for the U.S. was a positive .086%. This result bears further analysis.

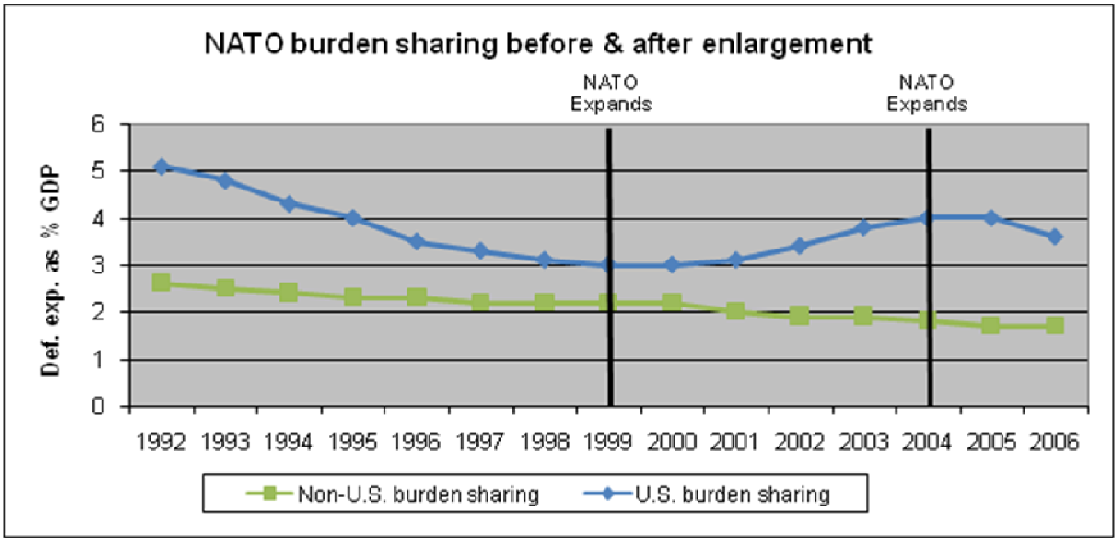

Figure 4.12: Non-U.S. NATO versus U.S. military expenditures as a percentage of GDP[32]

The relative decline in average rates of military expenditures as a percentage of GDP for non-U.S. NATO members after enlargement could be cited as evidence of increased free-riding. However, it is first necessary to rule out alternative explanations. Increases in U.S. levels of spending could be the result of a relative increase in the power of the U.S. versus its NATO allies, leading to a greater provision of public goods by the United States. However, this is not likely. Non-U.S. NATO members had a slightly higher growth rate (2.31% compared to 2.27%) than the U.S. during this period. Alternately, it could be the result of the United States pursuing private goods versus alliance-wide public goods after 1999. The following section will examine these two explanations sequentially, looking for observable implications that might suggest whether or not these are more plausible explanations.

Alternative Explanations: effect of enlargement or uniquely privileged group

As discussed in Chapter 2, NATO is often characterized as a uniquely privileged group.[33] A uniquely privileged group has one significantly larger member that is willing and able to bear most of the burdens of providing a public benefit regardless of the contributions of other members. As a uniquely privileged group, NATO members would therefore have strong incentives to *free ride* on the U.S., especially when U.S. power was increasing relative to Europe. Conversely, as the relative power of the U.S. declined, so too should free-riding behavior decline. Contrary to hypothesis four, evidence of this relationship would challenge the linkage between NATO enlargement and increased free-riding behavior during the post-Cold War period.

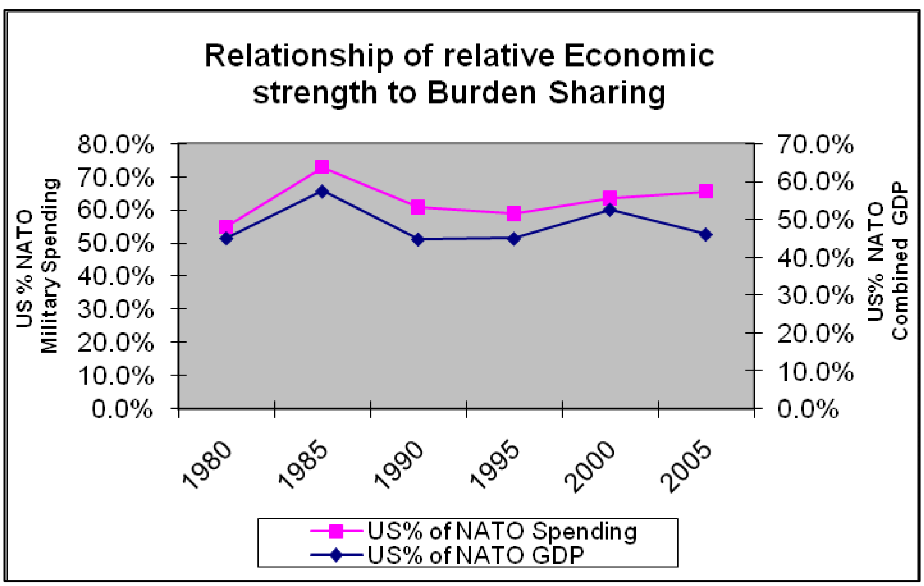

Figure 4.13: U.S. percentage NATO military expenditures versus percentage NATO GDP[34]

The data through 2000, shown in Figure 4.13, supports the alternative explanation attributing free-riding behavior to NATO being a uniquely privileged group. Between, 1980 and 2000, the U.S. proportion of NATO military spending roughly paralleled changes in relative economic strength. As the proportion of the U.S. GDP to NATO's combined GDP increased, so did the proportion of U.S. military spending compared to NATO military spending (in US $). However, after 2000 this is no longer the case. U.S. military expenditures, as a percentage of total NATO military expenditures continued to increase even though the relative size of the U.S. economy (GDP) decreased. This finding suggests either increased free-riding on the part of non-U.S. allies after NATO enlargement in 1999, or that the U.S. pursued more impure public or private goods after 2000, such as the Iraqi War or the War on Terrorism.

Alternative Explanations: the pursuit of private or impure public goods

In 1991, Murdoch and Sandler critiqued the hegemonic power relationship with military expenditures as a percentage of GDP as discussed above and suggested that the joint product model better explained military expenditures as a percentage of GDP behavior within NATO.[35] Analyzing different types of weapons systems, they suggested that military expenditures did not uniformly yield public goods, but rather could also produce private and "impure" public goods. For example, long range strategic weapons (such as nuclear weapons) yield pure public benefit. First, the benefits produced (deterrence) are characterized by non-rival consumption. If more states fall under the protective umbrella of the U.S. nuclear arsenal, it does not diminish the deterrent benefits for the original members. Second, it is difficult to exclude members from the benefit of nuclear deterrence even if they are free riders. Other weapon systems, such as protective weapons, yielded either impure public or private benefits. For example, allies can be excluded from the benefit of a conventional weapons such as coastal artillery.

If we extend Murdoch and Sandler's joint product model to military operations as well as weapon systems, we can then test our preliminary conclusions about burden-sharing after enlargement. However, the characteristics of some military operations are more like public goods than others. In order for NATO to undertake any mission it requires consensus. This means that every member agrees that the mission is in the best interest of the alliance, or at least that it would not have a net detrimental impact on their national interest. NATO operations in the Balkans are one example. The benefits produced from the Balkan operations, deterrence of further inter-ethnic conflict and demonstration of NATO resolve and capability, were characterized by non-rival consumption. All European countries benefitted from the post-operation stability without reducing the benefit for the other members of the alliance. Second, every member of NATO benefits from a more stable Balkan region and a stronger alliance, whether or not they contributed their fair share to the mission. This is an example of non-exclusion. In fact all European countries, with the possible exception of Serbia, benefitted from these operations. Therefore, contributions to NATO approved missions could be characterized as public goods. In addition, expenditures in support of these NATO operations would rightly be included in burden-sharing discussions.

The case of Operation Iraqi Freedom (OIF) is a different story. The war in Iraq was not a NATO mission. In fact, many NATO allies disagreed with the war and thought that it would lead to greater insecurity. Using Murdoch and Sandler's wording, OIF was in pursuit of "country specific goals" and thus potentially yielded private benefits. Troops and equipment committed to the defense of Iraq were unavailable for use elsewhere (therefore, rival). This became increasingly true for NATO operations in Afghanistan, where the alliance has had a continued shortfall of required troops and the U.S. has been unable to fully meet the demands for troops. As the Supreme Commander Allied Powers Europe told the author during an interview in 2008, "from a purely military perspective I think the US would be very stretched if it were required to undertake operations in Afghanistan without NATO support given the level of commitment in Iraq."[36] Clearly, U.S. expenditures in Iraq fall under the category of rival consumption and yield questionable benefits to the alliance, meaning they are not an alliance public good. In addition, the benefits of OIF could be characterized as excludable. For example, the U.S. initially banned three critics of the war (France, Germany and Russia) from competing for post-conflict reconstruction contracts.[37] Therefore, any military expenditures by the U.S. in support of OIF should not be counted in burden-sharing comparisons with non-U.S. allies. The following analysis compares U.S. military expenditures as a percentage of GDP to the NATO average during this period.

If OIF was a private good, then U.S. military expenditures should be adjusted to get the true contribution of the U.S. to NATO public goods. According to data published by the General Accounting Office (GAO)[38], U.S. military obligations in support of OIF amounted to approximately $267 billion dollars between 2003 and 2006. This represents about .6% of GDP. Other estimates puts the cost of the war in Iraq even higher, for example the Congressional

Research Service (CRS) estimates would increase this figure to .7% of GDP.[39] Using only the budgetary costs calculated by Joseph Stilitz in his recent book, The Three Trillion Dollar War, the actual figure would amount to approximately $539 billion dollars between 2001 and 2007.[40]

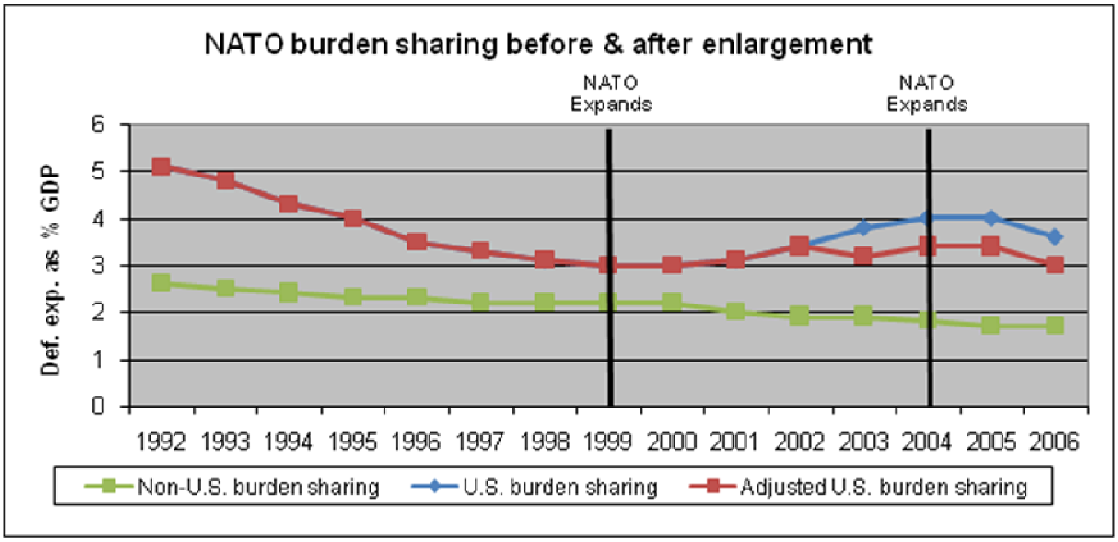

Figure 4.14: Non-U.S. NATO versus adjusted U.S. military expenditures as a percentage of GDP[41]

Using the more conservative number, if we adjust U.S. military expenditures as a percentage of GDP by .6% post 2003, then the average level of U.S. military expenditures as a percentage of GDP would actually be around 3.25% (see Figure 4.14). With this adjustment for private goods pursued in OIF, U.S. levels of burden start at 3% in 1999 and finish at 3% in 2006, though there are generally higher levels of military expenditures as a percentage of GDP in between. This significantly changes the relative rates of military expenditures as a percentage of GDP, as depicted in the adjusted figure. Over the entire post-enlargement period, this equates to no average, annual rate of change for the United States. Had Stiglitz figures been used, adjusted U.S. military expenditures as a percentage of GDP would have dropped from 3% to 2.8%. All of this analysis understates the amount of private benefits contained in U.S. defense expenditures, since much of this spending supports America's global interests outside of NATO. While non-U.S. military expenditures as a percentage of GDP declined after enlargement, the gap between the U.S. and non-U.S. NATO average is still less than in 1992. Thus these findings offer mixed results in testing hypothesis four that free-riding behavior should increase with NATO enlargement.

Conclusions

The findings for the post-Cold War period directly address most of the hypotheses in this project. A summary of the results is listed in Table 4.12. The "exploitation of the great" hypothesis appears to be a valid phenomenon during this period, as suggested by our first hypothesis. However, the results of economy size were mixed. Unlike the Cold War period, the results appear to support the second hypothesis that new member states burden share at a higher level than existing members. Conversely, they do not support the third competing hypothesis. The findings also suggest that new member burden-sharing did not decline after accession into NATO, contrary to H2a.

Finally, the results are mixed as to whether enlargement of NATO increased free-riding behavior. The fact that few NATO states are now meeting the 2% benchmark is irrefutable. This is consistent with the expectations of the logic of collective action in that the expansion of NATO from 16 to 26 members should have resulted in greater free-riding. However, there were viable alternative explanations for declining levels of military expenditures by non-U.S. NATO members. First, non-U.S. NATO members had an average growth rate of 2.31% compared to 2.27% for the U.S. during this period. Second, the rate of change in military expenditures as a percentage of GDP for non-U.S. members did not increase after enlargement. Third, rising levels of U.S. military expenditures after 2001 could also be explained by the pursuit of private benefits by the United States. For example, the U.S. war in Iraq was responsible for a large portion of the increase in U.S. military expenditures during this period. Finally, declining military expenditures can also be explained by a declining conventional threat perception on the part of the NATO allies. Therefore, we cannot reject null hypothesis that enlargement had no impact on free-riding behavior. The next chapter will test all of these hypotheses using contributions to NATO mission.

Table 4.12: Summary Findings from 1992 – 2006

		Results of Regression
H1:	*Large states will share greater relative proportion of burdens than small states*	*Supported, for population and area. Mixed results for gdpcat.*
H2:	*New members will share greater relative proportion of burdens than old members*	*Supported*
H2a:	*New member burden-sharing declines after accession into NATO.*	*Not Supported*
H3:	*Old members will share greater relative proportion of burdens than new members*	*Not Supported*
H4:	*Free-riding behavior should increase with NATO enlargement*	*Mixed results*

[1] NATO official speaking on background, based on interviews conducted on 1 February 2008. at NATO Headquarters, Brussels, Belgium.

[2] See "NATO Sees Recent Cyber Attacks on Estonia as Security Issue,"Deutsche Welle, 26 May 2007. http://www.dw-world.de/dw/article/0,2144,2558579,00.html (accessed 3 Jun 2008); Pavel Felgenhauer. "Putin cancels CFE until NATO countries properly 'adhere' to its provisions," Eurasia Daily Monitor, May 2, 2007. http://www.jamestown.org/edm/article.php?article_id=2372138 (accessed 3 Jun 2008); Anton Troianovski. "Russia Resumes Its Long-Range Air Patrols," The Washington Post, August 18, 2007; Page A07. http://www.washingtonpost.com/wp-dyn/content/article/2007/08/17/AR2007081702265.html (accessed 3 Jun 2008).

[3] Fred Weir, "Post-Soviet 'Frozen Conflicts' Heat up as Big –Power Interests Collide," The Christian Science Monitor, June 25, 2008. http://www.csmonitor.com/2008/0626/p06s01-woeu.html# (accessed 30 June 2008).

[4] NATO Information for Press, "NATO-Russia Compendium of Financial and Economic Data Relating to Defence," NATO Headquarters, 20 December 2007, http://www.nato.int/issues/defence_expenditures/index.html (accessed 11 November 2008).

[5] International Institute for Strategic Studies. *The Military Balance.* London: Routledge, 1977-1991

[6] See, for example, Oneal and Elrod, "NATO Burden Sharing and the Forces of Change," (1989), 451; Hartley and Sandler, *The Political Economy of NATO,* (1999), 37.

[7] Central Intelligence Agency. "World Factboook," 2008. https://www.cia.gov/library/publications/the-world-factbook/index.html

[8] StephenWalt. "Alliance Formation and the Balance of World Power," *International Security* 9, no. 4, (1985): 3.

[9] See, International Institute for Strategic Studies. *The Military Balance.* London: Routledge, 1977-1991;Global Security. "Russian Military Budget Expenditures." http://www.globalsecurity.org/military/world/russia/mo-budget-expenditures.htm (accessed 21 September 2008); Laxman Kumar Behera, "The US Defence Budget for 2008," Institute for Defence Studies, 21 February, 2007. (accessed 11 November 2008);

[10] NATO Information for Press, "NATO-Russia Compendium of Financial and Economic Data Relating to Defence," NATO Headquarters, 20 December 2007, http://www.nato.int/issues/defence_expenditures/index.html (accessed 11 November 2008).

[11] Ibid.

[12] See, International Institute for Strategic Studies. *The Military Balance.* London: Routledge, 1977-1991; Central Intelligence Agency. "World Factbook," Undated. https://www.cia.gov/library/publications/the-world-factbook/geos/pl.html (accessed 5 November 2008).

[13] A.H. Studenmund and Henry J. Cassidy. *Using Econometrics: A Practical Guide* (Boston: Little, Brown and Company Publishing, 1987), 209.

[14] Ronald Krebs, "Perverse Institutionalism: NATO and the Greco-Turkish Conflict," *International Organization*, 53, no. 2 (1999).

[15] John R. Oneal and Mark A. Elrod, "NATO Burden Sharing and the Forces of Change," *International Studies Quarterly* 33 (1989), 451.

[16] Keith Hartley and Todd Sandler. *The Political Economy of NATO.* New York: Cambridge University Press, 1999, 32.

[17] Jeffrey Simmon. "The New NATO Members: Will they contribute?,"Strategic Forum, Number 160, April 1999, Institute for National Strategic Studies. http://www.ndu.edu/inss/strforum/SF160/forum160.html (accessed 9 May 2007).

[18] NATO Information for Press, "NATO-Russia Compendium of Financial and Economic Data Relating to Defence," NATO Headquarters, 20 December 2007, http://www.nato.int/issues/defence_expenditures/index.html (accessed 11 November 2008).

[19] Ibid.

[20] Ibid.

[21] John R. Oneal. "The theory of collective action and burden sharing in NATO." *International Organization* 44, no. 3 (1990).

[22] Cindy Williams."From conscripts to volunteers: NATO's transitions to all-volunteer forces," *Naval War College Review*, (2005): 37.

[23] Ibid.

[24] Ibid.

[25] NATO Information for Press, "NATO-Russia Compendium of Financial and Economic Data Relating to Defence," NATO Headquarters, 20 December 2007, http://www.nato.int/issues/defence_expenditures/index.html (accessed 11 November 2008).

[26] Ibid.

[27] Ibid.

[28] Ibid.

[29] See Bruce M.Russett, What Price Vigilance?: The Burdens of National Defense, (New Haven: Yale University Press, 1970); John R. Oneal. "The theory of collective action and burden sharing in NATO." *International Organization* 44, no. 3 (1990).

[30] General John Craddock (Supreme Allied Commander Europe) interview by author, SHAPE Headquarters, Mons, Belgium, 1 February 2008.

[31] NATO Information for Press, "NATO-Russia Compendium of Financial and Economic Data Relating to Defence," NATO Headquarters, 20 December 2007, http://www.nato.int/issues/defence_expenditures/index.html (accessed 11 November 2008).

[32] Ibid.

[33] John R. Oneal and Mark A. Elrod, "NATO Burden Sharing and the Forces of Change," *International Studies Quarterly* 33 (1989), 448.

[34] NATO Information for Press, "NATO-Russia Compendium of Financial and Economic Data Relating to Defence," NATO Headquarters, 20 December 2007, http://www.nato.int/issues/defence_expenditures/index.html (accessed 11 November 2008).

[35] John R. Oneal and Mark A. Elrod, "NATO Burden Sharing and the Forces of Change," *International Studies Quarterly* 33 (1989).

[36] General John McColl, (Deputy Supreme Allied Commander Europe) interview by author, SHAPE Headquarters, Mons, Belgium, 1 February 2008.

[37] Douglas Jehl, "A Region Inflamed: The Reconstruction; Pentagon Bars three nations from Iraq Bids," The New York Times, December 10, 2003. ttp://query.nytimes.com/gst/fullpage.html?res=9D00E5D91F3DF933A25751C1A9659C8B63 (accessed 19 December 2008).

[38] General Accounting Office, Report GAO-08-423R,"Global War on Terrorism: Reported Obligations for the Department of Defense," January 30,2008. http://www.gao.gov/new.items/d08423r.pdf, (accessed 11 August 2008): 5.

[39] Congressional Research Service (CRS), Report RL33110. "The Cost of Iraq, Afghanistan, and Other Global War on Terror Operations Since 9/11," July 14, 2008. http://www.fas.org/sgp/crs/natsec/RL33110.pdf (accessed 11 August 2008): 20.

[40] Joseph E. Stiglitz, The Three trillion dollar war, (New York: W.W. Norton, 2008), 57.

[41] NATO Information for Press, “NATO-Russia Compendium of Financial and Economic Data Relating to Defence,” NATO Headquarters, 20 December 2007, http://www.nato.int/issues/defence_expenditures/index.html (accessed 11 November 2008).

CHAPTER 5

SHARING RISK: CONTRIBUTIONS TO NATO MISSIONS AND CAPABILITY

Analysis of contributions to NATO Missions

The NATO Treaty, written in 1949, speaks about "shared risk and shared responsibility" as a founding principle of the Alliance -- we need that commitment as much today as we did in 1949. [1]

United States Ambassador Victoria Nuland

The previous chapters have focused on the traditional measure of burden-sharing in NATO: defense expenditures as a percentage of GDP. This is certainly an important aspect of the burden-sharing debate. However this measure alone gives an incomplete picture of burden-sharing. In essence, military expenditures represent inputs that may or may not translate into alliance capabilities or mission accomplishment. As the Deputy Secretary General of NATO, Ambassador Bisogneiro stated, burden-sharing is not just quantitative. "[Burden- sharing] is first and foremost a political issue and has to do with political will."[2] Political will is most important when discussing alliance outputs, such as contributions to NATO missions. Without political will, it is difficult for an alliance member to initiate or sustain military operations. However persuasive the findings concerning military expenditures are from the last chapter, military contributions to NATO missions represent a key indicator of burden-sharing that is equally relevant and applicable to the on-going policy debates within NATO today. This chapter focuses on these contributions to NATO missions.

This chapter suggests that the logic of collective action provides some insight into burden-sharing behavior within NATO. However, this logic is based upon the provision of a public good with the characteristics of non-excludability and non-rival consumption. This was not always the case. For example, troop contributions are rival in consumption in that troops deployed in support of one mission were unavailable for other NATO missions. Another difficulty lies in distinguishing between free-riding behavior and an agreed upon division of labor. Given these difficulties, there is still a general pattern that emerged from this research.

This pattern relates to the first hypothesis. As expected from the collective action literature, size has an impact on contributions to NATO missions. For example, larger states usually provide greater air contributions than small NATO states. When it comes to troop contributions, the results are better explained by the joint product model. Where larger states were clearly pursuing private benefits (U.S. in Afghanistan; Big 4 European nations in Bosnia/Kosovo[3]), they tended to provide a greater proportion of ground forces. Conversely, when smaller states are pursuing private benefits such as credibility (especially with the U.S.) or fulfilling their commitments to the NATO Response Force, they tended to provide an equal or greater proportion of ground forces.

The results for the second and third hypotheses are mixed. During Bosnia and Kosovo, older member states on average provided greater troop contributions than new NATO members. This finding generally reflects a lack of military capability by new members immediately after accession into NATO. New member contributions as a percentage of population generally increased over the duration of the mission as their capabilities increased. However, during the NATO mission to Afghanistan, newer member states on average provided greater troop contributions than old NATO members. This finding suggests that the pursuit of private benefits (credibility) by new members often mitigated the incentives to *free ride*. The findings also did not support the corollary hypothesis that new member burden-sharing would decline after accession into NATO. As stated above, the relative contributions by new members generally increased over the duration of the mission.

The results also did not support the fourth hypothesis that free-riding behavior would increase with NATO enlargement. In both Bosnia and Kosovo, the average troop contributions of small states equaled or exceeded their percentage of population. While this was not the case in Afghanistan, this was largely due to the delayed and initially limited role of NATO during the earlier years of operations in Afghanistan. The United States wanted to be free from alliance constraints during Operation Enduring Freedom. However, allied contributions have increased steadily in the subsequent years.

An inductive finding from this chapter, which is explored in greater detail in Chapter 6, is the distinction between willingness and capability to burden-share. This has two observable manifestations. First, the disproportionate air contributions by large NATO states reflects a division of labor agreed upon during NATO force planning and generation processes as well as a differential in capability. Where smaller NATO states have a comparative advantage, in conventional or niche troops, they are more willing and able to contribute. Whereas the disproportionate air contributions by large NATO states reflects their comparative advantage in high technology and financial resources, compensating for the times when they appear to *free ride* in the provision of troops. The second manifestation concerns the contributions of new members. Often-times, what appears to be free-riding behavior actually reflects a lack of capability versus a lack of willingness to contribute. As military capabilities increased, so too did contributions to NATO missions.

Not surprisingly, the willingness to contribute is often constrained by individual national military capabilities and political realities. This is true for all NATO members. As Jamie Shea, former NATO spokesman and current Director of Policy Planning stated, "In the final analysis, how to count contributions to the alliance is in the eye of the beholder. All national contributions are driven by political constraints."[4] While this reality may lead to sub-optimal provision of public goods, it does not imply a rational calculation to *free ride*.

Research Design

Contributions of member states to NATO peacekeeping operations are analyzed during four NATO missions: one humanitarian and three peacekeeping. The humanitarian mission was selected since it was the first and only operational employment of ground elements from the NATO Response Force. The three peacekeeping missions were selected since they represent the three largest NATO missions involving ground forces. These particular missions began during three distinct periods of interest for this study: before NATO enlargement, immediately following the first wave of NATO enlargement in 1999 and immediately preceding the last wave of NATO enlargement in 2004. Selecting these missions with different start dates allows maximum variation in membership and enlargement status. If hypothesis 2a is correct, then the relative contributions by new members to missions starting after gaining membership should decrease in relative terms. This variation also enables this chapter to test to whether, or not free-riding increased after each wave of NATO enlargement. If so, then the relative contributions for the U.S. should increase over the course of these missions. Each mission has unique characteristics that could impact the incentives facing NATO states and they are therefore treated as separate cases.

Two measures are used as proxies for burden-sharing in support of NATO missions: air contributions and troop contributions. These measures are used because they are policy relevant and because NATO maintains these statistics for most of their missions. As much as possible, demographic information and data on contributions to NATO missions were extracted from NATO documents. Where not found in NATO documents, data comes from another common source used in previous studies: *The Military Balance*, published annually by the International Institute for Strategic Studies.[5]

While both contributions are important there is a distinction between air and troop contributions. Air contributions are largely constrained by existing military capability and technology. For example, few NATO countries had precision strike capability during these missions. Therefore larger, wealthier countries that have these systems in their inventories should be able to bear a larger proportion of these burdens. Troop contributions, on the other hand, are less dependent upon technology and are largely constrained by political will and population (size and demographics). The decision to send soldiers into harm's way is a difficult political decision and the subsequent loss of life in these operations can hurt public support for a government. While both air and ground contributions are analyzed, the emphasis is on troop contributions.

Data was also systematically collected from other credible published sources, international organizations (such as the OECD) and relevant NATO documents. For each cased study, this project uses the same procedure to analyze the data to increase the reliability of the findings. The data is evaluated in groupings relevant to the hypotheses tested: large versus small and old versus new. New member troop contributions are aggregated by cohorts, controlling for population, and examined against similar sized old

NATO members. This chapter concentrates its analysis on the 1999 wave since they were NATO members during all four NATO missions under study.

As discussed in the previous chapters, the appropriateness of using contributions to NATO peacekeeping operations as a measure of burden-sharing is founded on the notion of a public good. Contributions of member states to NATO peacekeeping operations are appropriate measures of burden-sharing because they are generally considered to be a public good, these missions must also have the qualities of non-excludability and non-rival consumption. Non-excludability means that those who do not contribute to the provision of a particular good or service cannot feasibly be kept from benefiting from it. Once NATO is committed to a mission, every NATO member benefits from the resulting increased security or stability regardless of whether or not they directly contribute to the mission. Thus the benefits are non-excludable. Non-rival consumption means that consumption of the good or service by one actor does not diminish the amount available to others. The direct benefits of these NATO missions, whether increased security, stability, or good will, apply to all members without reducing the benefits to other members. All NATO states also gain from the indirect benefits of these missions such as increased interoperability within the alliance and increased deterrence to threats outside of the alliance. Thus these missions also satisfy the requirement of non-rival consumption.

However there are cases where these contributions are also made in the pursuit of private benefits. Certainly quelling the ethnic violence in the Balkans offered private benefits to neighboring states and those with ethnic minorities in the region. The same could be said about the United States contributions to the "Global War on Terror" (i.e. Afghanistan and Iraq). In addition, troop contributions made to gain favor with the United States could yield private benefits such as enhanced credibility. Since credibility is excludable, contributions to these missions in the pursuit of credibility could also mitigate free-riding behavior. This project attempts to identify were potential private benefits have had a significant impact on the contributions to these NATO missions and adjust the findings to account for these instances.

Methodology

According to logic of collective action, the U.S., as the largest and wealthiest state in the alliance, should contribute a relatively larger number of troops to NATO missions than smaller NATO states because they have more to gain and lose from such missions. If this logic is correct, then there should be three observable implications. First, the relative contributions of the U.S. should exceed those of the other major NATO states. Second, the proportional contributions of large NATO states should also exceed their percentage of NATO population. In order to test the proportional contributions of large NATO states, this chapter examines the contributions of the four largest, non-U.S. NATO members (as measured by GDP and population size). These are appropriate criteria because both wealth and population size affect the capability of a country to bear the costs of committing troops to operations, especially outside of their borders. Finally, the proportional contributions of small NATO states should be less than their percentage of

NATO populations. These measures (relative and proportional contributions) are used to test the first hypothesis, the "exploitation of the great."

Rational choice institutionalism would also suggest that new member states would have a strong desire to demonstrate their reliability to their fellow NATO members. New members' concern for establishing credibility and demonstrating capability should result in stronger incentives to share burdens within NATO. If this logic is correct, then there should be two observable implications. First, the relative contributions of the new NATO states should exceed their percentage of NATO population (% of NATO force > % of combined NATO population). If however a new member is attempting to *free ride,* its contributions should be less than its percentage of NATO's total population. In this project, NATO states whose troop contributions exceed their percentage of NATO population are characterized as providing their "fair share" to the mission. The implication is that the contributions of new members should be relatively larger than those of existing NATO members, controlling for population size (average # troops new members > average # troops old members). If however hypothesis three is correct, then the contributions of older members of similar size should be greater than those of new NATO members. These two methods are used to test the competing second and third hypotheses, concerning the relative contributions of new versus old NATO members.

In a 2004 article, Judith Kelley demonstrates that membership conditionality was highly correlated with desired policy outcomes.[6] Therefore, rational choice institutionalism could also be used to suggest that concerns for establishing credibility or maintaining reputation would be outweighed by incentives to *free ride* after accession. If this logic is correct, then an observable implication would be that troop contributions to NATO missions would fall for new members after each new wave of accession: 1999 and 2004. In order to test the third corollary hypothesis that new member states should, on average, show declining levels of burden-sharing after accession into NATO, the troop contributions of new members before and after accession to NATO are analyzed.

The logic of collective action also states that as the size of the group grows, the more suboptimal the level of public goods supplied. Thus, as the size of NATO increased from 16 members to 19 and eventually 26 members, free-riding behavior should have increased in smaller states. With enlargement, the U.S. and the other major NATO powers, as the largest and wealthiest states in the alliance, should contribute a greater relative number of troops to the mission than smaller NATO states because they have more to gain and lose from such missions.

If this logic is correct, then there should be three observable implications. First, the troop contributions of the U.S. relative to its share of the NATO population should increase after NATO enlargement. Second, the proportional contributions of large NATO states should also increase relative to their percentage of NATO population after enlargement. Finally, the proportional contributions of small NATO states should decrease after NATO enlargement. These three methods are used to test the fourth hypothesis that NATO enlargement should lead to greater free-riding.

Why Troop Contributions?

In many ways, participation in NATO missions is a more valid measure of burden-sharing than military expenditures. These missions carry greater political risk than do military expenditures. Contributions to NATO missions are more clearly attributable to a collective good than military expenditures, which are more difficult to identify as either public or private goods. Using our earlier definition of burden-sharing as "the distribution of costs and risks among members of a group in the process of accomplishing a common goal,"[7] it is necessary to establish that these missions are indeed in pursuit of a common goal. Since each NATO mission requires approval through NATO's consensus procedures, a strong case can be made that these missions constitute a collective good to NATO members. During interviews conducted at NATO headquarters in 2008, NATO officials placed a great deal of stock in consensus and its salience in the burden-sharing debate. "Consensus is important when countries commit to dangerous missions and accept great political risk. Consensus is the strength of alliance and it provides legitimacy and demonstrates unity."[8]

To be considered a public good, these missions must have the qualities of non-excludability and non-rival consumption. Non-excludability means that those who do not contribute to the provision of a particular good or service cannot feasibly be kept from benefiting from it. Once NATO is committed to a mission, every NATO member benefits from the resulting increased security or stability regardless of whether or not they directly contribute to the mission. Thus the benefits are non-excludable. Non-rival consumption means that the number of actors benefiting from the good or service does not diminish the amount available to others. The direct benefits of these NATO missions, whether increased security, stability, or good will, apply to all members without reducing the benefits to other members. All NATO states also gain from the indirect benefits of these missions such as increased interoperability within the alliance and increased deterrence to threats outside of the alliance. Thus these missions also satisfy the requirement of non-rival consumption.

Contributions to NATO missions are qualitatively and substantively different measures of burden-sharing from military expenditures. Placing troops in a dangerous situation entails greater political risk than increasing defense spending, or contributing to NATO common funding. Therefore, it should be more difficult to overcome the rational pressures to *free ride* when sending troops to NATO missions, especially when those missions are difficult to directly link to a national interest. A case study approach is used to examine burden-sharing in two types of missions: humanitarian and peacekeeping missions.

This project uses troop contributions, as a proportion of state population, as a proxy for quantifying burden-sharing in NATO operations. The greater the ratio of troops to population, the greater level of burden that country is assuming. The deployment of the NATO Response Force to Pakistan is analyzed as an example of a humanitarian mission. This chapter looks at the NATO mission in Bosnia (SFOR) and the NATO mission in Kosovo (KFOR) as examples of peacekeeping missions. And finally, this chapter analyzes the NATO mission in Afghanistan (ISAF) as an example of a peacekeeping mission including ground combat operations.

Humanitarian Missions: The NATO Response Force in Pakistan

Humanitarian operations represent a new type of NATO mission, though they build on earlier NATO civil emergency planning activities.[9] These missions are designed to alleviate human suffering in the wake of natural disasters or as a result of on-going conflicts. As a result, humanitarian operations are traditionally "meant to be substantively neutral in the conflict at hand."[10] Among NATO's new missions, Joseph Lepgold characterized humanitarian operations as public goods (both non-excludable and non-rival) so long as they were of short duration and limited scope. The NATO Response Force (NRF) mission to Pakistan to provide assistance after the earthquakes in 2005 was certainly both limited in scope and lasted a little over five months, from October 2005 until February 2006[11]. In addition, the NATO mission was limited to transporting humanitarian relief supplies and providing engineering and medical support to the government and the Pakistani people.

The NRF is made up of air, land and sea forces that are on a six-month stand-by rotation to support NATO missions.[12] All forces participating in the NRF go through a training and certification process before going into the standby window. Like most NATO missions and exercises, contributions to the NRF are based on national offers and NRF requirements which are hashed out during annual Force Generation conferences.[13] During the period of the NRF 5 mission to Pakistan, operations were handled under

NATO's customary policy of costs lying where they fell, meaning that states were responsible for costs incurred by their forces. Once the North Atlantic Council makes the decision to employ the NRF, member states are supposed to transfer authority of the forces to SACEUR, however they are still responsible for any costs incurred and for the administration and supply of their forces.

The development of the NATO Response Force was an evolutionary process. NRFs 1 and 2 were used as test cases to develop concepts and procedures for the NATO force.[14] NRF 3 demonstrated the capabilities of the response force concept during exercise Destined Glory 2004 and was part of the certification process for the initial operating capability. During the first six-month rotation after initial operating capability, the land component command was filled by the NATO Rapid Deployable Corps – Italy, with the United Kingdom in charge of the maritime forces and the United States having the Air Component Command out of Izmir. Italy provided approximately 70% of the personnel for the land forces with the remainder coming from other NATO countries. The United Kingdom provided the maritime component headquarters and the United States provided the air component headquarters out of Izmir, Turkey.

The first real mission of the NRF took place in support of the Summer Olympics in Greece during 2004, although only select units were deployed. An Italian battalion from NRF 3 was also deployed to Afghanistan in support of the presidential elections in 2004, though the NRF was not formally activated.[15] NRF 4 built on the lessons learned from NRF 3 and was in the rotation from January to June of 2005. The land component command for NRF 4 was the German Netherlands Corps, with the United Kingdom in charge of the maritime forces and the United States having the Air Component Command out of Izmir. NRF 5 took over responsibilities in July 2005. In September 2005, the North Atlantic Council (NAC) activated NRF 5 to provide airlift support for aid during Hurricane Katrina. Some fifteen NRF cargo aircraft, from France, Germany, Greece, Italy, and the United Kingdom, consolidated contributions in Germany prior to shipment to the United States.[16] Twelve aircraft, coming from Canada, Turkey, and NATO's Airborne Early Warning Fleet, were used to ship these supplies to the U.S. from Germany. Ukraine, a member of the Partnership for Peace, also donated a large portion of these cargo planes. In total, all NATO members offered assistance in addition to 14 additional members of the Euro-Atlantic Partnership Cell.[17]

On October 8, 2005, Pakistan was struck by a devastating earthquake that killed over 73,000 people and injured even more.[18] On October 10, 2005, Pakistan requested assistance in dealing with the aftermath of the earthquake. The next day the North Atlantic Council (NAC) approved the deployment of air assets to bring in relief supplies and on October 21, 2005, approved the deployment of land elements of the NATO Response Force. This represented the first operational deployment of both land and air forces from the NATO Response Force. NRF 5, which was on call during this period, consisted of the NATO Rapid Deployable Corps – Spain, the Italian Maritime Forces, and the Joint Forces Air Component Command (JFACC) under French command.[19]

If Lepgold's characterization of humanitarian missions as public goods was correct, the NRF mission to Pakistan should have led to free-riding behavior and an exploitation of the great by the small. This tendency should have been even greater if the major NATO states were pursuing private benefits in supporting this humanitarian operation. Larger NATO countries certainly had more economic and strategic interests in this region. This is especially true for the U.S. since Pakistan was vital, not only to the "Global War on Terror," but also to operations being conducted in Afghanistan under the U.S. Operation Enduring Freedom. While NATO also relied on Pakistani cooperation for its operations in Afghanistan (International Security Assistance Force – ISAF), it was not as reliant as the U.S. Therefore, those nations that benefited the most from the humanitarian operation and had the most ambitious objectives, such as the United States, should have contributed more than other allies. The rational incentives to *free ride* should have been magnified by the fact that the NRF was not common funded and that each NATO member paid for the costs incurred by their individual forces.

Large versus Small

Under NRF 5, NATO deployed some 170 flights in support of the humanitarian operation in Pakistan from October 2005 until January 2006.[20] A majority of these came from large NATO member states, although smaller states provided funding contributions in some cases. For example, the United Kingdom alone contributed 25% of all NRF flights.[21] In contrast, the United States provided over 140 airlifts using its own assets in addition to six U.S. military ships delivering aid.[22] The same level of contribution was true for the deployment of helicopters. NRF 5 had a total of five helicopters deployed in support of the earthquake relief operations in Pakistan, 80% of those coming from one country, Germany, and the other from Luxemburg.[23] On its own, the United States provided at least 24 helicopters to relief efforts, though again outside of NRF 5, compared to 40 helicopters provided by the alliance as a whole.[24] These results suggest that the U.S. and the other major powers in NATO provided a disproportionate share of air assets during NATO's Pakistan earthquake relief operation, supporting the hypothesis of an exploitation of the great by the small. However, this may reflect differing military capabilities than willingness to assume burdens. Contributions to land forces would provide a better measure for analyzing any free-riding behavior.

The troops required to support earthquake relief efforts were primarily engineers and medical personnel. At the time, the U.S. was not on standby to provide either of those assets to NRF 5. However, the U.S. made a significant bi-lateral troop contribution to the relief effort which can be compared to those of NATO (see Figure 5.1). According to the first hypothesis, the troop contributions of the US to the humanitarian mission should be larger than the other NATO members because they are the largest member of NATO and because they have more to gain and lose from such missions.

During the humanitarian mission to Pakistan, the United States provided over 1,000 troops and two large medical teams consisting of over 200 personnel each.[25] This contribution exceeded the total NATO contributions under NRF 5, of 1,000 troops and 200 medical personnel. If this contribution was compared to the combined U.S. and NATO contribution, the U.S. proportion of troops exceeded its percentage of NATO population at the time. This finding reinforces the results from the air contributions that large states will share greater relative proportion of burdens than small states.

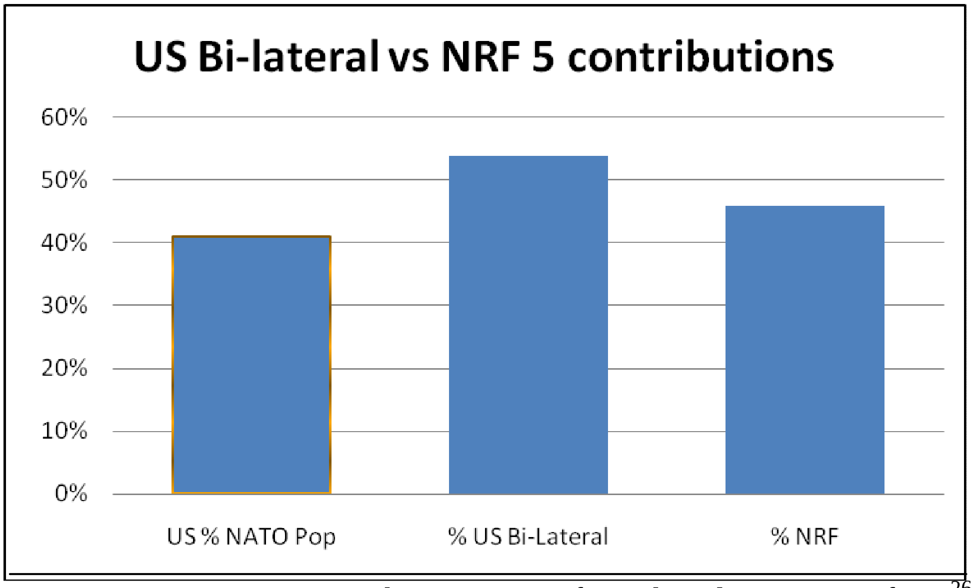

Figure 5.1: U.S. Troop contributions as % of Combined US/ NRF 5 force[26]

Looking at the contributions from the big four European states gives a different picture. Within NRF 5, large European states (Italy and the United Kingdom) provided about 26% of the engineers and France and the United Kingdom provided about 20% of the medical personnel.[27] At 25% of the NRF, this contribution was less than the Big 4 proportion of NATO population at the time (see Figure 5.2). Even though these states were not committed to provide any more forces during this NRF rotation, this result is not consistent with the hypothesis that larger states would share a greater proportion of the burden. This finding suggests that large states honored their commitments to the NATO Response Force. The more important question is whether or not the smaller NATO states met their commitments to the NATO Response Force during this operation.

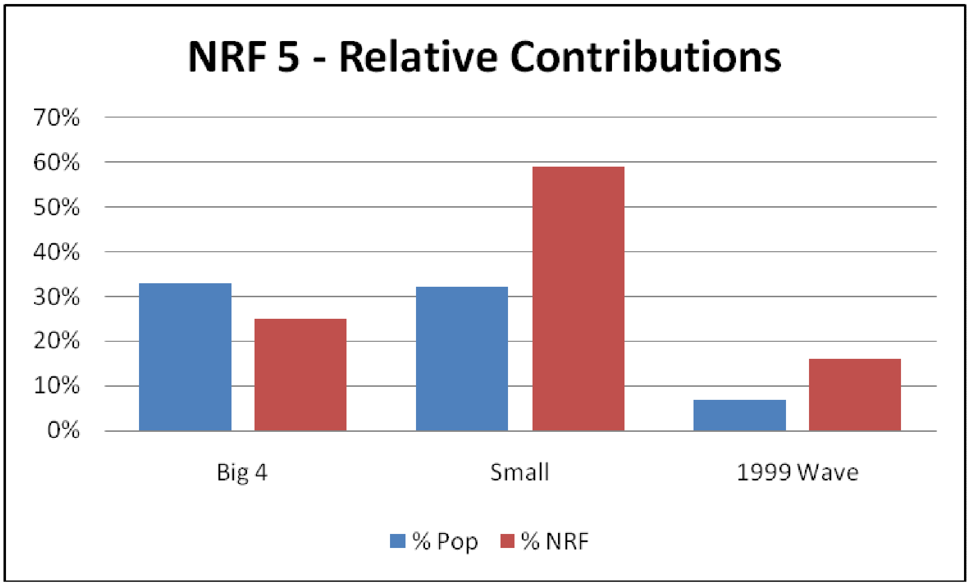

Figure 5.2: Relative NATO Troop contributions to NRF 5[28]

The contributions of small NATO states represented about 59% of the NRF, including 74% of the engineers and 80% of the medical personnel. In particular, Spain contributed 37% of the NRF engineering force, with only 5% of the NATO population, and the Netherlands contributed 65% of the medical personnel for NRF 5, with less than 2% of the total NATO population. This finding does not support the first hypothesis that large states will share greater relative proportion of burdens than small states. It does however lend credence to an argument made by Lepgold that side payments or incentives could mitigate the logic of free-riding.[29] Since Spain had the command of the Land Forces during NRF 5, there was prestige involved with fulfilling its commitments to NATO. The leader of the Spanish contingent summed this sentiment up nicely. "This is the first real operation of the NATO Response Force and Spain is proud to lead it."[30] Similarly, the Dutch contingent was responsible for leading the NATO field hospital and thus earned the benefits of command with its large contribution to the mission. This finding supports the hypothesis that large states will share greater relative proportion of burdens than small states only if considering the United States.

Table 5.1: Initial Findings from NRF troop contributions

		Humanitarian Operations
H1:	*Large states will share greater relative proportion of burdens than small states*	*Supported for air operations and bi-lateral U.S. troop contributions. Not supported for troop contributions to the NRF mission.*

If our results from the previous chapter are consistent, new member states should have contributed a larger portion of the NRF force than their proportion of the NATO population (% of NATO force > % of combined NATO population). In comparing the contribution of the 1999 cohort (the Czech Republic, Hungary, and Poland) to their relative population size, the 1999 cohort exceeded its fair share of the NRF force. The total contribution of the 1999 wave represented 16% of the NRF compared to their percentage of the NATO population, 6.8% (see Figure 5.2). Together, they represented 17% of the NRF engineering force, with Poland providing 14% and the Czech Republic 3%.[31] The 1999 wave of new members also comprised 12% of the NRF medical force, with the Czech Republic alone providing 24 medical personnel.[32] Other new members contributed to the mission as well. For example, the Lithuanians provided one of the four water purification teams sent with the NRF and Slovenia sent one of the two NRF Civil Military Coordination teams. These results suggest that these new NATO members did not *free ride* during the NRF 5 mission and contributed more than their fair share to the NATO hurricane relief mission.

New versus Old

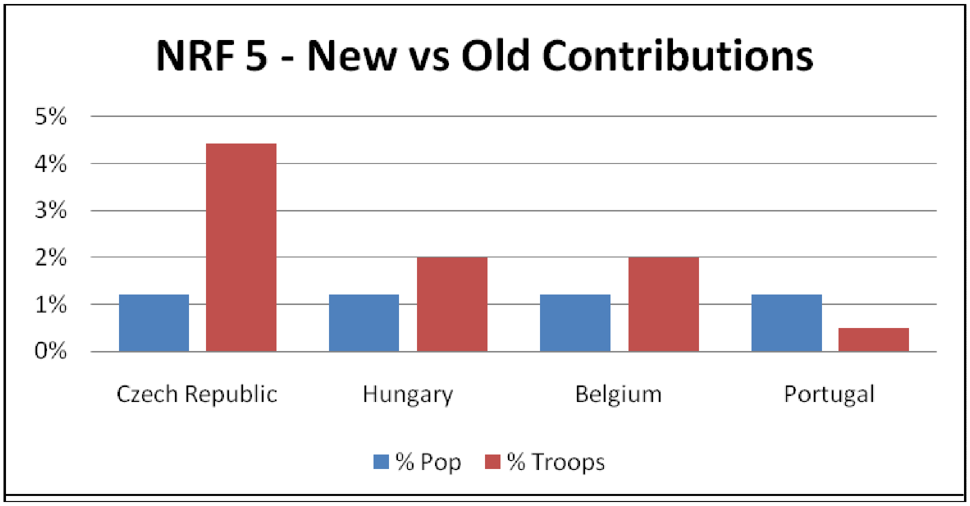

Figure 5.3: Relative troop contributions of new versus old members to NRF 5[33]

Participation in these missions can also be used to look at the difference between new and old members. If hypothesis two is correct, the contributions of new members should be relatively larger than the contributions of existing NATO members, controlling for population size (# troops new members > (# troops old members). To test this hypothesis, contributions of the 1999 wave are compared with those of existing NATO members (controlling for size). Total contributions by the Czech Republic (CZ) and Hungary (HU) to the NATO mission exceeded their percentage of NATO population as well as the contributions of comparable NATO states: Belgium (BE) and Portugal (PO). If new members were free-riding, neither of these findings would be true. The total contributions by the largest new member, Poland (PL), also exceeded its percentage of NATO population though they did not exceed the contributions made by Spain (SP) to the NRF mission. As discussed earlier, Spain's contribution was commensurate with its level of command which was at a higher level than that of the Poles.

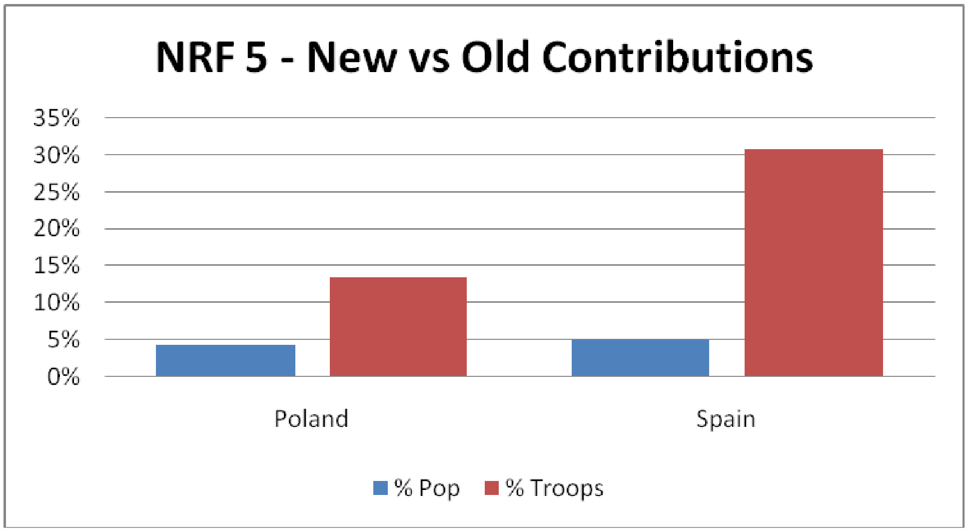

Figure 5.4: Relative troop contributions of Poland versus Spain to NRF 5[34]

This case study yields mixed results. The first hypothesis was supported under two conditions. If bi-lateral U.S. troop contributions are compared to the troop contributions from NRF 5, then the U.S. did share a greater relative proportion of burden than other NATO states. This is not surprising given the private benefits of this aid to U.S. interests in the region. The first hypothesis is also supported when looking at air contributions to the hurricane relief efforts. Since these large states had an advantage in air capability, it is again not surprising that they contributed these assets at a higher level than smaller NATO states. However, the first hypothesis is not supported for small state troop contributions to the NRF mission. The contributions of small NATO states to NRF 5 exceeded their proportion of the combined NATO population.

The results are mixed for the second and third hypotheses. Hypothesis two is supported for the Czech Republic in comparison with Belgium and Portugal. Hypothesis three is supported for Spain, as leader of NRF 5, in comparison with Poland. In general, the findings suggest that both small states and new member states attempted to fulfill their obligations to NATO, even during a humanitarian mission in a distant country. There is an important caveat to these findings. Since member nations commit forces to the NRF in advance, too much cannot be read into these results. Since commitments to the NRF are established on a rotational basis, it is not possible to generalize the findings from NRF 5 to other NRFs. However, as the only NRF to actively deploy ground forces to date, NRF 5 does shed some light on the burden-sharing issue. Not only did small states and new members commit significant troops to NRF 5, they also followed through with this commitment when the NRF was deployed at great costs to their individual countries. Table 5.2 summarizes the results of this case study.

Table 5.2: Findings from NRF case study.

		Humanitarian Operations
H1:	*Large states will share greater relative proportion of burdens than small states*	*Supported for air operations and bi-lateral U.S. troop contributions.* *Not supported for troop contributions to the NRF mission.*
H2:	*New members will share greater relative proportion of burdens than old members*	*Supported for Czech Republic*
H3:	*Old members will share greater relative proportion of burdens than new members*	*Supported for Spain as leader of NRF 5*

Peacekeeping Missions: Bosnia

Peacekeeping became an official NATO mission after the Oslo Summit in June 1992. [35] Unlike humanitarian and deterrence missions, peacekeeping and peace enforcement operations are potentially even more detrimental to alliance burden-sharing since they were both non-excludable and rival. Lepgold makes one key distinction between these types of missions; peacekeeping missions are "designed to influence the political incentives of the actors in a conflict."[36] Because the benefits are non-excludable both inside and outside the alliance, the logic of collective action would suggest that these missions would lead to greater levels of free-riding. If members do not contribute fully or bear proportional risk, they still receive the benefit of the ensuing peace. Peacekeeping missions are also rival in that the forces committed to one mission are necessarily not available for other alliance missions. Lepgold assumes that the actors have the same objectives or interests in the mission. When interests or benefits diverge, these missions tend to more closely resemble joint products, having both public and private benefits.

When peace operations are both non-excludable and rival, this is the worst of both worlds. In this case, states have incentives to under supply the forces while the demand for these types of missions increases. Lepgold notes that since peace operations are "politically and legally discretionary,"[37] they are also more prone to free-riding behavior. For example, it is difficult to mobilize political will and resources to defend people in a far away land, especially when during an economic crisis when there is a greater competition for resources. As mentioned in Chapter 2, even if alliance members reach consensus on conducting a peacekeeping mission, individual domestic incentives can often encourage free-riding in the execution of that mission.

The first peacekeeping mission examined is NATO's intervention into Bosnia. This was NATO's first major peacekeeping operation and took the alliance outside of the territory of member states. It is also significant because it occurred prior to NATO enlargement. Therefore this mission can serve as a baseline for comparing new members' burden-sharing before and post-enlargement. European states first attempted to deal with the situation in Bosnia through the auspices of the United Nations from 1992 through 1993. During this early phase, the United States was against U.S. involvement in the Balkans and characterized it as a European problem, suggesting a private good.[38] The location of the crisis in the Balkans was especially threatening to European states and neighboring countries such as Italy and Greece in particular. Because of its recent U.S. experience in Somalia, the U.S. was especially hesitant to commit forces, especially ground forces, to the efforts in Bosnia. However given the failure of European efforts, the U.S. eventually decided to intervene.

In a juxtaposition of the burden-sharing argument in Afghanistan after 2003, it was the European nations that complained about the U.S. unwillingness to equally share the risks involved in the peacekeeping efforts during Bosnia. Playing to its strategic, comparative advantage in airpower and considering its unwillingness to accept potential U.S. casualties, the Clinton administration recommended a two pronged U.S. approach: lifting the arms embargo on the Bosnian Muslims and using precision bombing to punish Serbian forces. The U.S. did not immediately commit to providing land forces to augment the alliance efforts. "European allies complained that the plan would endanger their troops while the

United States watched from a safe distance. As a result, many allied officials said, NATO should do everything to avoid a situation where European and United States officials do not face comparable risks on the ground."[39] Thus while NATO encourages a division of labor, it also encourages all members to bear the political risks, especially those associated with troop deployments.

Large versus Small

That said, the U.S. heavily supported NATO's first major air operation in the Bosnian crisis, Operation Deny Flight. Operation Deny Flight began in April 1993 and lasted until December 1995. It was approved by the North Atlantic Council (NAC) on April 8, 1993 and its purpose was to enforce the no fly zone established by the United Nations under UNSCR 816, provide close air support to UN troops, and to conduct limited air strikes. The forces of 14 NATO countries were deployed in support of Operation Deny Flight, with only Iceland and Luxemburg not participating. However, the U.S. provided the majority of planes, 43%, and most of the precision strike capability.[40] If the other four major powers in NATO are included, the United Kingdom (UK), France (FR), Germany (GE), and Italy (IT), these larger states provided over 84% of the aircraft.[41]

The same is true of the subsequent air campaign, Operation Deliberate Force, conducted in response to the shelling of Sarajevo by Bosnian Serbs on August 28, 1995. Deliberate Force lasted from August 29, 1995 to September 14, 1995 and was intended to compel the Serbian forces to comply with UN resolutions. In total, the forces of 12 NATO countries were deployed in support of Operation Deliberate Force. The exceptions were Iceland (with no military force), Greece, Luxemburg, and Portugal. This time, however, the U.S. provided almost 66% of the sorties flown in support of Operation Deliberate Force.[42]

This included the use of sophisticated Tomahawk missiles that other allies did not possess.[43] During this operation, the other major powers in NATO (UK, FR, GE, and IT) provided over 86% of the aircraft.[44] These results suggest that the U.S. and the other major powers in NATO did bear a disproportionate share of the military burdens during Operations Deny Flight and Deliberate Force, suggesting the exploitation of the great by the small. However, this may result more from differing military capabilities than a lack of willingness to assume burdens. These five nations combined account for over 81% of NATO's total GDP.[45] Therefore, they would be expected to provide a greater proportion of the expensive and technologically advanced air support required for these operations. This topic is explored in greater detail in Chapter 6: capability versus willingness to burden share.

Table 5.3: Initial Findings from SFOR air contributions

		Operation Deny Flight & Deliberate Force
H1:	*Large states will share greater relative proportion of burdens than small states*	*Supported, for contributions to air operations*

There is a significant difference between the commitment of air power and the commitment of ground troops. Up to this point, most of the land forces in the Bosnia area of operation were European. As mentioned in Chapter 2, the political risk of land contributions is significantly higher than that of air and naval forces. The political risk is exacerbated when the mission does not pose a direct threat to the security of the intervening states. This argument was prevalent in the discussions concerning U.S. troop contributions to Bosnia. Many states were upset that the United States, as the leader of the alliance, was initially unwilling to put its own troops on the ground. "It is not burden-sharing to say, 'You guys go out and take the risk of getting killed, and if there are problems we will provide air support.' Putting American forces at risk is fundamental to assuring that there is a political commitment from Washington. American feet on the ground [are] vital."[46] Therefore, this project focuses on the land contributions to the two NATO missions in Bosnia: Implementation Force (IFOR) and Stabilization Force (SFOR).

IFOR and SFOR were the two NATO missions that were approved by the NAC to enforce the Dayton Peace Accords and entailed placing NATO forces in Bosnia-Herzegovina. The United Nations Security Council Resolution (UNSCR) 1031 gave NATO a one-year mandate to enforce the Dayton Peace Accords through the Implementation Force (IFOR). IFOR's mission began on December 20, 1995. After the first set of Bosnian elections, NATO approved a follow-on force to take the place of IFOR. The Stabilization Force (SFOR) was activated on 20 December 1996 and was authorized by the UN under UNSCR 1088. [47] While containing only half of the forces that were in IFOR, SFOR represented a sustained commitment to the peacekeeping mission in Bosnia. In both IFOR and SFOR, every NATO nation with a national military contributed to the mission. This largely successfully mission was passed on to the European Union in 2004.

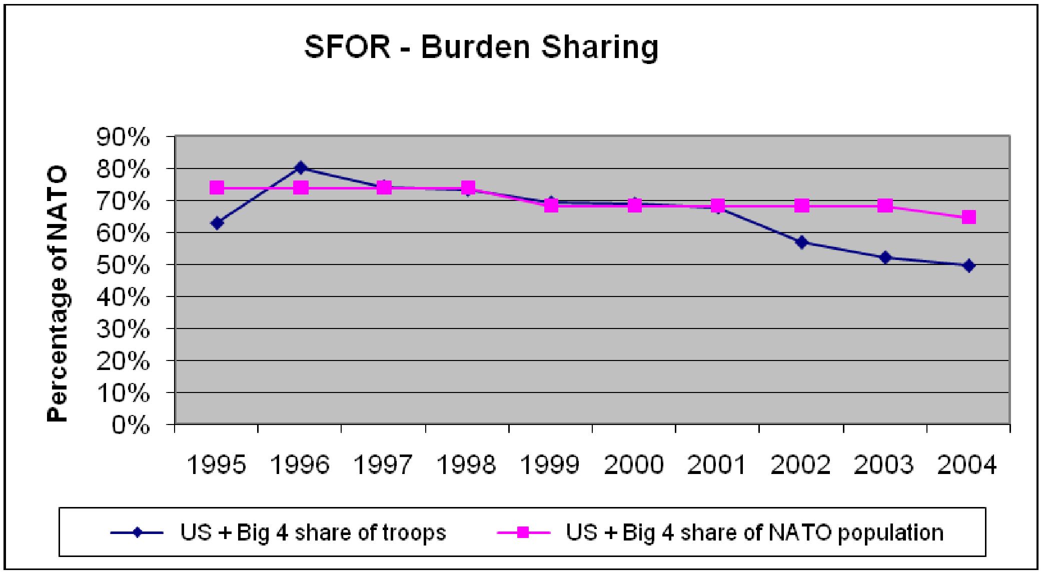

Figure 5.5: Relative U.S. troop contributions to SFOR[48]

According to the first hypothesis, the troop contributions of the US and the Big 4 European states to SFOR should have been larger than the other NATO members because they had more to gain and lose from these missions. In looking at the contributions between 1995 and 2004, the contributions of the largest members of NATO only met or exceeded their proportion of NATO population 50% of the time. According to the fourth hypothesis, the level of free-riding should also increase after NATO enlargement. If this were the case, the relative contribution of the U.S. and the Big 4 European NATO members should have increased after NATO enlargement in 1999. However, these states actually appear to shoulder less than their fair share of the burdens after enlargement in 1999 than before NATO expanded (Figure 5.5). These results do not support either the first or fourth hypotheses. These results could suggest either that smaller states were not free-riding, or that the results were skewed due to free-riding behavior by either the U.S. or the other four major powers within NATO.

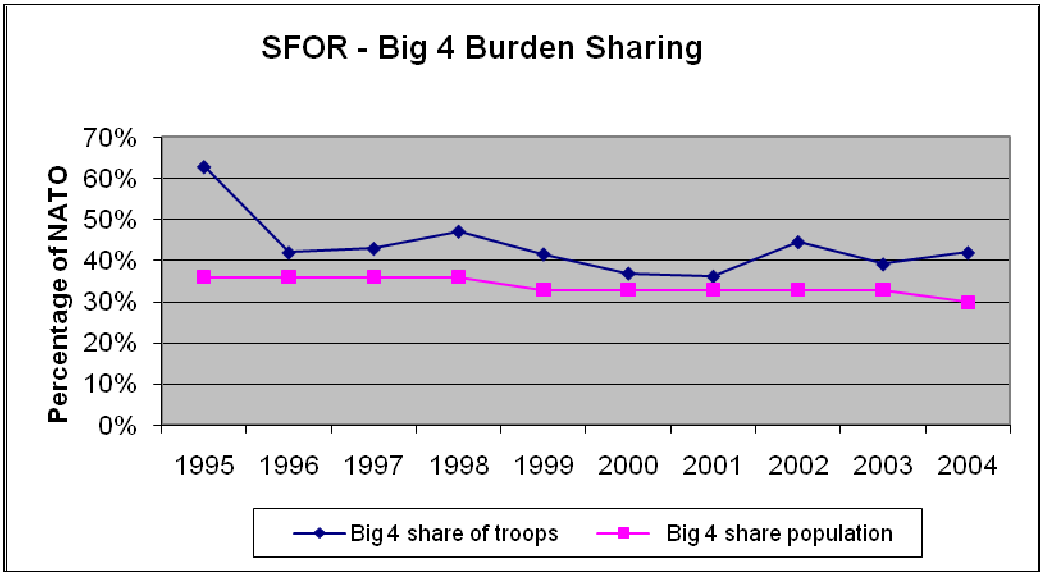

Figure 5.6: Relative Big 4 European States' troop contributions to SFOR[49]

In Figure 5.6, only the contributions of the Big 4 European NATO states are analyzed. In looking at their contributions between 1995 and 2004, the contributions of the largest members of NATO (excluding the U.S.) exceeded their proportion of NATO population throughout the operation. This is in stark contrast to the results including the United States. While the contribution of the Big 4 peaked in 1999 (coinciding with the first wave of NATO expansion), it never dropped below their proportion of the NATO population. These states appear to shoulder their fair share of the burdens both before and after enlargement in 1999. These results do not support either the first or fourth hypotheses. These results could indicate that either the U.S. was free-riding, or that the U.S. level of support fell due to increasing operational tempo. For example, declining contributions after 2001 could reflect the competing demands from the pursuit of the "Global War on Terror."

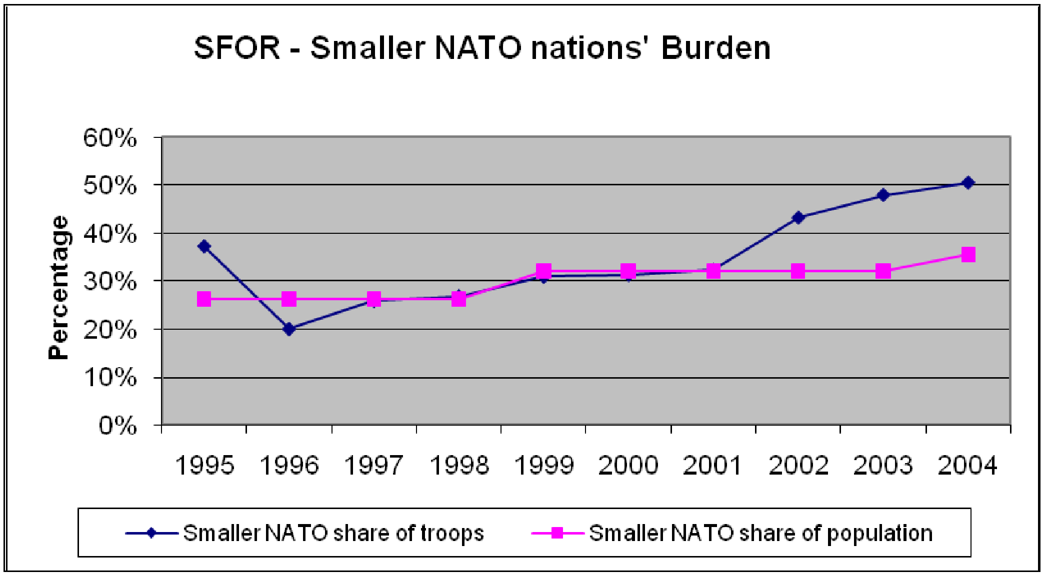

Figure 5.7: Relative small state troop contributions to SFOR[50]

Analysis of the smaller NATO states also supports these findings. The contributions of smaller NATO states between 1995 and 2004 met or exceeded their proportion of NATO population 70% of the time. Even more compelling, after the first phase of NATO enlargement in 1999, smaller NATO states consistently met their fair share burdens of the SFOR mission (Figure 5.7). The contributions of these smaller NATO states also continually increased as a percentage of the total NATO force after NATO enlargement. Therefore, the first and fourth hypotheses are not supported (see Table 5.4). These findings are surprising; according to the logic of collective action enlargement should have led to greater free-riding, especially by the smaller states.

Impact of NATO expansion

Troop contributions of NATO members before and after enlargement in 1999 can also be examined. If NATO expansion did increase free-riding behavior (H4), the contributions of small countries should decrease relative to their percentage of population after NATO enlargement. Rather, the contribution of small NATO countries increases in almost every year following NATO expansion in 1999 (see Figure 5.7). It would also follow that the combined, relative contributions of the U.S. and Big 4 European NATO countries would increase after enlargement. However, the combined, relative contribution of the U.S. and Big 4 NATO countries decreases in almost every year following NATO expansion in 1999 (see Figure 5.5). These findings suggest that NATO expansion did not lead to greater free-riding behavior in the alliance (see Table 5.4).

Table 5.4: Initial Findings from SFOR case study

		Troop Contributions
H1:	*Large states will share greater relative proportion of burdens than small states*	*Not Supported for the U.S.; supported for the Big 4 European NATO states till 2001*
H4:	*Free-riding behavior should increase with NATO enlargement*	*Not Supported*

Did new members *free ride* after gaining NATO membership?

While NATO's intervention into Bosnia (SFOR) started prior to the first wave of enlargement in 1999, this project is only concerned with contributions made after membership was attained in 1999. Prior to this period, states from the 1999 wave were members of the Partnership for Peace Program (PfP). As these states vied for membership in NATO, it would be natural for them to try to demonstrate their credibility and their potential contributions to the alliance. Therefore, one would expect strong contributions prior to membership. However, once these states became members in 1999, these states might be tempted to *free ride.* Therefore, only new member participation from 1999 onward is analyzed. Only contributions made through 2004 are included as NATO turned over the mission to the European Union in 2005.

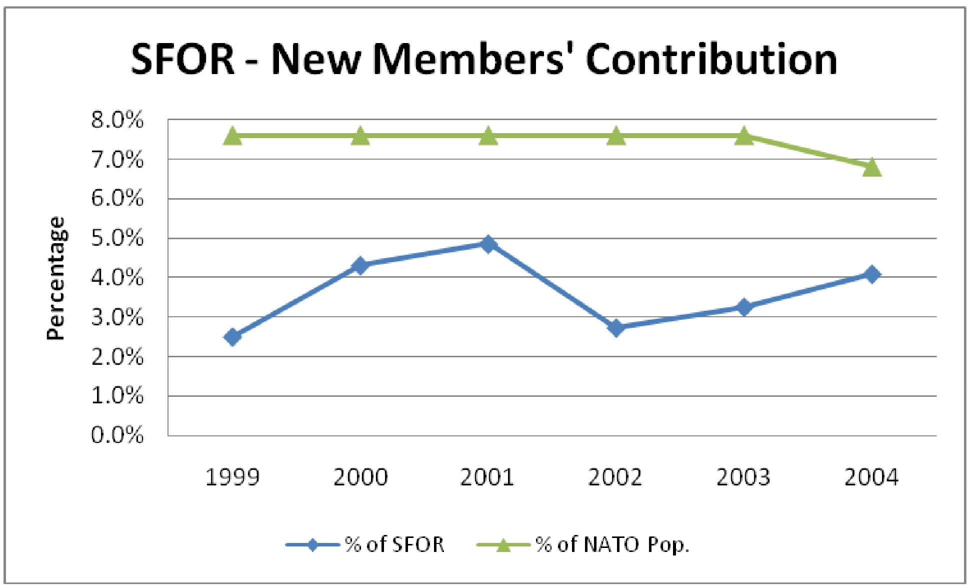

Figure 5.8: Relative new member troop contributions to SFOR[51]

In their first year of NATO membership, participation in SFOR was at approximately the same level, 4% of the NATO force, as in 1998 when these countries were not yet members of NATO. Therefore, there was no precipitous drop after membership. However, during the six years following accession to NATO, the 1999 wave's troop contributions to SFOR never exceeded their percentage of NATO population. The contributions of the 1999 wave to SFOR averaged 3.9% of the total NATO force throughout the post-membership period. This average level of contribution is well below their percentage of the total NATO population (7%) but is approximately at the same level as when these countries entered NATO. This indicates that while new members did not necessarily provide their fair share of the burdens (as defined earlier in the chapter), the new members did not *free ride* at a greater rate after membership (H2a). In order to test the competing second and third hypotheses, it is necessary to compare the contributions of new members with those of existing NATO members of comparable size.

New versus Old

Figure 5.9 compares the troop contributions of the 1999 wave with comparable, existing NATO members (controlling for size). From 1999 to 2001, the Czech Republic and Hungary provided troops at a comparable level to Belgium and Portugal. However, the commitment level of both new members dropped in 2002, three years after membership. On average over the period, the Czech Republic and Hungary provided 1.0% of the NATO force while each comprised approximately 1.3% of the NATO population. This commitment was relatively less than the two existing NATO members of similar size. On average, Belgium and Portugal provided 1.6% of the NATO force while each comprised approximately 1.3% of the NATO population. This suggests that old members might share greater relative proportion of burdens than new members. This finding is primarily due to the drop in new member commitments after 2001. From 1999 to 2001, these new members contributed their fair share to the NATO mission.

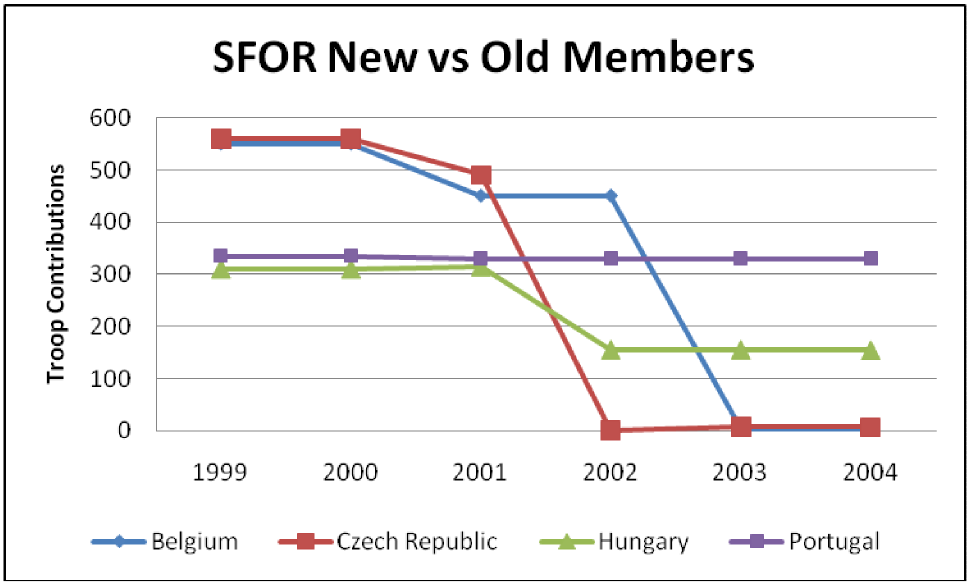

Figure 5.9: New vs. Old member troop contributions to SFOR[52]

The picture is different when comparing the largest state in the 1999 wave with an existing, NATO member (controlling for size). Poland consistently contributed less to the SFOR mission than Spain, despite the fact that these two nations had a comparable population size. On average, Poland provided 1.9% of the NATO force while comprising 4.4% to 5% of the combined NATO population. This commitment was significantly less than their fair share (as defined earlier) and less than the contributions of Spain. On average, Spain provided 6.5% of the NATO force while comprising 4.8% to 5% of the combined NATO population. This finding is consistent with the above and supports the third hypothesis that old members will share greater relative proportion of burdens than new members. However it could be that troop commitments to SFOR were constrained by concurrent commitments to the other NATO missions, such as Kosovo. If commitments to Kosovo were to blame for this drop in contributions to SFOR, there should be increased commitments from the 1999 wave to the KFOR mission in 2002. After summarizing the findings to this point, this chapter examines the relative contributions of the 1999 wave to the NATO mission in Kosovo.

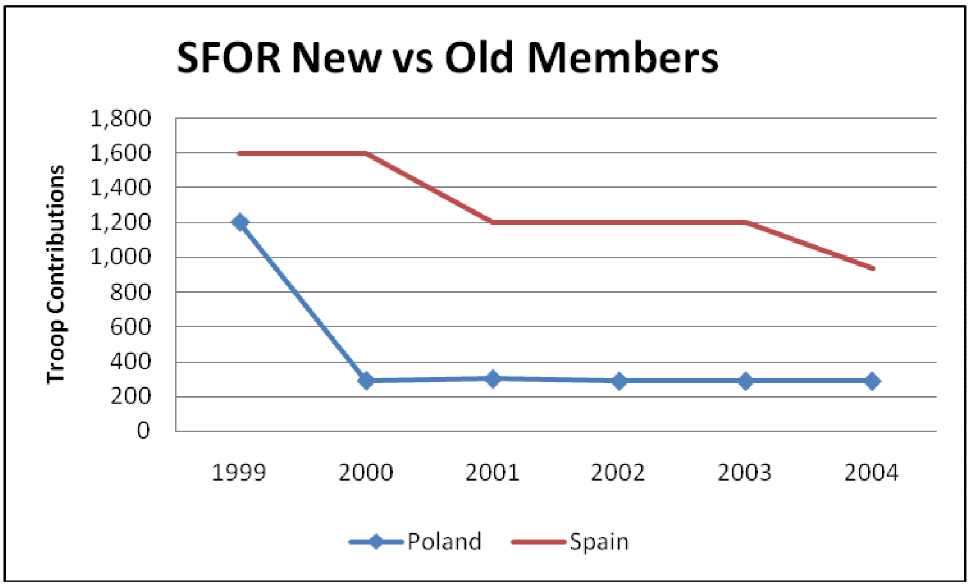

Figure 5.10: Poland vs. Spain troop contributions to SFOR[53]

The examination of NATO member contributions to the SFOR missions in Bosnia yielded the following findings (see Table 5.5). The results for the first hypothesis are mixed. If only considering air contributions and the Big 4 European NATO states until 2001, then it appears that large states shared a greater relative proportion of burdens than small states. However, this finding is not supported when looking at troop contributions, especially after 2001. In fact, the United States (the largest and most powerful member of the alliance) could be considered a free-rider if only looking at troops on the ground. In this mission, it appears that the United States bore the greatest burden in those areas where it had the advantage in military capabilities and were it had the political willingness to use those capabilities. Air capabilities are dependent upon both technical knowledge and economic strength. Therefore it is not surprising that the U.S. has an advantage here. The use of air power is also less hindered by domestic political constraints, than the use of ground forces.

Table 5.5: Findings from SFOR

		Contributions to SFOR
H1:	*Large states will share greater relative proportion of burdens than small states*	*Supported for Air and for Big 4 European NATO states till 2001; Not supported for U.S. troop contributions*
H2:	*New members will share greater relative proportion of burdens than old members*	*Not Supported*
H2a:	*New member burden-sharing declines after accession into NATO.*	*Supported for Poland and only after 2001 for CZ & HUN*
H3:	*Old members will share greater relative proportion of burdens than new members*	*Supported after 2001*
H4:	*Free-riding behavior should increase with NATO enlargement*	*Not Supported*

The findings also support the third hypothesis that old members will share greater relative proportion of burdens than new members. On average, the annual contributions by older NATO members exceeded those of new members of equal size. They also partially support the corollary hypothesis that new member burden-sharing would decline after accession into NATO. However, there was also a decline in contributions of older members during this period. The corollary hypothesis is challenged later when this project examines alternative explanations. One plausible explanation for the lower troop contributions from the new member states is the lack of interoperability and low military readiness of these former Warsaw Pact forces. Most new members entered the alliance with outdated Soviet equipment, Warsaw Pact operating procedures, and limited English skills. If capability is in fact the reason new members lag in troop contributions, versus the desire to *free ride*, this gap should close over time as new member capabilities increase. Another possible explanation is that these forces were shifted to support another NATO mission. Finally, the findings do not support the hypothesis that free-riding behavior should increase with NATO enlargement. If anything, the relative contribution of smaller states increased after enlargement.

Peacekeeping Missions: Kosovo

The next case study examines NATO's intervention into Kosovo. The Kosovo Force (KFOR) mission presented more problems for the alliance than SFOR, because it was conducted without a UN resolution. Many European countries felt that a UN resolution was necessary to legitimize the use of force. There was also greater domestic political opposition to the NATO mission in Kosovo. KFOR also took place in the same year that three new members were added to NATO. Given these greater problems, this should have led to greater free-riding behavior. This makes KFOR a good test case for the corollary hypothesis that new member burden-sharing would decline after accession into NATO, ceteris paribus. If however the second hypothesis holds true, new members should increase their troop contributions in order to demonstrate their credibility to NATO.

Large versus Small

As with Operations Deny Flight and Deliberate Force, the U.S. heavily supported NATO's air operations during the Kosovo crisis, Operation Allied Force. As with air operations in Bosnia, the U.S. provided the bulk of sophisticated military capabilities such as "stealth capabilities, precision-guided munitions, and sophisticated communications equipment." [54] The U.S. also provided the majority of the aircraft flown in support of Operation Allied Force, 63%. With only 48% of NATO's GDP, this level of contribution by the U.S. supports the hypothesis that large states will share greater relative proportion of burdens than small states.

Table 5.6: Initial Findings from KFOR air contributions

		Operation Allied Force
H1:	*Large states will share greater relative proportion of burdens than small states*	*Supported, for contributions to air operations.*

Like the NATO mission in Bosnia, the US and the Big 4 European states did not provide a relatively larger portion of the ground forces in KFOR. On average, these large states met but did not exceed their fair share of NATO forces (Figure 5.11). Between 2003 and 2004, the largest members of NATO did not even contribute their fair share. This finding contradicts the expectations of the first hypothesis that the troop contributions of the U.S. and the Big 4 European states to KFOR should be larger than the other NATO members because they have more to gain and lose from such missions. Nor do these results support the hypothesis that the level of free-riding should increase after NATO enlargement in 1999. However, as mentioned, there appeared to be an equalization of burdens after the second wave of NATO enlargement. As with the Bosnian case, these results could suggest that the U.S. was actually free-riding within NATO.

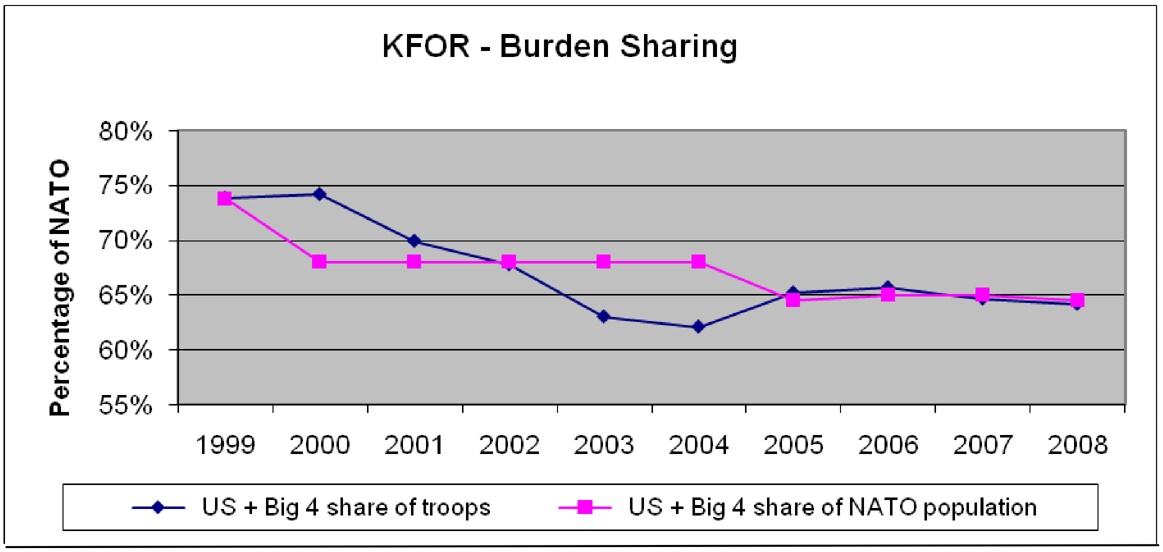

Figure 5.11: Relative U.S. & Big 4 European States' troop contributions to KFOR[55]

In order to check whether these results were due to U.S. or European free-riding, the contributions of the Big 4 European NATO states are analyzed separately (Figure 5.12). In looking at their contributions between 1999 and 2008, the contributions of the four largest members of NATO (less the U.S.) significantly exceeded their proportion of NATO population throughout the operation. These large states appeared to have shouldered their fair share of the burdens after both waves of enlargement in 1999 and 2004. These results suggest that the U.S. might have been free-riding. It could also be that European members were pursuing private benefits.[56] Certainly, the crisis in the Balkans had potentially greater externalities for European countries (such as migration, refugees, cross-border spillover of the conflict, and internal ethnic unrest) than it did for the United States. A statement by the German Secretary of Defense during this timeframe exemplified the European sentiment. “We want to do everything in our power to keep corpses from piling up in the Balkans and to ensure that there isn't a new stream of refugees into Europe."[57]

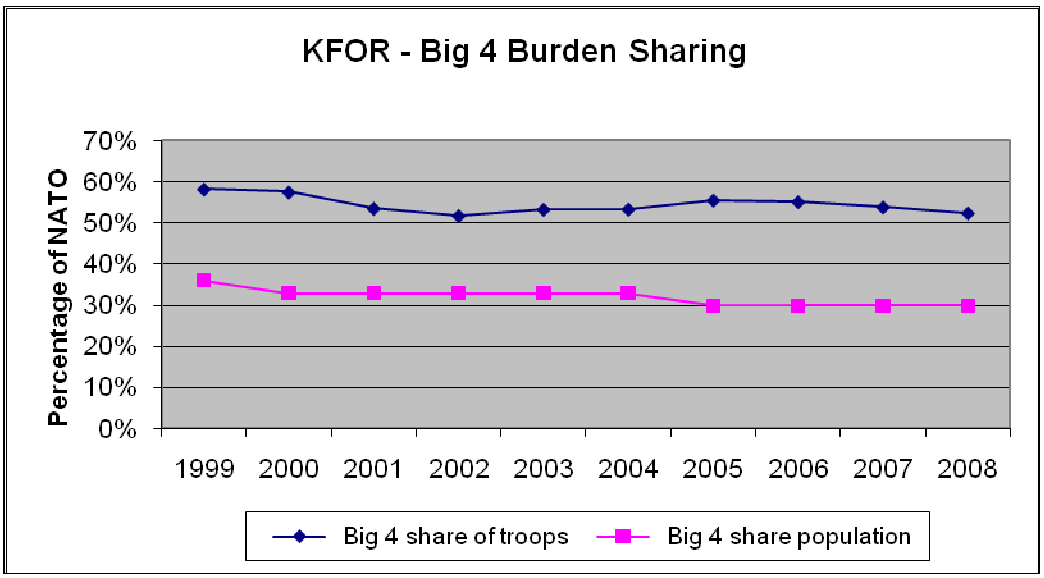

Figure 5.12: Relative Big 4 troop contributions to KFOR[58]

As with the Bosnian operation, the U.S. was reluctant to use ground forces in the Balkans. Even as late as April, 1999 the U.S. Secretary of Defense prohibited the SACEUR, General Wesley Clark, from discussing a ground option at a NATO summit. Secretary Cohen’s instructions to Clark were, “…nothing about ground forces. We have to make this air campaign work.”[59] During this same timeframe, the author was working with the ad hoc planning team developing potential ground options in Kosovo at SHAPE Headquarters in Mons, Belgium. The sentiment in the team wasn’t that the U.S. did not want to win or to do its fair share; rather, it was believed that the domestic political opinion did not support a heavy U.S. ground commitment. Even after the successful NATO intervention into Kosovo, the New York Times highlighted the reluctance to commit U.S. ground forces into the Balkans in 2000. "…The American contingent has shrunk, and the Europeans are bearing most of the burden. The United States peacekeeping force in Bosnia and Kosovo totals 11,400 troops…less than one-fifth of the 65,000-member NATO peacekeeping force in the region."[60]

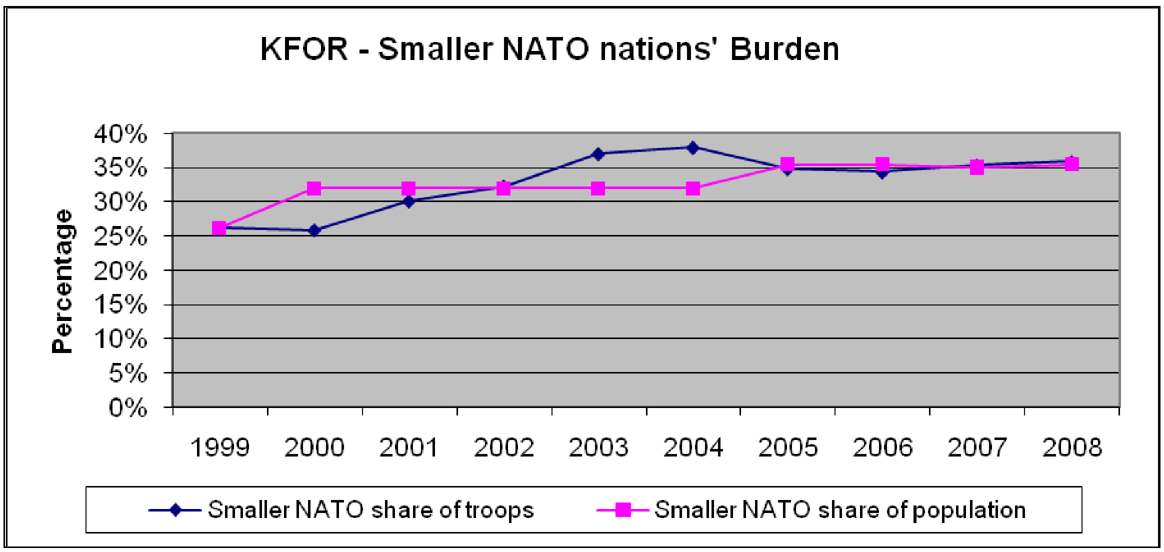

Figure 5.13: Relative small state troop contributions to KFOR[61]

Analysis of the contributions of smaller NATO states suggests that there was not an exploitation of the great by the small. On average, the smaller NATO states provided their fair share of the troops during the KFOR mission, 32%, which exactly corresponds to their proportion of the NATO combined population, 32%. While the contributions of smaller NATO states decreased after the first wave of enlargement in 1999, they increased significantly in 2003 when the U.S. began to pull its troops to support Operation Iraqi Freedom. These results reflect the dynamic nature of burden-sharing within the alliance, where other states often have to compensate for the domestic constraints of their allies and where allies tend to contribute according to their capabilities. For example, during operations in Kosovo, Greece was under intense domestic pressure and its contributions were constrained by negative public opinion during the campaign. While it did not participate in NATO air strikes, Greece did provide significant logistical support and facilitated the onward movement of NATO forces into Kosovo.

Impact of NATO expansion

If NATO expansion did increase free-riding behavior (H4), there should be decreased contributions of small countries relative to their percentage of population after NATO enlargement. In KFOR, the contribution of small NATO countries increased in almost every year following NATO expansion in 1999 (see Figure 5.13). In addition, while these contributions decline after 2004, they remain approximately at the same level as their percentage of NATO population. If the fourth hypothesis is correct, that free-riding behavior would increase after NATO enlargement, then the combined, relative contributions of the U.S. and Big 4 NATO countries should also increase after enlargement. As in SFOR, the combined, relative contribution of the U.S. and Big 4 NATO countries decreases in almost every year following NATO expansion in 1999 (see Figure 5.12). While the proportional contribution of the U.S. and Big 4 NATO countries increased after 2004, this is largely due to the reduction of the total force from approximately 20,000 to 18,000. In fact, none of these countries increased the actual number of troops committed after 2004. These findings suggest that NATO expansion did not lead to greater free-riding behavior in the alliance. During both NATO operations in Bosnia and Kosovo the Big 4 European countries and the smaller NATO states, on average, provided their share of troops to both of these missions. These results suggest that the first and fourth hypotheses were not supported.

Table 5.7: Initial Findings from KFOR case study

		Troop Contributions
H1:	*Large states will share greater relative proportion of burdens than small states*	*Not Supported for the U.S.; supported for the Big 4 NATO*
H4:	*Free-riding behavior should increase with NATO enlargement*	*Not Supported*

Decline of burden-sharing after accession

NATO's intervention into Kosovo began during the first year of NATO enlargement, 1999. In their first year of NATO membership, new member participation in KFOR comprised approximately 3.6% of the NATO force, similar to 4% level of contribution to SFOR in that year. There was no precipitous drop after membership; in fact relative contributions increased steadily beginning in 2002 and continuing through the next wave of NATO expansion in 2004. This indicates that the new members did not *free ride* at a greater rate after membership (H2a).

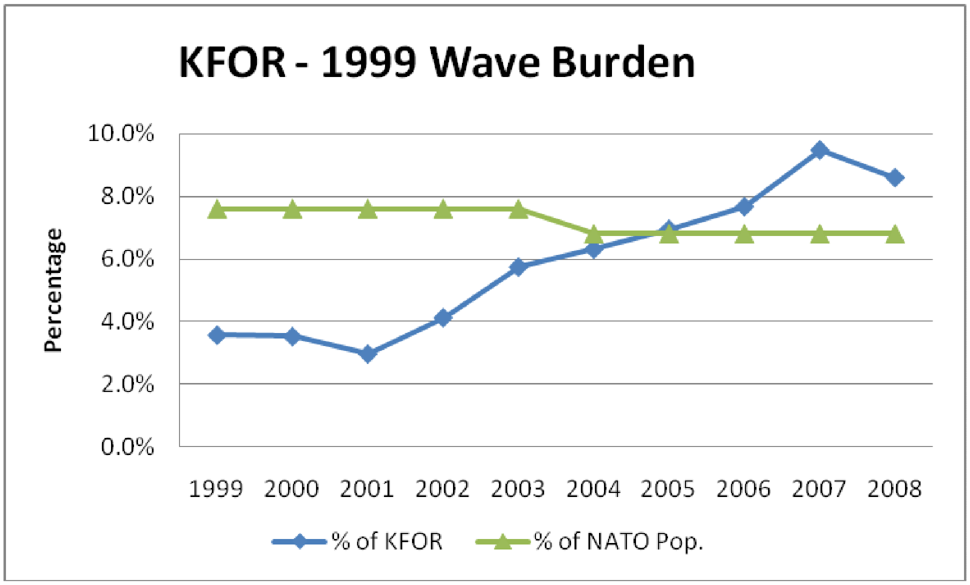

Figure 5.14: Relative new member troop contributions to KFOR[62]

It was only following the second wave of NATO enlargement in 2004 that the 1999 wave's relative contributions to KFOR exceeded their percentage of NATO population. In 2005 and 2006, their contributions to KFOR averaged 7.3% of the total NATO force while their percentage of NATO population had declined to 6.8%. This level of contribution represented an increase over the contributions made to SFOR and supports the argument that as capabilities of these new members increased, so did new member contributions to NATO missions. Not only did capabilities improve after enlargement, but also the desire to demonstrate credibility to the alliance continued even after the new members entered NATO. A statement made in 2001 by Hungary's Ambassador, Andras Simonyi, supports this conjecture that the new member states wanted to demonstrate their credibility to the alliance during the KFOR operations. "Hungary was also a brand new member that had to prove itself. But we also had to prove that enlargement was not a mistake, and that Hungary together with Poland and Czech Republic will not weaken the solidarity and cohesion of the Alliance."[63]

New versus Old

It is now necessary to examine the hypotheses about the contributions of individual new versus old members during KFOR. The results are similar when comparing dyads based on size (see Figure 5.15). While the Czech Republic and Hungary were consistently below the level of Belgium, their involvement actually increased over time after NATO membership in 1999 and surpassed the combined contribution of both Belgium and Portugal in 2006 (Figure 5.15). On average, the Czech Republic and Hungary provided 1.43% of the NATO force while each comprising 1.3% of the NATO population. This commitment was relatively less than the two existing NATO members, Belgium and Portugal, but represented a fair share of the NATO force. On average, Belgium and Portugal provided 1.92% of the NATO force while each comprising 1.2 to 1.3% of the NATO population. This finding suggests that old members shared a greater relative proportion of burden during KFOR than new members, even though the new members' percentage of the NATO force increased in every year after 2001 and surpassed that of Belgium and Portugal from 2006 to 2008. These findings suggest that new member contributions increased as military capability increased and domestic constraints waned.

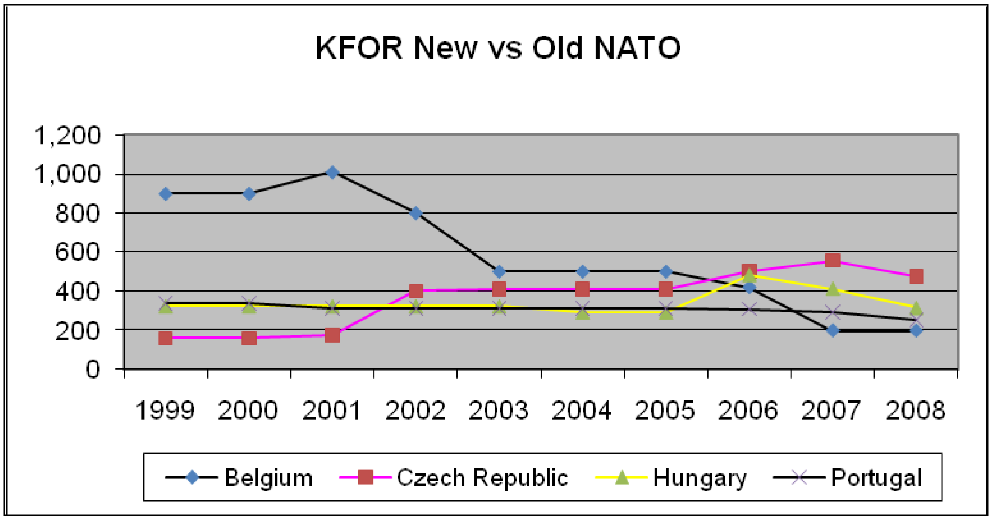

Figure 5.15: New vs. Old member troop contributions to KFOR[64]

Initially Hungary and the Czech Republic faced significant domestic political opposition to military action in Kosovo. Karel Kovanda, former head of the Czech delegation to NATO, explained some of the challenges faced by new NATO members. "The Kosovo campaign started twelve days after we became members of the alliance and I think the manner in which NATO makes its decisions took our politicians in Prague somewhat by surprise. And so, in the first days of the Kosovo campaign, our leadership found itself in two difficulties. One was the unfamiliarity with the decision-making process and the other difficulty was public opinion, which was reflected in the view of some of our politicians: public opinion, which for a variety of reasons, was staunchly against the bombing and in favor of Belgrade even if it was the Belgrade of a Milosevic."[65]

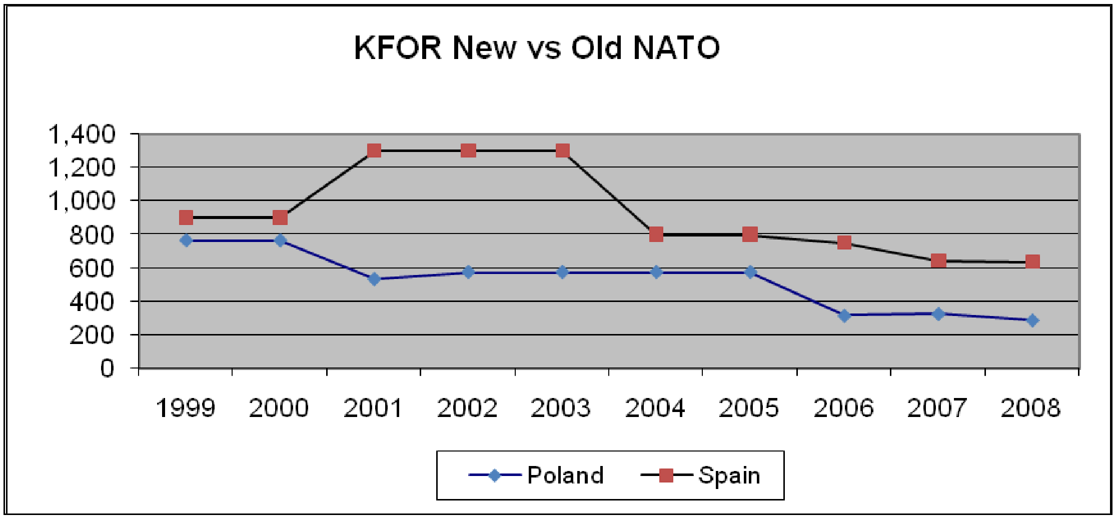

Figure 5.16: Poland vs. Spain troop contributions to KFOR[66]

The comparison between the two countries in the larger dyad is also of interest. Poland consistently contributed less to the SFOR mission than Spain, despite the fact that these two nations were comparable in population size. On average, Poland provided 2.3% of the NATO force while comprising more than 4.4% of the NATO population. This commitment was also relatively less than the existing NATO member, Spain. On average, Spain provided 3.9% of the NATO force while comprising 4.8% to 5% of the NATO population. It is interesting to note that Spain's contribution to KFOR spiked in 2001, after President Aznar was re-elected in 2000 with a majority government and began a gradual decline under the Zapatero regime. This suggests that although partisanship of the parties did not impact burden-sharing in the regression models in Chapter 3 and 4, different policy preferences of a new administration might.

These findings provide some support for the third hypothesis that old members share a greater relative proportion of burdens than new members. On average, the annual contributions by older NATO members exceeded those of new members of equal size. For example, Spain's contributions again exceeded those of Poland. Also, Belgium provided more troops than both the Czech Republic and Hungary through 2006. However, the Czech Republic contributed more troops than Portugal after 2001 and more than Belgium after 2006. In addition, Hungary's contributions equaled or exceeded those of Portugal throughout KFOR. The findings also refute the alternative explanation from the Bosnia case study which suggested that declining contributions to SFOR were attributable to a shift in forces from SFOR to KFOR. Only the Czech Republic increased it ground forces in KFOR in 2002, by 225 soldiers. Even in this case, the increased commitment to KFOR did not compensate for the reduction of their commitment to SFOR (from 490 to 0) in 2002. Troop levels for both Hungary and Poland remained relatively stable from 2001 to 2005. Thereafter, Hungary increased its commitment to KFOR while Poland decreased its commitment.

The examination of NATO member contributions to the KFOR mission in Kosovo yielded the following findings (see Table 5.8). The results for the first hypothesis are mixed. If only considering air contributions then it appears that large states shared a greater relative proportion of the burden than small states. The troop contributions of the Big 4 NATO states also support this finding. It appears that the difference in air power contributions is more a matter of capabilities rather than willingness to bear burdens. Capabilities are influenced not only by technical and economic strength, but also considering domestic political constraints. This finding is not supported when looking at U.S. troop contributions. In fact, the largest and most powerful member of the alliance could be considered a free-rider if only looking at troops committed. However, given the level of U.S. contributions to the air campaign this more accurately suggests a division of labor in NATO.

Table 5.8: Findings from KFOR case study

		Contributions to KFOR
H1:	*Large states will share greater relative proportion of burdens than small states*	*Supported for Air and for Big 4 European NATO states troops; Not supported for the U.S. troop contributions*
H2:	*New members will share greater relative proportion of burdens than old members*	*Not Supported*
H2a:	*New member burden-sharing declines after accession into NATO.*	*Not Supported, except for Poland*
H3:	*Old members will share greater relative proportion of burdens than new members*	*Supported using average annual contributions*
H4:	*Free-riding behavior should increase with NATO enlargement*	*Not Supported*

The findings also provide some support to the third hypothesis that old members will share greater relative proportion of burdens than new members. Yet, the findings do not support the corollary hypothesis that new member burden-sharing would decline after accession into NATO, except for Poland. On the contrary, contributions from both the Czech Republic and Hungary increased after attaining NATO membership. Finally, the findings do not support the hypothesis that free-riding behavior should increase with enlargement. On average, the relative contribution of smaller states increased after enlargement.

Peacekeeping Missions: Afghanistan

The NATO mission in Afghanistan represents an ideal case for free-riding behavior to occur. First, the International Security Assistance Force (ISAF) is NATO's first peacekeeping mission outside of Europe. Second, while the core mission consists of stability and reconstruction, NATO forces are also more or less involved in combat operations depending upon the location of the forces and the caveats imposed by their governments. These two factors place significant strains on NATO's cohesion and ability to field sufficient forces to accomplish the mission. In this regard, it should be difficult for NATO to overcome the rational incentives to *free ride* during ISAF. If free-riding were ever to occur, it should occur when the domestic political costs are high (due to potential casualties and lack of public support) and the potential benefits are hard to articulate (due to the distance from both Europe and North America and lack of clear connection to national interests).

The U.S.–led mission that deposed the Taliban government in Afghanistan was called Operation Enduring Freedom (OEF). OEF was launched in the aftermath of the attack by Al Qaeda on the United States on September 11, 2001. Beginning in October 2001, this operation was a largely U.S. operation with limited participation of coalition partners. OEF, in addition to its stabilization and reconstruction mission, has always had a combat component to conduct counter-insurgency operations against the Taliban and remnants of Al Qaeda. While NATO nations participated in these missions, OEF was not a NATO operation. The commitment of forces to the NATO mission in Afghanistan in 2003 certainly supported U.S. objectives under OEF. Therefore, the subsequent NATO mission in Afghanistan could be considered a joint product having both public benefits for NATO and private benefits for the United States. If this were true, then the U.S. would be expected to bear a larger proportion of the burdens in ISAF.

The International Security Assistance Force (ISAF) mission in Afghanistan was created under UN Security Council Resolutions 1386, 1413, and 1444. It was established in the aftermath of the invasion as a parallel mission to the on-going U.S. mission, OEF. While ISAF was initially led by successive NATO nations - the United Kingdom, Turkey, and Germany/Netherlands – the NATO alliance did not take responsibility for the mission until August 2003. [67] Once NATO took command of ISAF it began to gradually expand its role in Afghanistan. During Stage One of ISAF, NATO took control in the northern part of Afghanistan with predominantly French and German forces. The purpose of this mission was largely to provide security to the government in the capital of Kabul.[68] The mission later expanded with the deployment of provisional reconstructions teams (PRTs). These civil military teams were designed to help extend governance and reconstruction efforts. In Stage Two, NATO expanded into western Afghanistan under UN SCR 1623, with Italy and Spain providing the bulk of the forces. Both of these sectors were largely peaceful when NATO assumed control. This stage lasted from May

2005 until July 2006. [69] During this stage, the alliance members were largely in agreement as to the nature of the mission and the strategy to be employed by ISAF.

Starting in July 2006, Stage Three brought the deployment of NATO troops to southern Afghanistan, an area with significant Taliban activity and the focal point for OEF operations. U.S., British, Canadian and Dutch forces represented the largest contingent of the NATO force in southern Afghanistan. The beginning of Stage Three heralded a divergence of views within the alliance. While the allies agreed on the mission, they disagreed on the strategy to accomplish that mission. Many NATO nations imposed caveats on where and when their forces could be used. These restrictions not only hampered military effectiveness, but also caused considerable strain within the alliance. In September 2006, the NATO mission in Afghanistan was extended for one year by UN Security Council resolution 1707. Finally in Stage Four, NATO assumed control over the entire country in October 2006. In September 2007, the NATO mission in Afghanistan was again extended for one year by UN Security Council resolution (UNSCR) 1776. [70] This mandate was extended again in September 2008 with UNSCR 1833[71]. Over the past few years, the level of violence has increased considerably in Afghanistan. It is in this context that the ISAF mission is examined.

Large versus Small

In ISAF, the U.S. and the largest NATO nations consistently provided a relatively greater portion of the ground forces, especially after the mission was transferred to NATO in 2003 (Figure 5.17). Unlike either SFOR or KFOR, the Big 4 European NATO states consistently provided a smaller proportion of the NATO force relative to their proportion of the NATO population. There are several different rationales for this outcome. First, perhaps these states were attempting to *free ride* on the United States. This explanation is certainly in line with the logic of collective action. Second, it could be argued that European nations were still disenchanted with U.S. leadership in the aftermath of the Iraq War in 2003. A 2003 survey indicated that the Iraq war had "undermined America's standing with Europeans."[72] In addition, many allies felt slighted by the United States' earlier refusal to assign a larger role to NATO nations during the opening phase of the conflict with Afghanistan. Thus, this level of participation could be seen as a backlash for U.S. unilateralism.

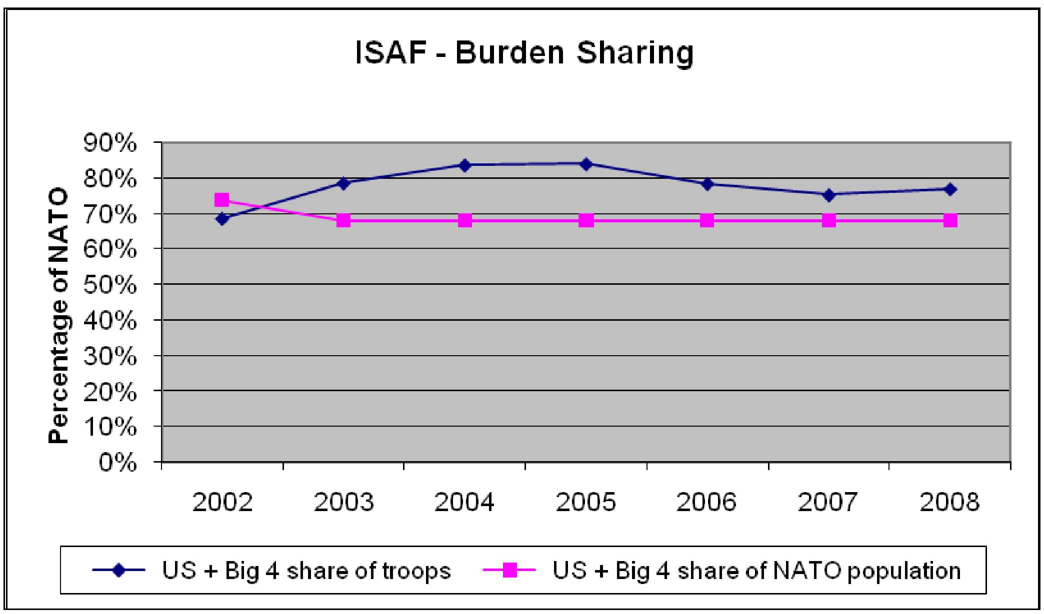

Figure 5.17: Relative U.S. troop contributions to ISAF[73]

A more persuasive argument is that the U.S. was pursuing private benefits during ISAF and that this accounts for the relatively smaller contributions of non-U.S. NATO allies.

However, separating public from private benefits is a difficult proposition. One indication that a country is pursuing a private benefit is when the expected benefits have "a direct link to self-interests and thus their high impact on individual states."[74] Certainly, a case could be made that ISAF had a clearer link to U.S. interests in the wake of the September 11th 2001 attacks than to NATO interests in general. Obviously, the impact of a resurgent Al-Qaeda within Afghanistan would have a greater impact on U.S. security and international prestige.

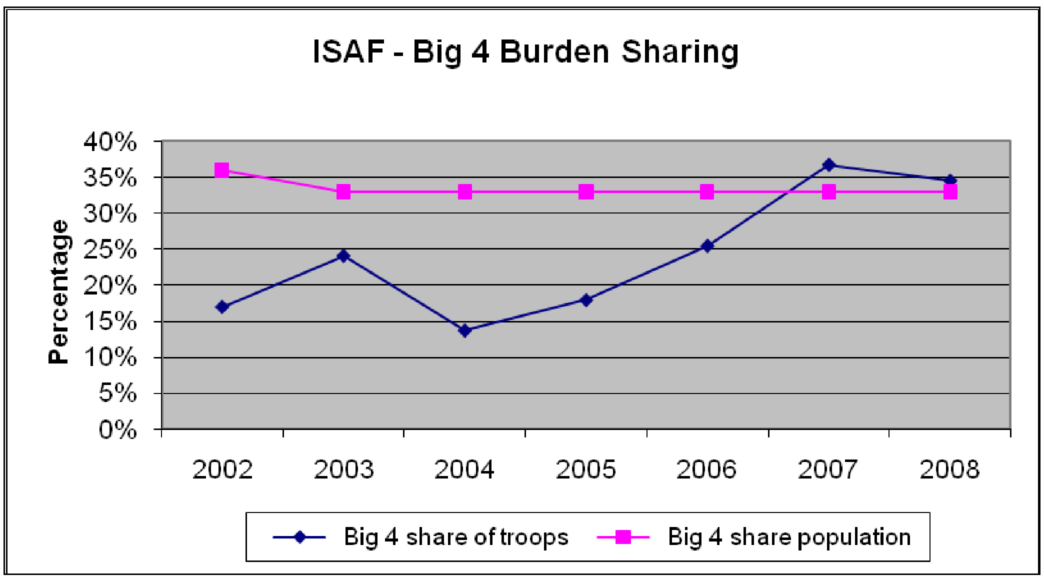

Figure 5.18: Relative Big 4 European States' troop contributions to ISAF[75]

Another indication that the U.S. was pursuing distinct private benefits is that NATO and the U.S. differed in the strategies employed during the mission. The U.S. viewed ISAF as a supporting operation to its more combat oriented mission in Afghanistan, Operation Enduring Freedom. OEF was initially designed to topple the Taliban regime and to attack Al Qaeda bases in Afghanistan. The OEF mission has since evolved into counter terrorism and bringing security to Afghanistan. The ISAF mission, while also committed to helping establish security and stability in Afghanistan, also focuses on reconstruction, economic development and the establishment of good governance. According to the former OEF Commander, Lieutenant General David Barno, NATO countries were pursuing different objectives in Afghanistan than the United States. "NATO was psychologically on a Peace Keeping Operation. It was very apparent that politically this was what they signed up for [peacekeeping operation]. NATO came in when Taliban was flat on its back and that was how the U.S. characterized the mission to NATO."[76]

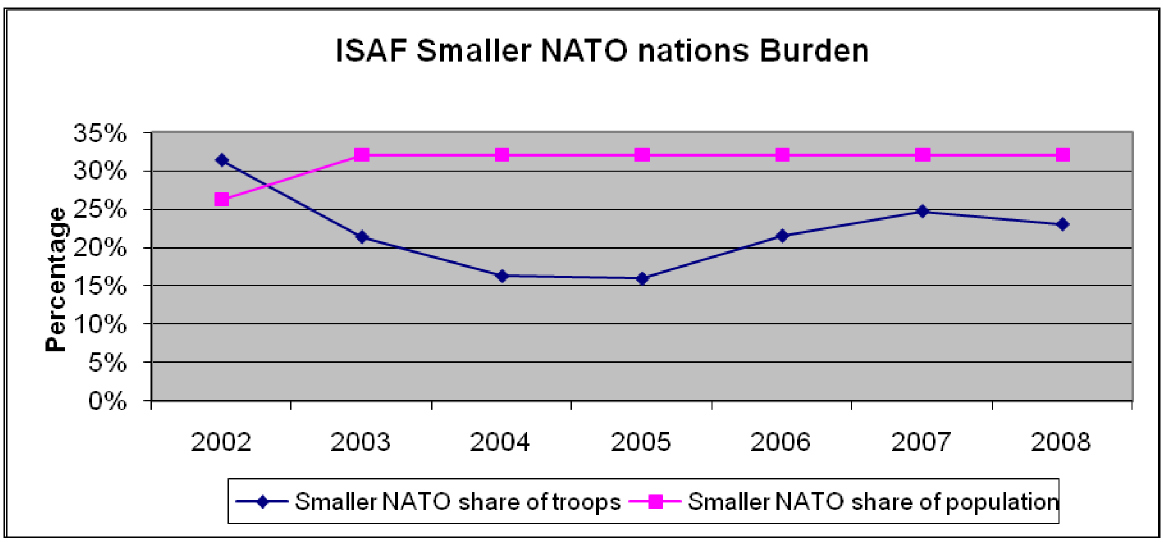

Figure 5.19: Relative small state troop contributions to ISAF[77]

Similarly, the smaller European states, on average, shouldered a smaller share of the burden than the U.S. and than their proportional share based on population (Figure 5.19). On average, the smaller NATO states provided less than their fair share of the troops during the ISAF mission, 19%, which is significantly below their proportion of the

NATO combined population, 32%. This result could be attributed to either free-riding behavior or to differing levels of private benefits perceived in the ISAF mission. As mentioned above, it was difficult for these smaller NATO countries to explain the security risk posed to their citizens from the Taliban and Al Qaeda in Afghanistan. There was also a great deal of debate within European nations as to the desirability and suitability of conducting combat operations in Afghanistan as the level of Taliban violence surged. A 2008 poll suggests that this divergence of interests continues today. While most NATO allies demonstrated strong support for the mission, only 43% of Europeans supported the conduct of combat operations compared to 76% of Americans.[78] This argument that the U.S. is pursuing private benefits is also supported by the fact that free-riding behavior did not occur during either SFOR or KFOR. Therefore, these findings only weakly support the first hypothesis that large states will share greater relative proportion of burdens than small states.

Table 5.9: Initial Findings from ISAF case study

		Troop Contributions
H1:	*Large states will share greater relative proportion of burdens than small states*	*Supported for the U.S. and for Big 4 European NATO states after 2006*

Impact of NATO expansion

Participation in ISAF before and after enlargement in 2004 can also be analyzed. If NATO expansion did increase free-riding behavior (H4), contributions of small countries should have decreased relative to their percentage of population after NATO enlargement. As in the previous NATO missions, the average contribution of small NATO countries increased following NATO expansion in 2004 (see Figure 5.19). It would also follow that the combined, relative contributions of the U.S. and Big 4 European NATO countries would increase after enlargement. While the combined, relative contribution of the U.S. and Big 4 European NATO countries increased slightly in 2005, it decreased on average following NATO expansion in 2004 (see Figure 5.17). The relative contributions of both the Big 4 European NATO states and the smaller European states, on average, increased after NATO enlargement in 2004. This result does not support the fourth hypothesis that free-riding behavior would increase with NATO enlargement. These initial results are summarized in the Table 5.10.

Table 5.10: Enlargement Findings from ISAF case study

		Troop Contributions
H4:	*Free-riding behavior should increase with NATO enlargement*	*Not Supported*

Decline of burden-sharing after accession

It is now necessary to examine the contributions of new members to ISAF. NATO's intervention into Afghanistan started in 2003. In the first year of ISAF under NATO command, the troop contributions of the 1999 wave comprised approximately

3.7% of the NATO force, similar to their level of contribution to KFOR in its first year. There was a drop in the percentage of the total NATO force contributed by the 1999 wave, down to 2.4%, coinciding with the second wave of recent NATO enlargement in 2004. However, this decline was attributable to a dramatic increase in U.S. contributions (which increased by over 113%), rather than increased free-riding. In fact, the combined contribution of the 1999 wave actually increased by 171 troops in 2003. While the contributions of the 1999 wave were consistently below their proportion of the NATO population, they did steadily increase after 2005 until 2008 when they were nearly equal to their percentage of population. This indicates that the new members did not *free ride* at a greater rate after membership (H2a).

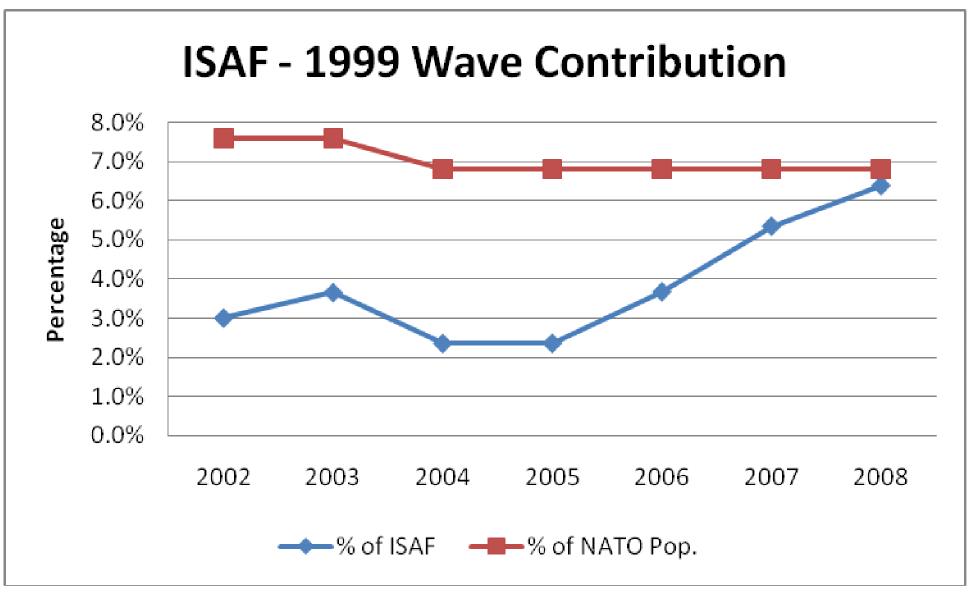

Figure 5.20: Relative new member troop contributions to ISAF[79]

In order to check the hypothesis concerning new member burden-sharing after enlargement, it is necessary to examine the contributions of the 2004 wave of new NATO members. If this hypothesis were correct, the level of contributions for these members should decline after NATO membership was attained in 2004. However, the findings do not support this hypothesis (see Figure 5.21).   As was the case earlier, the relative contribution of new members increased after they became NATO members. This indicates that the new members did not *free ride* at a greater rate after membership (H2a).   Rather these findings support the alternative explanation that troop contributions increased as capability increased and that new member burden-sharing was more an issue of capability than willingness to contribute.   In a 2007 interview by the author, the Supreme Allied Commander Europe, General John Craddock supported this assessment. "By and large new members are carrying their weight, although they have limited capabilities. Some good examples are Czech Republic, Estonia, Lithuania, Poland, and Romania."[80]

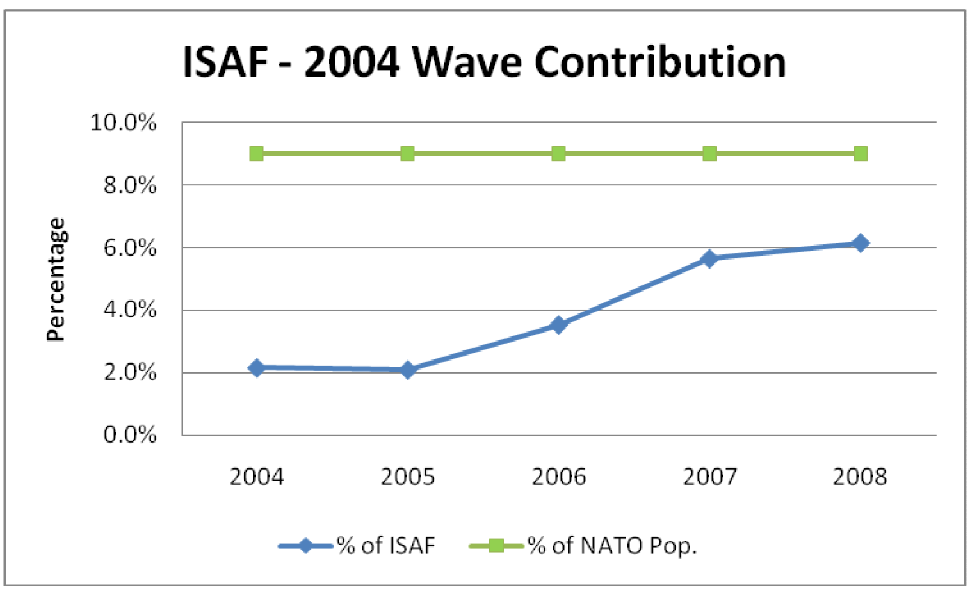

Figure 5.21: Relative 2004 Wave contributions to ISAF[81]

New versus Old

The results are different when comparing new versus old members using dyads based on size. Troop contributions by the Czech Republic and Hungary were consistently at or above the level of troops contributed by Belgium and Portugal (Figure 27). The Czech Republic, on average, contributed about 1.5% of the NATO force while comprising between 1.2% and 1.3% of NATO's population. Hungary contributed a much smaller proportion of the NATO force, on average 0.4%, but its contributions exceeded those of Portugal. This suggests that new members were burden-sharing at a greater rate than existing NATO members. As the U.S. Ambassador to NATO recently stated, "we have been impressed by the commitment of all our new Allies to bring as much as they can to the table. Some countries are really punching above their weight class, like Lithuania, which runs its own Provincial Reconstruction team in Ghor Province in Afghanistan."[82]

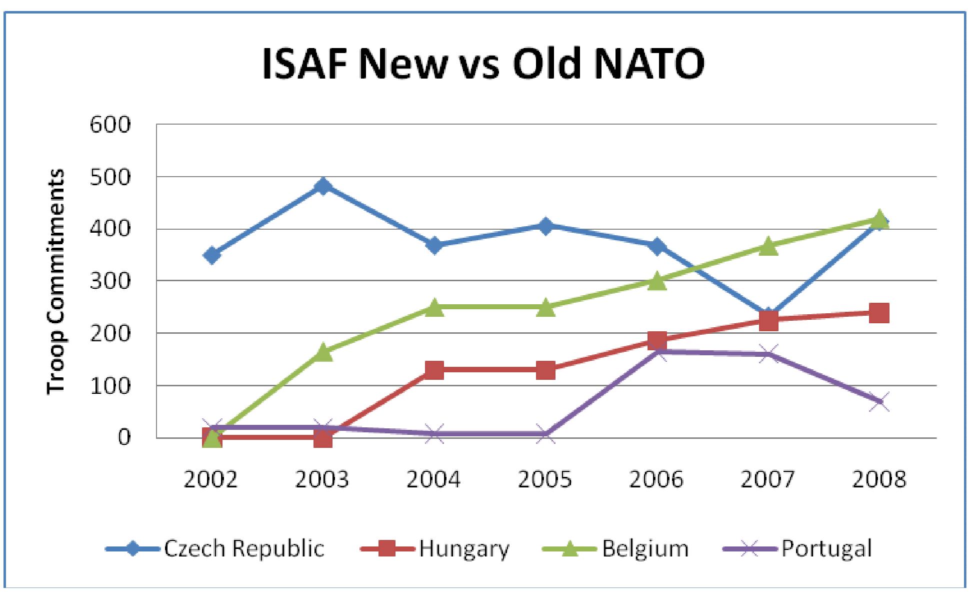

Figure 5.22: New vs. Old member troop contributions to ISAF[83]

Yet the findings differ when comparing the larger states (Poland and Spain). In the next chart, Poland initially appears to *free ride* more than Spain in contributions to ISAF (Figure 5.23). On average, Poland contributed less than 1% to the NATO force between 2003 and 2006. However, Poland increased its contribution substantially between 2006 and 2008, in response to a SACEUR request for additional NATO troops. Many other states did not provide additional troops. However, Poland increased its contributions to 1,200 troops in 2008 and this number is expected to increase to 1,600, which would equal approximately 3% of the NATO forces in ISAF.[84]

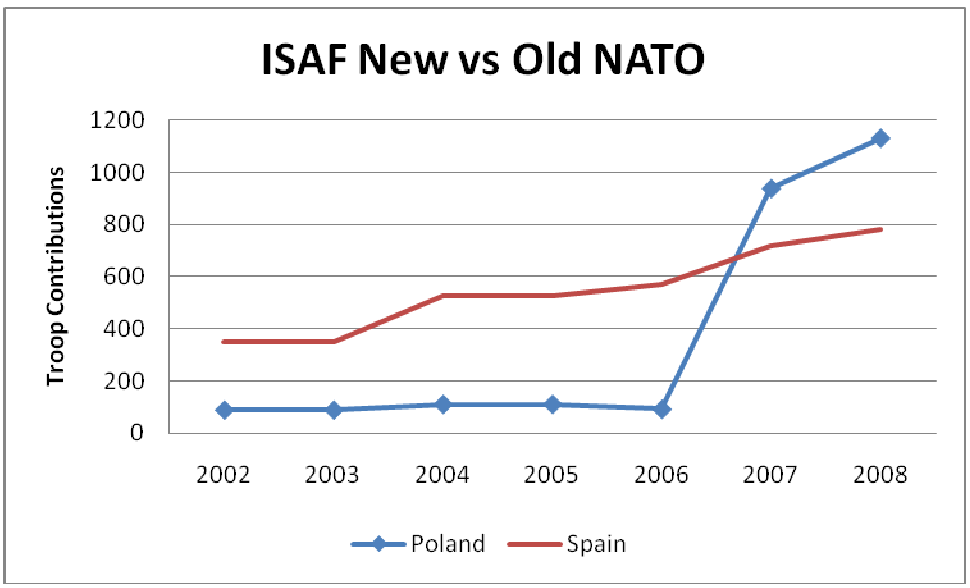

Figure 5.23: Poland vs. Spain troop contributions to ISAF[85]

In addition, Poland has committed to providing eight badly needed helicopters in support of ISAF, with the first two arriving in August 2008.[86] While Poland's initial level of contributions to ISAF might suggest free-riding behavior, an alternative explanation is that contributions by Poland and the other new members were constrained by commitments to the U.S. led operation in Iraq, Operation Iraqi Freedom. That explanation is examined in the next section.

The analysis of NATO member contributions to the ISAF mission in Afghanistan yielded the following findings (see Table 5.11). The results for the first hypothesis are mixed. If referring to the largest NATO member, the results support the hypothesis that large states will share greater relative proportion of burdens than small states. However, this may be attributable to the U.S. pursuing private benefits. This finding is not supported when looking at the Big 4 non-U.S. countries. Unlike SFOR and KFOR, the largest and most powerful member of the alliance shouldered more than its fair share of the ground forces in ISAF.

Table 5.11: Findings from ISAF

		Contributions to ISAF
H1:	*Large states will share greater relative proportion of burdens than small states*	*Supported for the U.S. and for Big 4 European NATO states after 2006*
H2:	*New members will share greater relative proportion of burdens than old members*	*Supported, especially after 2006*
H2a:	*New member burden-sharing declines after accession into NATO.*	*Not Supported*
H3:	*Old members will share greater relative proportion of burdens than new members*	*Not Supported*
H4:	*Free-riding behavior should increase with NATO enlargement*	*Not Supported*

The findings support the second hypothesis that new members will share a greater relative proportion of burdens than old members. The troop contributions for the Czech Republic and Hungary exceeded those of older members (controlling for size) for most of this period. The same is true for Poland during the last two years of ISAF. The average annual contributions of the 1999 wave are roughly equal to those of the comparable older members. Thus the findings do not support the third hypothesis that old members will share greater relative proportion of burdens than new members. Finally, the findings do not support the hypothesis that free-riding behavior should increase with NATO enlargement. Again, the relative contribution of both the Big 4 European and smaller states increased after enlargement in 2004. These findings for ISAF are summarized in the Table 5.11. The next step is to look at the impact of OIF on contributions to ISAF.

The pursuit of private goods: Operation Iraqi Freedom

The relatively strong support of ISAF by the 1999 new members is even more remarkable considering the competing demands for their forces during this period. While their level of contribution to ISAF never met their percentage of NATO population, this may have been due to their strong support of the U.S. led Operation Iraqi Freedom (OIF). Certainly OIF was a controversial operation within the alliance. New members were under conflicting pressures and unlike the previous NATO missions, there was no clear cut definition of appropriate behavior. In fact, President Chirac suggested in

2003 that East European support of U.S. policies in Iraq were counter to what Europe expected from its new members and could jeopardize their membership in the European Union.[87] An analysis of the contributions by new member states suggests that they were pursuing private benefits, the demonstration of credibility to the U.S., during OIF. According to Sandler and Hartley, "private or ally-specific benefits occur when a jointly produced defense output assists the provider, but the output's benefits are not received by other allies."[88] This would certainly be a good characterization of support to OIF.

Operation Iraqi Freedom began in 2003 with the invasion of Iraq to topple the regime of Saddam Hussein. While many NATO members participated in the Multinational Forces in Iraq, OIF was not a NATO mission. In fact, there was considerable disagreement and dissention among the allies brought about by the invasion. As an indication of the level of disagreement, the U.S. Secretary of Defense Donald Rumsfeld derided two staunch NATO allies, Germany and France, as members of "old Europe" for their lack of support for OIF. However, new NATO members took advantage of this situation to establish their reliability to the leader of NATO, the United States. "Germany has been a problem, and France has been a problem," said Rumsfeld, a former NATO ambassador. "But you look at vast numbers of other countries in Europe. They're not with France and Germany on this; they're with the United States." [89]

In evaluating new member participation in OIF, the relative contributions of new members were compared to the contributions of non-U.S. NATO members. The U.S. contributions were excluded since the U.S. appeared to be pursuing significant private benefits in this mission. This ratio was then compared to the 1999 wave's percentage of the total NATO population. In this U.S.-led mission, OIF, the combined contributions of the three new NATO members (the Czech Republic, Hungary, and Poland) exceeded their percentage of non-US NATO population in every year examined. From 2003 to 2007, their combined contributions to OIF averaged 14% of the total non-U.S. force coming from NATO nations, while their percentage of the NATO population decreased from 7.8% to 6.8%. This level of contribution represented an increase over the contributions made to both SFOR and KFOR, which were NATO missions. This finding suggests that new members were trying to build credibility with the U.S. by providing a greater level of support to Operation Iraqi Freedom.

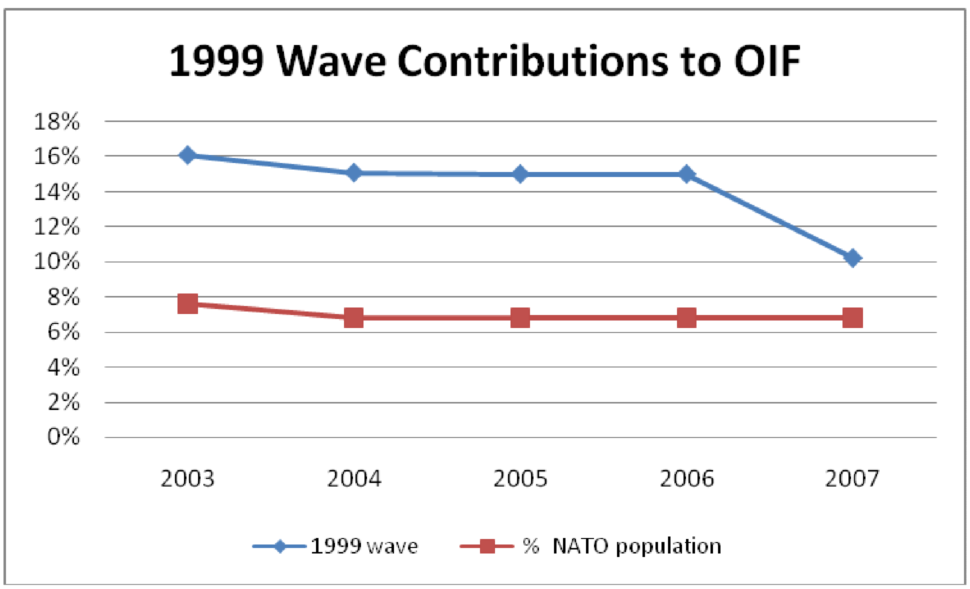

Figure 5.24: Relative 1999 Wave contributions to OIF[90]

This level of contribution to OIF might also explain the shortfalls in contributions to the NATO mission in ISAF. Had the OIF contributions over and above the percentage of

NATO population been added to the NATO force in ISAF, the troop contributions of the three new members would have exceeded their population levels from 2003 onward. From 2002 until 2006, the average contribution to ISAF would have been 10.8% versus their 6.8% of NATO population. This finding supports the alternative explanation that new members were not necessarily free-riding during ISAF, but perhaps seeking credibility with the U.S. by providing a greater level of support to Operation Iraqi Freedom.

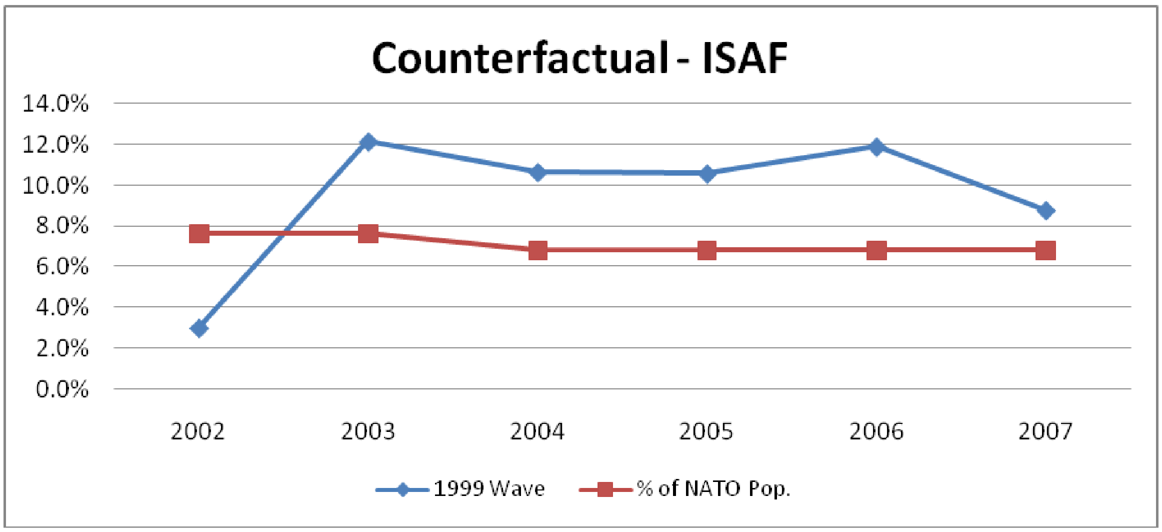

Figure 5.25: Counterfactual 1999 Wave contributions to ISAF[91]

New versus Old

The results are similar when comparing dyads based on size. On average, Portugal's contribution to OIF was consistently less than both the Czech Republic and Hungary, and ended in 2005. Belgium did not even contribute troops to OIF. This finding does not necessarily indicate free-riding by the older members of NATO. After all, many NATO countries including Belgium were opposed to the Iraq war. Rather, this finding suggests that new members were pursuing a private benefit in their level of support for OIF and this may have affected their level of support to KFOR and ISAF post-2002.

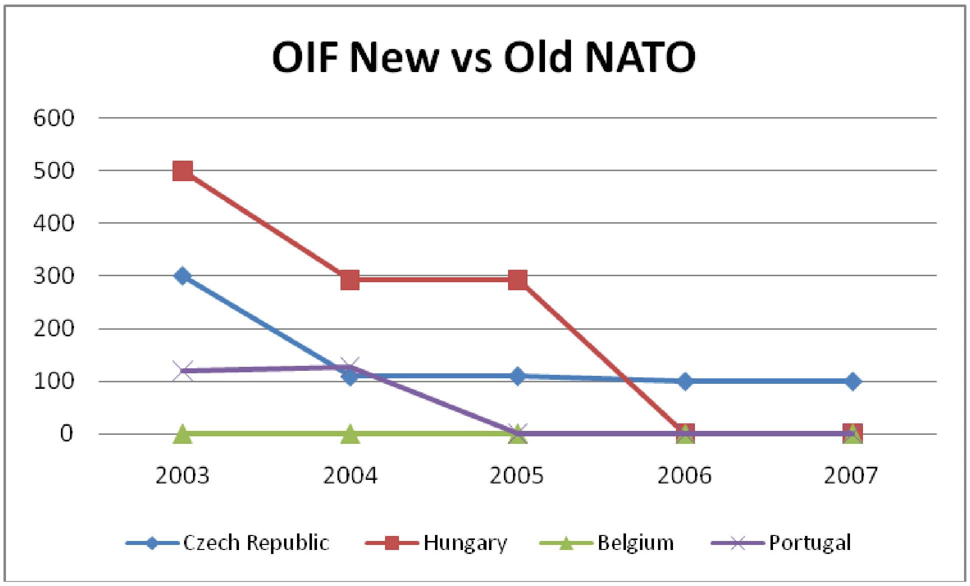

Figure 5.26: New vs. Old member troop contributions to OIF[92]

The results are similar when comparing the two medium-sized countries. Throughout this period, Spain's contribution to OIF was consistently less than Poland's. In addition, Spain discontinued their contributions to OIF in the wake of the Madrid bombings and the change of government in 2004. Again, this finding does not indicate free-riding by Spain, but rather the pursuit of private benefits by Poland, namely credibility with the United States. Poland's significant contribution to OIF certainly constrained its ability to provide additional forces for the NATO mission in KFOR and ISAF. During the first three years of Operation Iraqi Freedom, Poland was one of the largest troop contributors (over 2,000 troops) to the Multinational Forces in Iraq. While Poland decreased its force size to 900, these forces remained in OIF until October 2008. While this mission represented a significant cost to Poland, OIF provided political capital and enhanced the practical experience of Poland's military forces.[93]

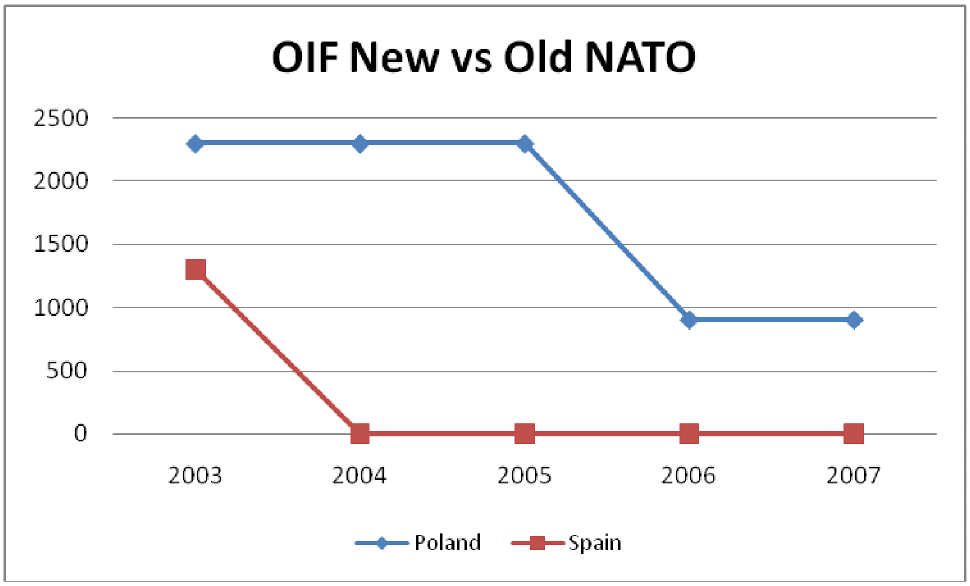

Figure 5.27: Poland vs. Spain troop contributions to OIF[94]

These results help to better understand the findings from ISAF concerning the contributions of the 1999 new NATO members. These findings also weaken the evidence for the third hypothesis that old members will share greater relative proportion of burdens than new members. Results from ISAF represent a marked difference from the findings in SFOR and KFOR. These findings support the conjecture that the indications of free-riding by new members were actually a lack of capability to contribute versus a lack of will to contribute to NATO missions. In each subsequent mission, the contribution of new NATO members increased relative to older NATO members. The next chapter covers this increased commitment in greater detail.

A summary of the findings concerning the contributions to all three NATO peacekeeping missions is listed in Table 5.12. The results for the first hypothesis are mixed. There is support for hypothesis that the largest states of the alliance will share greater relative burdens in peacekeeping missions under two conditions. First, this is true when talking about providing air support, where the U.S. and large NATO allies have a comparative advantage in capabilities. Second, this appears to be true when the large states are pursuing private benefits (U.S. in Afghanistan; Big 4 European nations in Bosnia/Kosovo). However, when smaller states are pursuing private benefits such as credibility (especially with the U.S.) or fulfilling their commitments to the NATO Response Force, they tended to provide an equal or greater proportion of ground forces than their larger NATO allies.

The results for the second and third hypotheses are mixed. During Bosnia and Kosovo, older member states on average provided greater troop contributions than new NATO members. This finding generally reflects a lack of military capability by new members immediately after accession into NATO. However, in ISAF as in OIF, the new member contributions from the 1999 wave equaled or exceeded those of similar sized older NATO members. The increasing level of relative contributions by new members over time suggests that the earlier disparity was more likely caused by capability shortfalls rather than deliberate free-riding behavior. This will be examined further in the next chapter. The findings did not support the corollary hypothesis that new member burden-sharing would decline after accession into NATO, except during SFOR. Rather, the contributions of the new members, on average, increased over time after gaining membership.

Table 5.12: Summary of Findings from Peacekeeping Missions

		SFOR	KFOR	ISAF
H1:	*Large states will share greater relative proportion of burdens than small states*	*Supported for Air and for Big 4 European troop contributions till 2001; Not supported for the U.S. or for the Big 4 after 2001*	*Supported for Air and for Big 4 European troop contributions; Not supported for the U.S. troop contributions*	*Supported for the U.S. and for Big 4 European NATO states after2006*
H2:	*New members will share greater relative proportion of burdens than old members*	*Not Supported*	*Not Supported*	*Supported*
H2a:	*New member burden-sharing declines after accession into NATO.*	*Supported for Poland and for CZ & HUN after 2001*	*Not Supported (except for Poland)*	*Not Supported*
H3:	*Old members will share greater relative proportion of burdens than new members*	*Supported*	*Supported*	*Not Supported*
H4:	*Free-riding behavior should increase with NATO enlargement*	*Not Supported*	*Not Supported*	*Not Supported*

Finally, the results did not support the fourth hypothesis that free-riding behavior would increase with NATO enlargement. In both Bosnia and Kosovo, the average troop contributions of small states equaled or exceeded their percentage of population. While this was not the case in Afghanistan, this was largely due to the delayed and initially limited role of NATO during the earlier years of operations in Afghanistan. The United States wanted to be free from alliance constraints during Operation Enduring Freedom.

These results also reflect a division of labor agreed upon during NATO force planning and generation processes. These agreements are made to the mutual benefit of all allies. Similar to the economic concept of comparative advantage, all allies benefit from this division of labor by reducing their opportunity costs for redundant military capability. Smaller NATO states have a comparative advantage in conventional or niche troops, whereas large NATO states have a comparative advantage in high technology weapons.

Review of Findings of last three Chapters

In reviewing the results from the last three chapters, there are several interesting general findings (see Table 5.13). First, it is difficult to demonstrate that the logic of collective action holds in every case. The nature of the alliance "products" pursued (public, impure public, or private) are important, albeit difficult to categorize precisely. The results also vary between measures used and by the strategic context under which burden-sharing was examined. Where there were private benefits or disagreements over the strategy and the nature of the mission, it seems that free-riding behavior increased. There are several circumstances or conditions that mitigate the rational incentives for NATO members to *free ride.* States are more willing to contribute to alliance missions when they are given incentives or side-payments, such as command positions. Since NATO traditionally assigns higher-level commands based on the level of troop contributions, this can mitigate the incentives for free-riding. In addition, states attempting to establish credibility with the leader of the alliance, the U.S., are also more likely to prioritize their contributions to missions led by the U.S. over their contributions to other NATO missions. Finally, when states are pursuing private benefits, it may be more difficult to distinguish free-riding behavior.

Second, there is a difference between the willingness to contribute and the capability to contribute to NATO public goods. The results consistently support the first hypothesis that large states will share greater relative proportion of burdens than small states, when looking at air power and high tech capabilities. It is difficult for smaller states to maintain the full range of these capabilities. In fact, NATO encourages member states to develop niche capabilities, (nuclear, biological, and chemical defense and detection; counter-mine; medical) and discourages the development of certain capabilities, such as air superiority and nuclear weapons. Since high tech capabilities tend to cost more than conventional forces, it is no surprise that large NATO states, on average, devote a greater percentage of their GDP to military expenditures.

The results generally support the first hypothesis, though with some caveats. Whether looking at inputs (defense expenditures as a percentage of GDP) or outputs (air and troop contributions to NATO missions) there is some support for the hypothesis that the largest states of the alliance will share a greater relative burden. However, there were some surprising findings in this area. First, the wealthiest NATO states did not necessarily have the highest defense expenditures as a percentage of GDP. Second, the United States, as the largest and wealthiest NATO state, did not always contribute its fair share of troops to NATO missions. Much depended upon the perceived private benefits and risks associated with a particular mission. There also appeared to be a division of labor in NATO where the U.S. and large NATO allies contributed a greater percentage of air capabilities, an area where they have a comparative advantage.

There is mixed results for the hypothesis that new members will share greater relative proportion of burdens than old members. Certainly, new members fared better in trying to meet NATO's spending targets. This was largely because of the need to modernize their armed forces and their willingness to develop compatible NATO capabilities. In regards to troop contributions to NATO missions, it appears that as their capabilities and levels of interoperability increased, new member states have been more willing to take on additional responsibility and burdens. This is also supported by the fact that new member contributions to NATO missions generally increased after gaining membership and after the 2004 wave of NATO expansion. This is studied in greater detail in the next chapter.

There are also mixed results for the third hypothesis that old members will share greater relative proportion of burdens than new members. As the age of membership increases, the willingness of states to meet the NATO's spending targets tends to decrease, on average. While average annual contributions to NATO peacekeeping missions exceeded those of new members in two of the four cases examined, old members fell behind new members during the most recent missions, including the last few years of KFOR and the ISAF mission.

Table 5.13: Summary of Findings from Chapters 4 & 5

		Military Expenditures	***Humanitarian Operations***	***Peacekeeping Operations***
H1:	*Large states will share greater relative proportion of burdens than small states*	*Supported, if size is measured by population or area; Mixed results using GDP categories*	*Supported for air operations and bi-lateral U.S. troop contributions. Not supported for troop contributions to the NRF mission.*	*Supported for Air and for troops when states are pursuing private goods*
H2:	*New members will share greater relative proportion of burdens than old members*	*Supported*	*Supported for CZ & HUN*	*Mixed result; Supported for ISAF*
H2a:	*New member burden-sharing declines after accession into NATO.*	*Not Supported*	*Not tested*	*Mixed results; Supported for SFOR; Not supported KFOR/ISAF*
H3:	*Old members will share greater relative proportion of burdens than new members*	*Not Supported*	*Supported for Spain as the NRF 5 leader*	*Mixed result; Supported SFOR/KFOR*
H4:	*Free-riding behavior should increase with NATO enlargement*	*Mixed Results*	*Not tested*	*Not Supported*

Finally, the findings linking enlargement and free-riding are mixed. When looking at NATO’s 2% benchmark, the results support the hypothesis that free-riding behavior increased with NATO enlargement. However, these results could be epiphenomenal. Perhaps there were other economic or geopolitical reasons for these trends. As mentioned earlier, the findings from the three peacekeeping missions do not support the hypothesis that free-riding behavior increased with NATO enlargement. The results also bring out the necessary distinction between willingness and capability to contribute.

[1] Victoria Nuland (U.S. Ambassador to NATO), "Ambassador Discusses Security Issues on Eve of NATO Ministerial," (webchat on 5 December 2007), http://www.america.gov/st/washfile-english/2007/December/20071205163651eaifas0.8371393.html (accessed on 27 February 2008).

[2] Claudio Bisogneiro (Deputy Secretary General of NATO) interviewed by author, 31 January 2008, NATO Headquarters, Brussels, Belgium.

[3] Peter K. Forster and Stephen J. Cimbala. *The US, NATO and Military Burden-Sharing* (New York: Frank Cass, 2005), 121-127.

[4] Jamie Shea (Director of Policy Planning) interviewed by author, 31 January 2008, NATO Headquarters, Brussels, Belgium.

[5] John R. Oneal and Mark A. Elrod, "NATO Burden Sharing and the Forces of Change," *International Studies Quarterly* 33 (1989). See also Keith Hartley and Todd Sandler, *The Political Economy of NATO* (New York: Cambridge University Press, 1999).

[6] Judith Kelley, "International Actors on the Domestic Scene: Membership Conditionality and Socialization by International Institutions," *International Organization* 58 (2004).

[7] Peter K. Forster and Stephen J. Cimbala. *The US, NATO and Military Burden-Sharing* (New York: Frank Cass, 2005), 164.

[8] Colonel (Ret.) Steven Mirr (former military aide to General Jones and Director of the Defense Operations Division, U.S. Delegation to NATO); based on interviews conducted on 31 January 2008 at NATO Headquarters, Brussels, Belgium .

[9] NATO Public Diplomacy Division, *NATO Handbook* (Brussels, Belgium: NATO, 2006), 297.

[10] Joseph Lepgold, "NATO's Post-Cold War Collective Action Problem," *International Security* 23, no.1 (Summer, 1998), 82.

[11] NATO Euro-Atlantic Disaster Response Coordination Center (EADRCC), Daily Situation Reports, *Earthquake Pakistan, Final Situation Report No. 23* (Brussels, Belgium: NATO, 15 Feb. 2006). http://www.nato.int/eadrcc/2005/pakistan/060215-final.pdf (accessed on 25 March, 2009)

[12] NATO Allied Command Operations, "The NATO Response Force," http://www.nato.int/shape/issues/shape_nrf/nrf_intro.htm.(accessed 21 September 2008).

[13] NATO Allied Command Operations, "NATO Response Force Q & A's." http://www.nato.int/shape/issues/shape_nrf/nrf_q_a.htm (accessed 21 September 2008).

[14] NATO Allied Command Operations, "NATO Launches Response Force," 15 October 2003, http://www.nato.int/shape/news/2003/10/i031015.htm (accessed 27 January 2009).

[15] Ibid.

[16] NATO Allied Command Operations, "NATO Response Force Continues Relief Effort," *SHAPE News*, 6 September 2005, http://www.nato.int/SHAPE/news/2005/09/050914a.htm (accessed 23 October 2008).

[17] NATO Allied Command Operations, "The Last NATO Cargo shipment arrived in the United States," *SHAPE News*, 4 October 2005, http://www.nato.int/SHAPE/news/2005/10/051005b.htm (accessed 23 October 2008).

[18] Islamic Republic News Agency (IRNA), "Pakistan: Italian engineers to join NATO forces in Kashmir," available on *Relief Web*, 2 December 2005, http://www.reliefweb.int/rw/rwb.nsf/db900sid/VBOL-6JPE8W?OpenDocument (accessed 25 March 2009).

[19] NATO Allied Command Operations, "The NATO Response Force."

[20] NATO Allied Command Operations, "NATO Disaster Relief Operation in Pakistan," 28 February 2006, http://www.nato.int/shape/news/2005/pakistan_trifold.htm (accessed 21 September 2008),

[21] UK Ministry of Defence, "Pakistan Earthquake Relief Operations: MOD Assistance Provided to the Relief Effort," fact sheet, undated, http://www.mod.uk/DefenceInternet/FactSheets/OperationsFactsheets/PakistanEarthquakeReliefOperationsModAssistanceProvidedToTheReliefEffort.htm. (accessed 21 September 2008),

[22] U.S. Department of State, Office of the Spokesman, "U.S. Response to Pakistan's Earthquake Disaster," 9 November 2005, http://www.state.gov/r/pa/prs/ps/2005/56703.htm (accessed 21 September 2008).

[23] NATO Allied Command Operations, "All NATO countries contribute to Pakistan Relief," 28 February 2006, http://www.nato.int/shape/news/2005/pakistan_contributions.htm (accessed 21 September 2008).

[24] See Jaap de Hoop Scheffer, "Statement by the Secretary General on enhanced NATO assistance for Pakistan," NATO Press Release 2005(134), 21 October 2005,

http://www.nato.int/docu/pr/2005/p05-134e.htm (accessed September 21, 2008); and Vince Crawley, "NATO Faces Challenge in Pakistan Earthquake Response," (U.S. Department of State: Bureau of International Information Programs, The Washington File16, November 2005), http://www.globalsecurity.org/military/library/news/2005/11/mil-051116-usia03.htm (accessed September 21, 2008). Also see: U.S. Department of State, Office of the Spokesman, "U.S. Response To Pakistan's Earthquake Disaster," 19 November 2005, http://2001-2009.state.gov/r/pa/prs/ps/2005/57154.htm (accessed 21 September 2008)

[25] Vince Crawley, "NATO Faces Challenge in Pakistan Earthquake Response," (U.S. Department of State: Bureau of International Information Programs, The Washington File,16 November 2005), http://www.globalsecurity.org/military/library/news/2005/11/mil-051116-usia03.htm (accessed September 21, 2008)..

[26] See Vince Crawley, "NATO Faces Challenge in Pakistan Earthquake Response," (U.S. Department of State: Bureau of International Information Programs, The Washington File,16 November 2005), http://www.globalsecurity.org/military/library/news/2005/11/mil-051116-usia03.htm (accessed September 21, 2008). See also, U.S. Department of State, Office of the Spokesman, "U.S. Response to Pakistan's Earthquake Disaster," 19 November 2005, http://2001-2009.state.gov/r/pa/prs/ps/2005/57154.htm
(accessed 21 September 2008, document no longer available).

[27] See NATO Allied Command Operations, "NATO Disaster Relief Operation in Pakistan" and IRNA, 28 Feb 06, "Pakistan: Italian engineers to join NATO forces in Kashmir."

[28] NATO Allied Command Operations, "NATO Disaster Relief Operation in Pakistan."

[29] Joseph Lepgold, "NATO's Post-Cold War Collective Action Problem," *International Security* 23, no. 1 (Summer 1998): 79.

[30] "Misiones Internacionales," *Revista Espanola de Defensa* ano 18, no. 214 (December 2005): 18-20.

[31] Czech Ministry of Defense, "MOD History of Czech Military Operations Abroad (1990-2007)," 3 July 2008 http://www.army.cz/scripts/detail.php?id=5717 (accessed 21 September 2008). Also see Sergeant Claude Flowers, "CENTCOM Public Affairs 2006-07-27," (Ministry of National Defense, Republic of Poland.,27 July 2006), http://www.mon.gov.pl/en/artykul/2100 (accessed 18 January 2008).

[32] NATO EADRCC, *Earthquake Pakistan.*

[33] See Czech Ministry of Defense, "MOD History of Czech Military Operations Abroad (1990-2007)" and Sergeant Claude Flowers, "CENTCOM Public Affairs 2006-07-27."

[34] Ibid.; also see "Misiones Internacionales," *Revista Espanola de Defensa*, 18-20.

[35] William R. Gates and Katsuaki L. Terasawa, "Reconsidering Publicness in Alliance Defence Expenditures: NATO Expansion and Burden Sharing," *Journal of Defence and Peace Economics* (October 2003): 373.

[36] Lepgold, "NATO's Post-Cold War Collective Action Problem," 83.

[37] Ibid., 85.

[38] Peter K.Forster and Stephen J. Cimbala. *The US, NATO and Military Burden-Sharing.* New York: Frank Cass, 2005, 121-126.

[39] Michael R. Gordon, "The 2000 Campaign: The Military; Bush would stop U.S. Peacekeeping in Balkan Fights," *The New York Times*, 21 Oct 2000, http://query.nytimes.com/gst/fullpage.html?res=9C07E4DE1E3EF932A15753C1A9669C8B63&sec=&spon=&pagewanted=3 (accessed 18 January 2008),

[40] AFSOUTH, "SFOR Air Component," AFSOUTH Fact Sheets, NATO, 18 August 2003,. http://www.afsouth.nato.int/factsheets/SFORAirComponent.htm (accessed on 7 January 2008).

[41] Ibid.

[42] AFSOUTH, "Operation Deliberate Force," AFSOUTH Fact Sheets, NATO, 18 August 2003, http://www.afsouth.nato.int/factsheets/DeliberateForceFactSheet.htm (accessed on 7 January 2008).

[43] AFSOUTH, "Operation Deny Flight," AFSOUTH Fact Sheets, NATO, 18 July 2003, http://www.afsouth.nato.int/operations/denyflight/DenyFlightFactSheet.htm (accessed on 7 January 2008).

[44] AFSOUTH, "SFOR Air Component."

[45] International Monetary Fund, "Reports for Selected Countries and Subjects," *World Economic Outlook Database*, (April 2008), http://www.imf.org/external/data.htm (accessed 5 November 2008).

[46] Gordon, "The 2000 Campaign."

[47] SFOR, “History of the NATO-led Stabilisation Force (SFOR) in Bosnia and Herzegovina,” NATO, undated, http://www.nato.int/sfor/docu/d981116a.htm. (accessed 5 July 2008).

[48] International Institute for Strategic Studies (1999-2005), *The Military Balance* (London: International Institute for Strategic Studies).

[49] Ibid.,

[50] Ibid.,

[51] Ibid.,

[52] Ibid.,

[53] Ibid.,

[54] Congressional Budget Office, “NATO Burden sharing after Enlargement,” Congress of the United States, August 2001, , http://www.cbo.gov/showdoc.cfm?index=2976&sequence=2&from=0 (accessed 13 November 2006).

[55] See International Institute for Strategic Studies (1999-2005), *The Military Balance*. For contributing nations and troop numbers, see Kosovo Force (KFOR) NATO graphic available at http://www.nato.int/kfor/structur/nations/placemap/kfor_placemat.pdf (accessed 21 September 2008).

[56] Peter K.Forster and Stephen J. Cimbala. *The US, NATO and Military Burden-Sharing.*

[57] Nina Werkhäuser, “Ten Years On, Germany Looks Back at Return to War in Kosovo,” *Deutsche Welte*, March 24 2009, http://www.dwworld.de/dw/article/0,,4123734,00.html?maca=en-rss-en-all-1573-rdf (accessed 24 March 2009).

[58] Ibid.

[59] General Wesley K. Clark, “Waging Modern War,” *Public Affairs* (2001),.269.

[60] Gordon, “The 2000 Campaign.”

[61] See International Institute for Strategic Studies (1999-2005), *The Military Balance*. For contributing nations and troop numbers, see KFOR NATO graphic.

[62] Ibid.,

63 Ambassador Andras Simonyi, “Hungary in NATO—after two years of membership,” speech to NATO, 2001, http://www.atlanticcommunity.org/Hungary%20in%20NATO.html (accessed 5 December 2006).

[64] See International Institute for Strategic Studies (1999-2005), *The Military Balance*. For contributing nations and troop numbers, see KFOR NATO graphic.

[65] Dita Asiedu, “NATO’s six years of dramatic change—how has the Czech Republic fared?,” *Český rozhlas 7* (Radio Praha, 11 March 2005), http://www.radio.cz/en/article/64286 (accessed 25 March 2009).

[66] See International Institute for Strategic Studies (1999-2005), *The Military Balance*. For contributing nations and troop numbers, see KFOR NATO graphic.

[67] NATO, *NATO Handbook*, (Brussels, Belgium: 2006),155.

[68] Ryan C. Hendrickson, “The Miscalculation of NATO’s Death,” *Parameters*, (Spring 2007), 105.

[69] Paul Gallis, “NATO in Afghanistan: A Test of the Transatlantic Alliance,” *Congressional Research Service*, 16 July 2007, p. CRS-3.

[70] United Nations, *United Nations Security Council Resolution 1776 (2007)* (New York: 19 September] 2007). Available online at http://www.nato.int/isaf/topics/mandate/unscr/resolution_1776.pdf (accessed 22 October 2008).

[71] United Nations, *United Nations Security Council Resolution 1833 (2008)* (New York: 22 September 2008). Available online at http://www.nato.int/isaf/topics/mandate/unscr/resolution_1833.pdf (accessed 22 October 2008).

[72] German Marshall Fund of the United States and the Compagnia di San Paolo, “Transatlantic Trends 2003: Key Findings,” 2003, http://www.transatlantictrends.org/trends/doc/2003_english_key.pdf (accessed 25 March 2009).

[73] International Institute for Strategic Studies (2004-2008), *The Military Balance* (London: International Institute for Strategic Studies). For contributing nations and troop numbers, see NATO, ISAF “International Security Assistance Force and Afghan National Army strength & laydown” (2006-2008), http://www.nato.int/isaf/docu/epub/pdf/isaf_placemat.pdf (accessed 21 September 2008).

[74] Forster and Cimbala, *The U.S., NATO and Military Burden Sharing*, 123.

[75] International Institute for Strategic Studies (2004-2008), *The Military Balance* For contributing nations and troop numbers, see NATO, ISAF "International Security Assistance Force and Afghan National Army strength & laydown."

[76] Lieutenant General (Retired) David W. Barno (former Commander, Operation Enduring Freedom and Director, NESA Center at National Defense University); interview by author at Carlisle Barracks on 25 January 2008.

[77] International Institute for Strategic Studies (2004-2008), *The Military Balance;* For contributing nations and troop numbers, see NATO, ISAF "International Security Assistance Force and Afghan National Army strength & laydown."

[78] "Transatlantic public opinion survey shows support for NATO rising," *NATO News*, 11 September 2008, http://www.nato.int/docu/update/2008/09-september/e0911c.html (accessed 21September 2008).

[79] International Institute for Strategic Studies (2004-2008), *The Military Balance* For contributing nations and troop numbers, see NATO, ISAF "International Security Assistance Force and Afghan National Army strength & laydown."

[80] General John Craddock (Supreme Allied Commander Europe) interview by author, SHAPE Headquarters, Mons, Belgium, 1 February 2008.

[81] International Institute for Strategic Studies (2004-2008), *The Military Balance* For contributing nations and troop numbers, see NATO, ISAF "International Security Assistance Force and Afghan National Army strength & laydown."

[82] Ambassador Nuland "Ambassador Discusses Security Issues on Eve of NATO Ministerial."

[83] International Institute for Strategic Studies (2004-2008), *The Military Balance* For contributing nations and troop numbers, see NATO, ISAF "International Security Assistance Force and Afghan National Army strength & laydown."

[84] Polish Press Agency, "Polish premier starts visit to Afghanistan," 22 August 2008. available at U.S. Open Source Center https://www.opensource.gov (accessed 4 November 2008).

[85] International Institute for Strategic Studies (2004-2008), *The Military Balance* For contributing nations and troop numbers, see NATO, ISAF "International Security Assistance Force and Afghan National Army strength & laydown."

[86] Polish Press Agency, "Poland sends first two helicopters for Afghan contingent," 4 August 2008, available at U.S. Open Source Center, https://www.opensource.gov (accessed 4 November 2008).

[87] Craig S. Smith, "Threats and Responses: Brussels; Chirac Scolding Angers Nations that Back U.S.," *The New York Times*, 19 February 2003, http://query.nytimes.com/gst/fullpage.html?res=9E01E2DC173DF93AA25751C0A9659C8B63&sec=&spon=&pagewanted=1 (accessed 7 November 2008).

[88] Todd Sandler, and Keith Hartley, *The Political Economy of NATO* (Cambridge University Press: Cambridge, 1999), 35

[89] John Hooper and Ian Black, "Anger at Rumsfeld attack on 'old Europe'," *The Guardian*, 24 January 2003, http://www.guardian.co.uk/world/2003/jan/24/germany.france (accessed 16 January 2009).

[90] International Institute for Strategic Studies (2002-2008), *The Military Balance* (London: International Institute for Strategic Studies); Global Security.org, "Iraq Coalition Troops, February 2007," http://www.globalsecurity.org/military/ops/iraq_orbat_coalition.htm (accessed 21 September 2008)

[91] International Institute for Strategic Studies (2004-2008), *The Military Balance* For contributing nations and troop numbers, see NATO, ISAF "International Security Assistance Force and Afghan National Army strength & laydown."

[92] International Institute for Strategic Studies (2002-2008), *The Military Balance*; Global Security.org, "Iraq Coalition Troops, February 2007."

[93] "Poland Withdraws Troops from Iraq," *The Warsaw Voice Online*, October 6 2008, http://www.warsawvoice.pl/newsX.php/6999/2549017099/printVer/ (accessed 7 October 2008).

[94] International Institute for Strategic Studies (2002-2008), *The Military Balance*; Global Security.org, "Iraq Coalition Troops, February 2007."

CHAPTER 6

UNDERSTANDING BURDEN-SHARING BEHAVIOR: CONSEQUENCES VERSUS APPROPRIATENESS AND WILLINGNESS VERSUS CAPABILITY

Addressing unanswered questions

New members are generally doing well. However it is difficult to characterize them as a group because they comprise a variety of states with unique institutions, capabilities, and history.

General Sir John McColl, Deputy Supreme Allied Commander Europe [1]

There remain two outstanding issues in this project: why burden-sharing decisions are made and the difference between capability and willingness. To this point, this project has not analyzed the rationale behind burden-sharing decisions. The logic of collective action, which dominates the burden-sharing literature, assumes that states are rational, egoistic actors. This would suggest that burden-sharing can be explained on a cost versus benefit basis. However, there are other plausible theoretical explanations for burden-sharing behavior. This chapter examines these explanations to better understand the logic(s) behind burden-sharing behavior. Not surprisingly, the discourse used by NATO members and officials suggests that multiple, possibly contending logics influence burden-sharing decisions making it difficult to adjudicate between a rational choice and sociological explanation. The findings suggest that while rational motivations (such as concerns over credibility and side payments) may drive burden-sharing decisions, they are often supported using arguments based on identity. This is consistent with results from Judith Kelley's 2004 study of European Institutions that found that socialization efforts often guided rational decisions,.[2]

The last chapter also suggested that burden-sharing performance might result from a lack of capability versus a lack of political will. In this chapter, this distinction is examined further using both interviews and case studies of new NATO members. The findings suggest that new members had the political will to bear their fair share of NATO burdens, however often lacked the capability to fully contribute. This was especially true immediately after accession into NATO. The results also indicate that, contrary to hypothesis H2a, new member contributions have risen over time as their capabilities catch up with their willingness to contribute. In fact, this increased burden-sharing occurred in the face of significant fiscal, physical and political constraints which are also discussed.

Research Design

The chapter is divided into three main sections. The first section begins with a review of the non-collective action, theoretical basis for burden-sharing: credibility and appropriateness. These concepts provide the framework for the remaining sections and guides the direction of the interviews covered in the next section. Standardized open-ended interviews of NATO and NATO member officials are analyzed to get a qualitative assessment of burden-sharing. This section looks at the rhetoric used by NATO members and officials to explain burden-sharing behavior. It examines how elites from NATO and NATO member states assess the burden-sharing behavior of new members. This analysis provides clues as to whether or not rational incentives to *free ride* faced by the new members are mitigated by the desire to prove their credibility, by their desire to do what is right, or a combination of the two logics. These questions fit nicely within the literature concerning the logic of consequences versus the logics of appropriateness as discussed in detail by scholars in the rational choice and constructivist schools of international relations.[3] The findings also lend credence to the assessments made in the previous chapters that new members were burden-sharing within their capabilities.

This chapter concludes with a series of short case studies examining burden-sharing behavior of individual new members in the context of their individual domestic and strategic environments. This section begins with a brief discussion of the difference between capability and willingness, borrowing insights from the field of psychology. It is followed by a discussion of the strategic environment in which burden-sharing decisions are made. The section then looks at the possible motivations and constraints in making burden-sharing decisions about military expenditures and troop commitments to NATO missions. The emphasis is on the 1999 wave of new NATO members, although two member states from the 2004 round of enlargement are also examined. The cases were selected to give variation on two key independent variables: length of membership and size.

Methodology

Up to this point, this project has used quantitative methods to explain burden-sharing behavior in NATO. This chapter focuses on qualitative methods. The first method uses standardized open-ended interviews in looking at burden-sharing discourse. This format was chosen to increase the reliability of the findings by asking the same basic questions in each interview. These interviews were conducted with the primary stakeholders in the burden-sharing decisions: political and military elites from NATO Headquarters and senior military officials from NATO member countries.

Two different social settings were selected for these interviews. The first set of interviews took place at the National Defense University in Washington, D.C. and the US Army War College in Carlisle, Pennsylvania. In this social setting, these NATO officers represent a minority. Most of the officers in this setting are U.S. officers and the curriculum is founded on U.S. military doctrine, norms and procedures. Many of these officers have recently returned from deployments in either Iraq or Afghanistan or both. In this setting, officers from new NATO countries might feel compelled to justify the contributions of their states to NATO and the War on Terrorism. Therefore, it would be expected that credibility should be more prevalent in the discourse given in this social setting.

The second set of interviews was conducted at NATO Headquarters (Brussels, Belgium) and Supreme Headquarters Allied Powers Europe Headquarters (Mons, Belgium). In these institutional settings, the effects of institutional socialization are most likely to be present, and therefore discourse indicating the logic of appropriateness should be more prevalent. The political and military elites interviewed come from the International Staff (including the Deputy Secretary General) and the Supreme Headquarters Allied Powers Europe (SHAPE), including the Supreme Allied Commander Europe (SACEUR) and the Deputy Supreme Allied Commander Europe (DSACEUR). These officials are filling NATO billets and therefore are supposed to pursue alliance collective interests over national interests. The senior military officials come from the National Military Representatives of NATO members at SHAPE Headquarters. Those officers interviewed are filling national positions (pursuing national interests) but are operating in a NATO headquarters where NATO norms and procedures are prevalent. As much as possible, the interviews were conducted with members from the same NATO countries in both settings. The number of interviews was limited by resources (the amount of time and money available) and the composition of the student body at the National and Army War Colleges.

The second qualitative method in this chapter utilizes case studies to systematically analyze important burden-sharing variables and outcomes. The case studies are developed around the framework of the original hypotheses and relevant independent variables derived from the theories already discussed. The case studies also provide historical context for burden-sharing behavior examined in previous chapters. The case studies begin with a brief overview of the new member's history prior to joining NATO. This includes a brief review of the pre-accession processes these states underwent prior to gaining membership in NATO and the EU. This section also reviews the decision-making processes for military expenditures and the commitment of forces to NATO missions.

Each case study looks at the physical and economic constraints facing each country. These include, but are not limited to, the key variables discussed in Chapters 3 and 4: GDP, population, and geographic size, GDP growth, and threat. The case studies also examine additional fiscal and political constraints. In the face of these factors, the case studies analyze the performance of these countries on our two measures of burden-sharing: defense expenditures and troop contributions. Most of the data comes from government sources and international organizations such as the OECD, IMF, and NATO.

The first three countries examined are the new member states from the 1999 wave of NATO enlargement (Poland, the Czech Republic, and Hungary). These states were selected to be consistent with the previous chapters. In these case studies, the length of membership is the same and the population size varies. All three of these members also underwent a much less rigorous accession review and a less formal socialization process prior to becoming members of NATO. Therefore, if socialization is the driving factor behind equitable burden-sharing behavior, then these states should be more prone to free-riding behavior. The last two cases differ from the first three in that they examine two of the seven 2004 new NATO members: Romania and Estonia. These states were chosen among the other 2004 members because they represent the largest and smallest new members in that wave. They also represent one of the wealthiest (Estonia) and one of the poorest (Romania) new members. If our findings from the last chapter are correct, then Romania should share a greater proportion of the burdens than a much smaller Estonia. In addition, these states should be less prone to free-riding due to the more extensive and prolonged socialization process under the Membership Action Plan (MAP). This set of cases allows for variation on the dependent variables: defense expenditures and troop contributions.

The case studies examine the unique histories and context within which burden-sharing decisions are made by each country. The logic of collective action explains burden-sharing solely in terms of outcome. Under this logic, free-riding behavior is a rational choice to minimize costs for alliance members. However, burden-sharing behavior is a function of two components: willingness to burden share and capability to burden share. The logic of collective action assumes that new members consciously decide to *free ride*. However, it is possible that what looks like free-riding behavior is actually a lack of capability. If limited military capability is the cause of free-riding behavior examined in the last chapters, burden-sharing should increase as capability increases. These case studies look at maximum annual contributions to NATO missions as proxy measures for "deployability" and average annual contributions to NATO missions as proxy measures for "sustainability." If capability is a limiting factor on burden-sharing, then the observable implication is that these measures of contributions should increase over time as new members increase the number of deployable and sustainable land forces. For example, as new members improve interoperability with NATO and progress in their professionalization and modernization programs, their contributions to NATO missions should also increase. This chapter measures the willingness to contribute by looking at expenditures and troop contributions made in the face of economic or political constraints that should incentivize free-riding behavior.

A Rational Choice Examination of Findings

The rational choice explanation for continued burden-sharing by new members of NATO after accession emphasizes the benefits of maintaining a reputation as a credible partner. Certainly, members join and remain in NATO for both the tangible and the intangible benefits of being in a powerful alliance. With a combined population of almost 880 million and a combined GDP of $28.5 trillion,[4] NATO membership offers a degree of physical and psychological security to its member states. The rational benefits of being in an alliance have also been studied in International Relations theory. In his game-theoretic study of alliances, Alastair Smith found that defensive alliances deterred aggression. The more reliable the alliance was, the greater the deterrent effect it had. In his words, "nations form alliances because it improves the outcomes they expect to receive."[5] Certainly, this concern for physical and psychological security is influential in burden-sharing decisions. As the current Romanian President said in a recent interview, "with the accession to NATO the Romanians felt safe...NATO meant the beginning of our road to prosperity."[6]

Fear of Abandonment

Another plausible rational explanation of burden-sharing behavior by new member states is that their calculations are conditioned by their history. Most of the new member states of NATO were previously occupied by Soviet troops following World War II and consequently a fear that Russia might try to reassert itself especially in former Warsaw Pact countries. These states also have a historic and deep seated fear of abandonment by the west. Certainly there is a historic legacy in states such as the Czech Republic whose sovereignty was sacrificed to appeasement policies prior to World War II and Poland which was left alone to face the onslaught of Nazi Germany and the Soviet Union in 1939 despite existing security assurances from France and the United Kingdom. States such as Hungary and the Czech Republic also suffered military interventions by the Soviet Union in 1956 and 1968 respectively. Thus there is some merit to the rationalist argument that these states retain a fear of abandonment.[7]

Rational Incentives: Side Payments

Finally, a rational choice explanation might emphasize the quid pro quo that supports burden-sharing decisions of member states in NATO. Certainly, there have been side payments made by the United States to new member states in order to encourage greater levels of military spending and in order to reward contributions to NATO and US-led missions in the war on terrorism. For example, Poland received a generous \$3.5 billion loan to buy F16 aircraft after committing sizable forces to Operation Iraqi Freedom.[8] In addition, Poland funded most of its airfield renovation program through the NATO Security Investment Program (NSIP). Both the Czech

Republic and Hungary received side payments from the US for their support in the war on terrorism.[9] In 2002, the 1999 wave of new members received a combined $35 million in Foreign Military Financing with an equal amount requested for 2003 and 2004.[10] Estonia, one of the 2004 waves of new NATO members, was scheduled to receive over $6 million per year over the same period.[11] In 2005, in addition to normal International Military Education and Training (IMET) and Foreign Military Financing (FMF) assistance, President Bush requested $200 million from Congress "for coalition allies that have supported military efforts in Iraq and Afghanistan."[12] In addition, NATO uses incentives to influence its member states.

While the side payments, discussed above, provide some incentive, NATO has the greatest leverage over aspiring member states prior to accession through conditionality. Conditionality means that certain criteria are set before a state can attain membership or receive benefits from an institution. In the case of NATO, conditionality consists of "specific conditions which an aspiring state must fulfill before accession. These conditions comprise both adherence to the community values and the ability to contribute to the functional tasks of the organization."[13] The assessment of whether or not these conditions have been met is a subjective and very political matter. Oftentimes geostrategic concerns can trump accomplishment of accession standards, as in the case of Georgia and the Ukraine, which have not been granted admittance into MAP due to concerns over relations with Russia. Accession into NATO requires unanimous agreement by existing members and ratification by the legislatures of the member states. It is not surprising then that aspiring NATO members are keen to demonstrate that they have not only met the intent of the conditions established but also the objective benchmarks established by the alliance. One of the two most recent invitees to MAP, Albania, is a good example. In a recent visit to NATO Headquarters, Albanian representatives were "very proud to say they are meeting the 2% (GDP) benchmark as well as deployment and sustainability criteria."[14]

Not surprisingly, conditionality is an effective tool in influencing aspiring NATO members. In Judith Kelley's study of international institutions in the early post-Cold War period, she found that conditionality was an essential factor in changing state behavior.[15] Kelley also acknowledged that socialization played a role. Kelley found that, while most changes in state behavior could be attributed to conditionality, "socialization-based efforts often guided them."[16] However, the impact of conditionality does not necessarily mean that states *free ride* once they become members of NATO. NATO Director of Policy Planning, Jamie Shea, specifically addressed the issue of free-riding incentives after accession. "The argument that once in the alliance, new members will slack off is not fair. For example, Romania currently has 720 (troops) deployed to Afghanistan and is trying to find another 120. That is not a bad effort for a new NATO member."[17] This chapter explores NATO's socialization mechanisms in greater detail in the next section.

NATO also has mechanisms to reward states that support alliance efforts after being granted membership. First, NATO uses a variety of prestige rewards that are not only beneficial for domestic political use, but are sought out by both diplomatic and military bureaucrats for their own benefit. These rewards range from hosting summits, conferences, or exercises to the assignment of commands and staff positions. One example of these types of rewards is called “flags to post.” A flags to post conference is convened to assign general officer billets to member states. These conferences often result in a contentious debate; these leadership positions not only yield influence in the alliance but also prestige at home to the officers assigned to fill them.

During NATO missions, command positions are also allocated on the basis of relative troop contributions. Unless the forces are under a standing NATO Headquarters, such as the Allied Rapid Reaction Corps (ARRC), then command usually goes to the state with the largest number of troops in that sector or in the overall mission. NATO also provides material incentives in the form of investments. This allows leaders to bring home the bacon to their national constituents and thus build support for contributions to NATO. For example, NATO investment into Poland exceeded Poland’s contributions to NATO’s infrastructure budget in 2004.[18] A portion of these NATO funds is being used to construct a training facility in the city of Bydgoszcz.[19] This facility will cost approximately 33 million Euros to build. Finally, individual states within NATO often provide incentives to other members to reward cooperation. As the largest and most powerful member (and leader) of the alliance, the United States often times provides these incentives.

The Pursuit of Credibility

As discussed earlier, many international relations scholars suggested that, in order for states to cooperate extensively, they must first be able to make credible commitments to their fellow allies. As in any cooperative situation, a good reputation reduces uncertainty, increases the credibility of promises, and enhances the clarity of commitments. Once an ally has a reputation for meeting its commitments, it is easier for that state to deepen its level of cooperation within the alliance. As Keohane explains, "a good reputation makes it easier for a government to enter into advantageous international agreements; tarnishing that reputation imposes costs by making agreements more difficult to reach."[20]

Frank Schimmelfenning also found evidence that states were concerned with reputation in his study of EU enlargement. "In an 'institutional environment' like the EU, political actors are concerned about their reputation as members and about the legitimacy of their preferences and behavior."[21] This work employed a synthesis of the rational choice and sociological institutional approaches to show how rational actors (states) could be constrained by identity-based commitments to institutions. Within a security institution such as NATO, one would also expect that members are concerned about their reputations and constrained by commitments made to the alliance.

According to this logic, new members in the NATO alliance feel the need to establish their credibility with older members. In doing so, there is a rational calculation that this credibility is essential to future transactions within both NATO and the European Union. These transactions are in large measure based on trust. In addition to trust, a state's influence in an international organization or alliance is commensurate with the level of its contributions. As touched on above, senior officer positions in NATO are largely allocated on the basis of the size of the contributions each nation makes to the alliance in terms of financial contributions and military forces. For example, if France decides to reenter the integrated command structure of NATO, the alliance will have to redistribute flag officer positions to ensure that France has sufficient leadership positions in NATO command and staff postings. This is also true during NATO operations. Command and staff positions are also determined based on the size of the national contribution to the mission. That is why the United States has the overall command of the NATO mission in Afghanistan. Not only is this allocation of positions based on contributions a normal practice within the alliance structure, it is also accepted and expected by the domestic political stakeholders. As former Senator James Talent noted recently, members of the NATO alliance "should recognize that they must bear their share of the burden if they seek their share of the authority."[22]

A Sociological Examination of Findings

In all of the explanations listed above, new members' burden-sharing behavior can be interpreted as being motivated by the instrumental pursuit of state preferences, whether that is to establish credibility, to garner side payments or to mitigate their fears of abandonment. However, there are equally compelling arguments that new member states are willing to bear the burdens of membership for non-instrumental reasons:

persuasion and socialization. All new NATO members underwent an extensive socialization process that started with their membership in the Partnership for Peace Program (PfP) beginning in 1994. Identifying the specific socialization mechanisms found in NATO, as outlined in sociological institutionalism literature, could help explain how expectations of burden-sharing were taught, monitored and reinforced through a pre-accession screening process and the post-membership interaction with NATO headquarters and established member states. According to this logic, as the "NATO identity" takes root, new member states begin to follow a logic of appropriateness in making burden-sharing commitments.[23] While burden-sharing may have begun as a rational response to conditionality and a concern for establishing credibility, it became internalized over time leading to continued burden-sharing behavior based on identity as a NATO member.

The Logic of Burden-sharing: Persuasion within NATO

Most scholars and practitioners of international relations would agree that persuasion operates in international institutions such as NATO. Oftentimes, persuasion goes hand in hand with rational incentives such as side payments to convince actors to change their behavior. A good recent example might be U.S. negotiations with Poland to convince them to host anti-missile interceptors.[24] The United States used both social pressure and potential side payments to convince Poland to accept U.S. anti-ballistic missiles on its territory. However, Ghiecu suggests that persuasion occurs even in the absence of rewards through convincing arguments. This is what Thomas Risse calls the “logic of arguing.”[25] Two key scope conditions for persuasion certainly existed in NATO during the pre-enlargement period: novel environment and authoritative actors.[26] Former Warsaw Pact countries were in a novel and uncertain environment in the immediate post-Cold War period when they joined NATO’s PfP program. Secondly, NATO institutions and countries were seen as an authoritative in light of their victory in the Cold War and their economic and political success. As Ghiecu points out in her article on NATO, persuasion usually “occurs in social interactions between actors who have drawn different conclusions regarding the nature, merits, and or implications of (an) action or policy.”[27]

Socialization processes and mechanisms within NATO

While there is some evidence that persuasion, reinforced by incentives, was responsible for aspiring NATO members fulfilling their commitments to the alliance, this project is more interested in the sustained socialization efforts that might have led to sustained, increased burden-sharing behavior. As Jeffrey Checkel mentioned in this study of the EU, “socialization implies that an agent switches from following a logic of consequences to a logic of appropriateness; this adoption is sustained over time, and is quite independent from a particular structure of material incentives of sanctions.”[28]

This transformation of norms within NATO most likely occurs during the Partnership and MAP process. Through their participation in NATO programs (PfP and MAP) and in NATO commands, whether in peace time, or during NATO-led missions, new member states begin to internalize the norms and procedures of the alliance and entrench these in their domestic political institutions and military bureaucracies. The longer these new members stay in the alliance, the stronger this identity becomes and the greater their compliance with NATO norms and expectations. NATO's socialization mechanisms and programs also appear to meet the scope conditions for internalization of group norms as identified by Checkel: long and sustained interaction occurs and agents are in a setting where contact is intense.[29]

The Partnership for Peace Program (PfP) and Membership Action Plan (MAP) provide the mechanisms for this type of sustained interaction. Both of these programs focus on interoperability during peacekeeping missions. However, they also teach new members how NATO expects its members to act in both the domestic arena and in regards to international obligations. In her compelling study of socialization in NATO, Alexandria Ghiecu found that NATO was an effective teacher of norms. She attributed NATO's success as a socializing agent to "the parties' mutual recognition of their respective roles as 'teachers' and 'students'; the socializees' identification with the Western security community that NATO claimed to embody; and systematic interactions between teachers and students."[30] Gheciu goes on to make a strong case that the elites from the aspiring member states acknowledged and accepted the role of NATO officials and member states as legitimate teachers of democratic and alliance norms.[31] There are three main venues of socialization for aspiring NATO members: the North Atlantic Cooperation Council (NACC), the Partnership for Peace Program (PfP) and the Membership Action Program (MAP).

The earliest attempt to establish a formal mechanism for dialogue and cooperation with potential NATO members and other European states was the establishment of the North Atlantic Cooperation Council (NACC). Mirrored after the North Atlantic Council (NAC), the NACC was created in December 1991 as a forum for high-level statesmen to consult and deliberate about security issues in Europe. In addition to the NATO members, nine central and Eastern European countries, including Russia, became members of the NACC.[32] The NACC became a useful venue for consultation and support of peacekeeping efforts during the Balkans crisis. In 1997, the NACC was replaced by the Euro-Atlantic Partnership Council (EAPC). Regular consultations on relevant international issues continued, with some thirty Partner countries joining the EAPC, ten of which went on to become members. "Meetings of the EAPC are held monthly at the level of ambassadors, annually at the level of foreign and defense ministers and chiefs of defence, as well as occasionally at the summit level."[33] These consultations cover not only short-term immediate issues, but also areas of long-term cooperation.

A large part of NATO's socialization efforts can be traced to the Partnership for Peace Program (PfP). The PfP program is more extensive than either the NACC or EAPC and it is aimed at a much broader audience. Participants in the PfP program range from national leaders to individual soldiers in staff positions or participating in NATO exercises or operations. Through the PfP program, NATO makes great efforts to socialize new and prospective members and partners on NATO norms, standards, and procedures. The Partnership for Peace Program (PfP) was designed to facilitate interoperability, promulgate civilian control over the military, and foster democratic norms and procedures. The PfP program also teaches prospective members how to adopt liberal-democratic norms. Yet PfP participation does not necessarily lead to NATO membership. "Joining NATO's Partnership for Peace committed themselves 'to the preservation of democratic societies, their freedom from coercion and intimidation, and the maintenance of the principles of international law."[34]

Not only was the PfP program a venue for teaching NATO norms, rules, and decision-making procedures, but it also served as a platform for aspiring states to demonstrate their readiness for membership. PfP "allows partners to distinguish themselves by demonstrating their capabilities and their commitment with a view to possible NATO membership."[35] However, participation in the PfP program does not mean that a state is necessarily interested in joining NATO. Nor does membership mean that alliance membership is inevitable. Of the ten newest members of NATO, the first wave (the Czech Republic, Hungary, and Poland) entered NATO through participation in the PfP program alone. The remaining seven were subject to a much more rigorous screening process.

A program that evolved from early experience with NATO expansion is the Membership Action Program (MAP). The Membership Action Plan (MAP), approved at the 1999 Washington Summit, was specifically designed to better prepare candidate members for accession. It consists of various activities that an aspirant state could participate in to prepare them for accession into NATO. MAP entails more extensive reporting and feedback on progress from NATO on political and economic reform, defense reform, military resource requirements, information security and the compatibility of domestic legislation with NATO requirements. Each MAP member is required to provide an annual national program that addresses progress on each of the chapters.[36] Compared to the PfP, MAP is a more rigorous and extensive program designed to teach new candidate states how to become NATO members. Performance in MAP can also be a discriminator for admission. As the Romanian President recently stated, "MAP is an instrument that allows the alliance to monitor the progress [of aspiring states] … [they] will not necessarily become members unless they meet the standards and fulfill the requirements."[37] All seven states in the most recent wave of enlargement in 2004 entered NATO through the MAP process.

States aspiring to full membership in NATO see the MAP program, not only as an essential step in becoming a new NATO member, but also as a de facto security guarantee. That is why there was such a strong bid by Georgia and the Ukraine to receive an invitation to MAP at the most recent Bucharest Summit and why that move was so vehemently opposed by Russia. The MAP program also includes incentives for aspiring NATO members to reform, build capacity, and contribute to the alliance. "MAP is more of a big stick than a big carrot," said the Estonian president, Toomas Hendrik Ilves, at a conference of the German Marshall Fund. "It forces nations to reform even when they don't want to do it."[38] Not surprisingly, there has been a difference between the first three members who entered NATO under PfP and those that entered under MAP. Under MAP, partners and aspirants must defend their defense and financial data to NATO on an annual basis. This more rigorous interaction has allowed MAP members to assimilate more rapidly than the first wave of NATO members.

Gheicu provides evidence of successful socialization and a transition to a logic of appropriateness by new NATO members.[39] Under the Warsaw Pact, these same countries acted in a purely instrumental manner. What might have appeared as burden-sharing behavior was attributable to top down guidance and coercion from the Soviet Union and sometimes outright military intervention. As the Czech Deputy Defense Minister, Jiri Payne, stated "planning security is something we never really did. It used to be made in Moscow and we only received instructions."[40] This hierarchical arrangement and absence of input by smaller members might partially explain the lack of burden-sharing behavior during the Warsaw Pact. Upon gaining independence from the Soviet Union, Czechoslovakia, Hungary and Poland reasserted their distinct individual national identities and right to sovereignty.

In contrast, NATO's consensus decision-making procedures and extensive socialization processes fostered a sense of "buy-in" among new members. Not surprisingly, the burden-sharing behavior of these new NATO members could not be explained by instrumental decisions alone. Over time, it appeared that a new collective sense of identity evolved from participation in the PfP and membership in NATO. Domestic elites in new member states used this new sense of NATO identity to support their own domestic political positions. For example, Czech opposition member, Petr Necas, scolded the government suggesting that it needed to "start acting like [a] full-fledged member of NATO."[41]

Examination of Findings: Rational Choice vs. Socialization

In order to evaluate the merits of these competing explanations for burden-sharing behavior, this section examines the discourse used to justify burden-sharing behavior during the standardized open-ended interviews. In evaluating the discourse for signs of rational logic, words whose meanings were associated with establishing or maintaining credibility or reputation were identified. Whenever an interviewee used phrases like "to demonstrate," "to show," or "to prove" in discussing the rationale for NATO contributions, this suggested a more rational logic was used to justify burden-sharing. Whenever an interviewee used words like "obligation," "duty," or "appropriate" in discussing the rationale for NATO contributions, this suggested a logic of appropriateness.

As discussed earlier, standardized open-ended interviews were conducted in two different institutional settings with both military and non-military elites. These different settings control for the effects of social context on the language used to justify national behavior in NATO. In the first institutional setting, interviews were conducted with International Fellows at the National Defense University in Washington, D.C. and the U.S. Army War College in Carlisle, PA. Most of the officers in this setting are U.S. officers and the curriculum is founded on U.S. military doctrine, norms and procedures. The second set of interviews took place in Europe. The norms and procedures of NATO were the dominant feature of institutional and social context at SHAPE.

In the first setting, International Fellows were interviewed at the U.S. Army War College and the National Defense University from 2007-2008. These fellows came from both new member states and from old member states. Each year, approximately forty senior military officers are extended an invitation to attend the U.S. Army War College and approximately fifty to attend the National Defense University. These officers are sent to these institutions as representatives of their individual governments and spend a year in Carlisle, Pennsylvania or Washington D.C. studying national strategic issues, conducting research, and learning strategic concepts and doctrine. In these settings, International Fellows constitute only 10% of the student body and therefore are in a minority. The international fellows at the National Defense University represent a similar proportion of the student body. Most U.S. classmates have little familiarity with NATO norms and socialization mechanisms. In addition, the curriculum is focused on broader U.S. interests, strategy, and concepts. U.S. strategy and interests in NATO are only a small part of the curriculum. The officers interviewed from new member states were from Bulgaria, the Czech Republic, Estonia, Poland, and Romania. The officers from the old member states were from Canada, the United Kingdom and the Netherlands, founding members of NATO.

In the second institutional setting, interviews were conducted with military elites serving in both NATO and national billets at the Supreme Headquarters Allied Powers Europe (SHAPE) in Mons, Belgium. SHAPE is the sole military headquarters within NATO that operates at the strategic level. SHAPE is a multi-national command that has several primary functions: assessing risks and threats, conducting military planning, and identifying and requesting forces needed to undertake alliance missions.[42] Most of the senior military officers assigned to this headquarters work for the alliance, not their individual countries. However, the National Military Representatives (NMRs) have a different function. The NMRs act on the instructions of their country and report back to national authorities. In sum, these NMRs retain their primary loyalty to their own countries and serve as liaisons to the alliance. While representing their own national interests, these NMRs operate in a social environment that is dominated by NATO norms, rules, and procedures. In fact, all of the NMRs are located in the same building as the SHAPE staff.

Thus, this institutional setting differs significantly from that of either the U.S. Army War College or the National Defense University. At SHAPE, the non-U.S. officers constitute a majority of personnel assigned. Interviews were conducted with officers from six of the ten new member states. These included the Czech Republic, Estonia, Hungary, Latvia, Lithuania, and Poland. The officers, from older member states, interviewed for this project were from the old member states were from Spain, Portugal, and the Netherlands. Military officers from the Czech Republic, Estonia, Poland and the Netherlands were interviewed in both settings.

To give insights on how NATO elites view burden-sharing behavior of new member states, officials were interviewed from the International Staff and the International Military Staff at NATO Headquarters in Brussels, Belgium. These officials were diplomatic or foreign service personnel at the level of deputy or assistant Secretary

General or were Directors within the Secretary General's private office. The norms and procedures of NATO are also the dominant feature of this institutional environment. Finally, interviews were conducted with diplomatic and military officials from the U.S. Mission to NATO. As would be expected, in all of these institutional settings NATO norms, rules and procedures are a significant factor shaping the social context. Interviews conducted with members of the NATO International Staff and the U.S. Mission give insights on how non-military elites perceive new member burden-sharing behavior.

Interviews with Senior Military Officers

During interviews conducted at the war colleges, senior military officers from new member countries often justified burden-sharing decisions by emphasizing the need to demonstrate credibility to older members of NATO. In interviews with International Fellows at the U.S. Army War College and National Defense University from 2007-2008, officers from new member states used language such as "to prove" or "to demonstrate" about forty percent of the time in their explanations of burden-sharing behavior. For example, Colonel Adamczak explained that Poland contributed to NATO in order to prove that Poland was a valuable member.[43] It is possible that these responses were conditioned by the environment of the institutions where the officers were studying. It is also true that many of these International Fellows faced questions and frustration from their U.S. counterparts as to why NATO was not doing more, specifically in Afghanistan.

This social pressure might have biased the results. On the other hand, these officers mentioned their nation's obligation and duty to NATO, or the appropriateness of sharing burdens as NATO members, more often than they mentioned rational incentives (e.g. credibility) in justifying burden-sharing behavior. For example, the Romanian fellow at the Army War College offered this explanation for exceeding the 2% standard. "The Romanian President gave two reasons for increasing military expenditures: to replace inferior or outdated equipment for deployed troops and that Romania had a commitment to meet NATO requirements."[44] This finding supports the argument that socialization of NATO norms has influenced the burden-sharing rationale of military elites or at least that burden-sharing decisions are justified using arguments based on identity. This is especially surprising given the U.S.-dominated social environment at these two institutions.

As expected, language indicating the logic of consequences was less prevalent in the interviews with NMRs at SHAPE. In these interviews, all six military officers from new member states justified their state's burden-sharing behaviors based on a logic of appropriateness versus a logic of consequence. National Military Representatives more frequently mentioned their nation's obligations and duty to NATO than they mentioned the desire or need to establish credibility. In fact, appropriateness of burden-sharing was mentioned nine times versus concerns for reputation only once. One NMR, Colonel Jurgatis, gave this explanation for Lithuanian support to ISAF. "Sending forces to ISAF was a hard decision because interests in Afghanistan were unclear to the Lithuanian people. But our leaders argued that we were members of NATO and had to participate."[45] This is a stronger result than with the senior officers assigned to the U.S. Army War College and National Defense University, where the rhetoric was more evenly divided between appropriateness and consequences.

It is interesting that the arguments used by officers assigned to NATO differed significantly from those of officers interviewed in a more national institutional setting. It appears that NATO identity plays a much larger role in the rhetoric used in an institutional setting where NATO rules and procedures are the standard. This finding is in line with the socialization theories, from the international relations literature, which state that international organizations have socializing effects on the individuals participating in them (Checkel, 2005). More importantly for this project, these military elites explained their country's burden-sharing behavior largely in term of obligations to NATO. This suggests that even rational burden-sharing decisions are couched in language based on the logic of appropriateness.

Unfortunately, the number of senior military officers interviewed in both institutional settings was small. At the U.S. Army War College and the National Defense University, the interviews were limited to countries in attendance. This selection was out of the control of this project. Interviews conducted at SHAPE were constrained by the availability of the NMRs and by the limited time and financial resources available. While the sample size was too small to make conclusive arguments, the responses suggest that both credibility and appropriateness play a role in the justification of contributions to NATO by military elites.

Certainly, new members of NATO have both instrumental and sociological reasons for their contributions to the alliance. As the Commander of Estonian Land Forces stated in an interview, “Estonia supports NATO because Estonia needs NATO. Active Estonian participation in NATO missions gives weight to our voice in NATO and helps to ensure that NATO does not become marginalized as an alliance. It is also an obligation to provide forces as Estonia supported the NAC decision to initiate operations.”[46] Due to their experiences in the Cold War and position near the flanks of NATO, many new members take the territorial defense mission of NATO quite seriously. New members also appreciate their ability to influence the decisions of the alliance, which is in stark contrast to their experience under the Warsaw Pact. This sense of ownership and security within NATO explains much of the new members’ willingness to contribute to NATO’s continued success. As the Romanian President reiterated in 2008, “the alliance can rely on Romania as a partner that is always ready to be a good ally…we will not hesitate to respond to the policy of the alliance because we are part of it and contributing to the building of this policy”[47]

Evidence in support of the credibility concerns are also prevalent in the public discourse of government officials from new member countries that have been accused of free-riding behavior. Before and after accession to NATO, Hungary realized that its contributions to NATO would come under scrutiny. As Hungary’s Ambassador to NATO stated in a 2001 speech, “only a nation that is willing and ready to take its’ [sic] share of burdens can count on the support of others.”[48] Domestic political actors also take advantage of these contributions or lack of contributions to gain attention or political support. In 2008, a member of the opposition Christian Democratic Party in Hungary, István Simicskó, criticized the low defense spending by the government explaining that it hurt the international reputation of Hungary. "Embarrassingly, within NATO only Iceland spends less on defence than Hungary."”[49]

What is also interesting is that military elites from older NATO countries tend to attribute new member burden-sharing behavior to instrumental concerns with credibility. This is true in both institutional settings. In interviews conducted at the U.S. Army War College, officers interviewed attributed new member burden-sharing decisions to rational motivations, such as a desire to prove credibility to either the United States or NATO. “New NATO members, especially first three (the Czech Republic, Hungary, and Poland), joined NATO to increase security against Russia. They are willing to contribute to the alliance just to prove to NATO, and especially to the United States, that they are worth the cost.”[50] This focus on the logic of consequences was also true in interviews of the senior political and military officials interviewed at NATO in January of 2008.

Interviews with Senior Political and Military Officials in NATO

Evidence in support of the credibility explanation for burden-sharing is most prevalent in the language used by political and military officials assigned to NATO and the U.S. Mission to NATO. Most officials interviewed interpreted the burden-sharing behavior by new member states as an attempt to demonstrate credibility and worth to the NATO alliance. Mr. Bruce Weinrod, Defense Advisor to the U.S. Mission to NATO, described new member burden-sharing in rational terms. “New members want to show that they are serious about their commitments…Their own historic experience makes them want to deal directly with security threats."[51] SACEUR's executive officer, formerly the Assistant Army Attache' to Warsaw, explained that "Poland wants to prove themselves and demonstrate that they have something to contribute to the alliance."[52] These interviews also offer insights into the perceptions of new member burden-sharing.

All of the officials interviewed also stated that new members, in general, are carrying their weight in NATO burden-sharing. About half of these officials attribute shortfalls in burden-sharing to a lack of capability rather than a lack of willingness. This is true for both political and military elites. According to the NATO Deputy Secretary General, "the new members have a lot of political will; their approach as new members of the club is that they want to show that they are up to the task of being members of NATO."[53] The Supreme Allied Commander, General Craddock, specifically mentioned new members that were "carrying their weight, although they have limited capabilities. Some good examples are the Czech Republic, Estonia, Lithuania, Poland, and Romania."[54] Thus from the outside, new member burden-sharing is largely viewed as a desire to demonstrate credibility and worth to the alliance.

Another interesting finding is that this assessment of new member burden-sharing was also shared by representatives by the leading country of NATO, the United States. During a web chat in 2008, The U.S. Ambassador to NATO, Victoria Nuland, stated that "we have been impressed by the commitment of all our new Allies to bring as much as they can to the table."[55] This characterization is interesting in that the U.S. government's assessment of recent contributions from other NATO members has not been very favorable. As the theoretical "bill-payer" for free-riding behavior, one would expect the United States to be highly critical of those countries not contributing their fair share to the alliance. In fact, the United States has been very outspoken in trying to coerce members of the alliance to increase their contributions to both defense spending and the NATO mission in Afghanistan. The U.S. Secretary of Defense, Robert Gates, told the Senate Armed Services Committee in early 2008 that he was frustrated that allies had not lived up to their commitments in ISAF. "I worry a lot about the alliance evolving into a two-tiered alliance, in which you have some allies willing to fight and die to protect people's security, and others who are not."[56] Given this level of criticism by the United States, the favorable characterization of new member burden-sharing is even more convincing.

The Psychology of performance: Capability versus Willingness

Before moving to the case studies, it would be helpful to examine the distinction between the lack of capability versus a lack of political will in evaluating burden-sharing performance. Several studies in psychology have examined the difference between motivation and ability in their relation to performance. Fogli, Sackett, and Zedeck suggested that motivation and ability played a different role depending upon whether the performance required a typical or maximum level of effort.[57] A maximum performance was characterized by an awareness of evaluation, acceptance of instructions to maximize efforts, and a relatively short duration. In these situations, ability was the major determinant of performance. In 2007, Anderson and Klehe verified this model's finding that the correlation between ability and performance increased during maximum performance.[58] Using this criteria, NATO missions receive much greater public scrutiny by NATO and the United States than other measures of burden-sharing, such as defense expenditures, which take place over an extended period of time. Because of NATO's consensus procedures, changes in levels of effort during NATO missions also imply acceptance. Therefore, lessons from studying maximum performance conditions could provide insights when evaluating contributions to NATO missions.

Psychology also makes the distinction between controllability and intentionality in explaining social motivation.[59] Interpretations of behavior differ based on whether the cause of failure was controllable (actor had the ability to change the outcome) or the cause of failure was intentional (the actor willingly failed). Not surprisingly, other people tend to respond more favorably to behavior caused by a lack of capability versus a lack of willingness. The same is true in NATO where burdens have historically been assigned based on the ability to bear them. The alliance is tolerant of efforts constrained by a lack of capability, but not by a lack of willingness.

According to NATO's 2006 Comprehensive Political Guidance, capability is defined as "sufficient fully deployable and sustainable land forces."[60] If new members were, in fact, willing but lacked the capability to burden share, then an observable implication would be that contribution to NATO missions should have increased over time as new members increased the number of deployable and sustainable land forces.

By looking at case studies of individual new member countries, it is possible to determine whether or not new members' contributions have increased since gaining membership to NATO. If so, this would indicate that earlier burden-sharing behavior was constrained by a lack of capability versus willingness.

Overview of Case Studies

This section looks at a select group of new NATO members to better understand the burden-sharing results from previous chapters. The cases studies are broken down into two parts, each related to a different dependent variable. The first part systematically looks at the independent variables (based on the model of military expenditures in Chapter 4) that effect defense expenditures. For example, large states should have higher military expenditure rates as a percentage of GDP than smaller members. Two constraints on burden-sharing are also examined that were not included in the regression model: GDP per capita and debt as a percentage of GDP. States with a higher GDP per capita should be better able to afford greater military expenditures. States with higher levels of debt should have less flexibility in increasing their levels of military expenditures due in part to EU fiscal constraints.

The second part of the case study examines contributions to NATO missions. In looking at troop contributions, it is necessary to first understand the strategic context and decision-making process within which those decisions are made. Since the strategic context differs for each country, it is discussed briefly in the first part of each case study. The decision process to send troops to NATO missions also varies from country to country and is discussed individually for each case study.

A closer examination of contributions to NATO missions provides an opportunity to distinguish between the two components of performance: capability and willingness. If a lack of willingness is to blame for lower contributions from new members, then troop contributions should have decreased over time. However if lagging commitments to early NATO missions were due to a lack of capability, new member contributions should have increased over time as capabilities increased. There are two main constraints to troop contributions examined in these case studies: public opinion and force size. The results would be even stronger if contributions increased in the face of domestic political opposition and reduced force structure.

Factors common in all Case Studies

All of the case studies examined share some common features: Cold War links to Russia, NATO and European Union socialization efforts, and democratic budget processes. All of the countries in this case study share a common historical experience in the aftermath of World War II. All five countries were occupied by Soviet troops, though the occupation of Romania ended in 1958. With the exception of Estonia, all of these countries were members of the Warsaw Pact. To varying degrees, the Soviet Union often interfered in the domestic politics of these Warsaw Pact nations (Estonia lost its sovereignty in 1941). This common background informs the threat perception each of these countries has of Russia today.

All five of the countries also underwent NATO socialization processes. The members of the 1999 wave of new members joined the Partnership for Peace program in 1994. The Czech Republic, Hungary and Poland joined NATO in March 1999. Given their history with Russia and Germany, the NATO Article 5 guarantee meant a great deal to these countries. All three of these new NATO states joined the European Union in May 2004. Estonia and Romania also joined the Partnership for Peace program in 1994. Like all 2004 new members, they had to undergo the MAP process prior to gaining entry into NATO. This was done simultaneously with their preparations for entry into the European Union, which also required significant reforms and preparation. Romania joined NATO in 2004, but it did not join the European Union until 2007. Unlike Romania, Estonia joined both NATO and the European Union in 2004. Therefore both Estonia and Romania were exposed to a longer and more structured socialization effort than were the nations in the 1999 wave.

As a relatively new members of the Western community, these countries face conflicting institutional pressures on defense spending. Commitments to NATO and the European Union's European Security and Defense Policy (ESDP) encourage members to maintain sufficient levels of military spending and capability.[61] One of the reasons behind ESDP is an EU effort to increase the military capabilities of its members. This effort was outlined through the Helsinki Headline Goals in 1999, which were later deferred in 2004 under the Headline Goal 2010. Every six months, the European Council receives a progress report on military capabilities.[62] However, neither NATO nor the EU has formal mechanisms to sanction members that do not meet military spending or capability goals.

On the other hand, all new members and aspiring members of NATO are also members or candidates for the European Monetary Union (EMU). Under the EU, military expenditures are constrained by the Maastricht Criteria and the convergence criteria of the EU Stability and Growth Pact. The Stability and Growth Pact stipulates that budget deficits can be no more than 3% per year and government debt no more than 60% of GDP. Performance against these criteria is used as one of the conditions for entrance into the EMU. What is unique though is that this Pact also empowers the European Council to financially penalize participating members that fail to meet these standards.[63] Therefore, one would expect that EU fiscal pressures would constrain these states military expenditures.

The budget process in each of these countries is similar. Each year, the military articulates its security needs to the Minister of Defense, who develops a budget proposal based on guidelines from the Minister of Finance. Once the government approves the budget proposal, it sends the consolidated budget to parliament for approval. Military budgets are relatively path dependent and can only decline incrementally from year to year, as was seen in the results from Chapter 4. Much of defense spending in Europe is non-discretionary in the near term. These non-discretionary expenses include multi-year procurement contracts and on-going personnel costs. Given this constraint on budgetary flexibility, the main ways to cut spending are to cut programs, scale back operations and training or reduce force structure.

Case Study: Poland

Poland's strategic environment is shaped by its history and its location. Under the Nazi-Soviet Pact prior to World War II, Nazi Germany and the Soviet Union agreed to divide Poland between each other. Poland fell to these two powers in spite of alliances with Britain and France. After World War II, Poland became a satellite state of the Soviet Union. The Soviet Union often interfered in Polish politics, especially with the rise of the Solidarity Union in the 1980's.[64] Fear of a Soviet invasion supposedly led General Jaruzelski to impose martial law in 1981. With the fall of the Soviet Union, Russian troops finally exited the country in September 1993, exactly fifty-four years after the Soviet Union invaded Poland under the Nazi-Soviet Pact.[65] Given this history, Poland has been less likely to discount Russian threats. This is especially true in the aftermath of the invasion of Georgia in 2008. Polish-Russian tensions have also been strained due to Poland's ties to the United States. On November 5, 2008, in retaliation for U.S. plans to place an anti-ballistic missile system in Poland and the Czech Republic, Russia announced plans to place short-range missiles in Kaliningrad.[66] Another important factor is Poland's position in Europe. The distance from Warsaw to Moscow is

1,149 km, making Poland one of the closer NATO allies. Poland also shares a border with Kaliningrad, a Russian enclave between Poland and Lithuania.

As Poland approaches its ten year anniversary of accession into NATO, it is not surprising that it no longer views itself as a "new" member of NATO. In fact, Poland has felt confident enough to make its voice heard in both the EU and NATO. For example, Poland's President was highly critical of Russia's invasion of Georgia even as other EU members were trying to take a more neutral stand.[67] In NATO, Poland's Foreign Minister recently chastised other members of the alliance for lagging commitments in ISAF, stating that there was "no room for free-riding" in NATO.[68]

Poland is one of the largest new member states of NATO. It has a population of over 38 million (with almost 97% being ethnic Poles) and a total area of over 312,679 sq km. In 2007, Poland's GDP equaled $623 billion.[69] This equates to a per capita GDP (PPP) of $16,200, less than half of that of Spain (at $33,600) and one of the poorest in these case studies. Poland's GDP has grown at an annual rate of 10.5% since 1993.[70]

Unlike some new members, Poland is close to meeting the economic criteria for the EMU. In 2008, Poland's deficit was 4.6%, while its public debt has remained around 54% of GDP which is below Maastricht levels. [71] Due to growing fiscal pressure resulting from the recent global economic downturn, Poland will face increasing pressure to cut military expenditures. While the Ministry of Defence budget increased 9.1%

between 2007 and 2008, Poland recently announced that it is revising its 2009 budget to keep its deficit level steady.[72]

Figure 6.1: Polish GDP in $Billions (USD) [73]

In her study of burden-sharing in the Warsaw Pact, Condoleezza Rice suggested that Poland was a "passive free rider" during the Cold War, due to its relatively low defense expenditures.[74] Poland has not continued this behavior since joining NATO in 1999. In fact, Poland is one of the few NATO countries to come close to meeting NATO's burden-sharing target of 2% of GDP. A general political consensus enables Poland to maintain its relatively robust level of military spending. According to the Minister of National Defence in the current government, "all ruling parties agree on the 2% (level)."[75] Oftentimes obligations to NATO are used to justify resource allocations.[76] This commitment to meeting NATO standards has been embedded into Polish law, which makes it easier for governments to fulfill NATO obligations. On 25 May 2001, the

Polish Parliament (Sejm) established a five year defence plan "stipulating that Warsaw will spend no less than 1.95% of its gross national product on defence in an effort to bring the Polish armed forces closer to NATO military and interoperability standards."[77] Beginning in 2005, this budget was fixed at 1.95% of the previous year's GDP as opposed to its projected current year GDP.[78]

Given its political commitment, it is not surprising then that Poland's defense expenditures as a percentage of GDP have remained relatively constant, averaging 1.92% since 1999. This is much higher than Spain, which is larger (approximately 192,000 sq km and 2 million people greater than Poland) and much wealthier than Poland. Spain's military expenditures have declined from 1.3% in 1999 to 1.2% of GDP in 2007. This is consistent with the results in Chapter 4, which show that greater wealth does not necessarily equate to greater burden-sharing and that new members' military expenditures would be a greater relative proportion of GDP than old members.

The second part of the case study examines the second measure of burden-sharing: troop commitments. Poland has much greater flexibility in its decisions to make troop commitments to NATO. While the separation of powers on foreign policy is somewhat unclear in the Polish Constitution[79], the process for deploying Polish troops is straightforward. Whenever the government wishes to send Polish forces abroad, the Minister of Defence sends a proposal for commitment of forces to the Prime Minister. Under Polish law, the President (as the Commander in Chief) approves the decision to deploy troops abroad.[80] If the President vetoes an operation, it takes a two thirds vote to override his or her decision. The President can decide the number of troops, the equipment sent and the duration of the mission. Thus the President has some autonomy from the pressures of public opinion in deploying troops. However, Parliament balances this power by controlling the military budget.

Poland was generally "reluctant to become involved in the third world," under the Warsaw Pact.[81] This tendency has been reversed under NATO. Poland has shown an increasing willingness to support NATO operations. As discussed in the last chapter, Poland's relative contribution to SFOR (averaging 316 troops per year) roughly equaled 1.9% percent of the NATO force. Poland increased both its actual and relative contribution to KFOR (averaging 527 soldiers per year) to about 2.3% percent of the NATO force.

Poland has also been a big supporter of the War on Terrorism. As discussed in the last chapter, Poland had one of the largest contingents in Iraq under the Multinational Forces (starting at over 2,000 troops and ending the mission with approximately 900 soldiers in 2008). Poland was also one of the earliest members of the coalition, inserting special operation forces even before the bulk of U.S. troops invaded. The decision to support Operation Iraqi Freedom was made in the face of strong domestic opposition to Polish participation, with almost 60% opposing participation in 2003.[82] At the request of the United States, the government twice delayed its planned withdrawal from Iraq. In the 2007 elections the opposition party, Civic Platform, made withdrawal from Iraq one of its campaign promises and won the election.[83] In 2008, Poland withdrew its remaining forces from OIF.

While early contributions to ISAF were constrained by commitments to OIF, Poland gradually shifted the focus of its efforts to ISAF, the NATO mission in Afghanistan. In September 2006, Poland responded to requests from NATO to fill increasing ISAF requirements. In fact, only Poland offered to send additional troops.[84] Since 2007, Poland has shifted additional forces from Iraq to Afghanistan. At the request of NATO, Poland again agreed to significantly increase its contributions to ISAF in 2007 and in 2008. Since 2007, Poland's relative contribution to ISAF increased to 2% of the total NATO force (approximately 937 soldiers in 2007 and 1,130 soldiers in 2008). Poland has committed to increasing this force to 1,600 in 2009. As a point of comparison, Spain's contributions to ISAF have declined from approximately 1,200 soldiers to around 800 soldiers during this same time period.

Qualitatively, Polish contributions are also superior, in that these forces are slated for the more dangerous eastern part of Afghanistan. Polish forces will be stationed in Ghazni province in southern Afghanistan, compared to Spanish forces that are stationed in the relatively quiet Regional Command West. In addition, Poland will provide helicopters to support ISAF (a critically short item) and will make these available to other NATO forces in the south.[85] Polish officials are proud to point out that their forces in ISAF have no caveats, a major point of contention within the alliance. Poland's Foreign Minister suggested that a state which contributes "without caveats gives twice."[86] In contrast, there are some fifty national caveats imposed on NATO forces in ISAF. These caveats, though always a factor in NATO operations, inhibit the flexibility and coordination of NATO operations.[87]

Poland's decision in 2006 to increase participation in Afghanistan was made in the face of strong domestic opposition. The initial decision faced significant criticism from the opposition, which protested sending Polish troops into a combat mission.[88] It was hard to justify supporting an operation some 4,000 km away from NATO's borders. In a 2007 public opinion poll, 77% of Polish respondents were against Polish involvement in ISAF[89] and over 70% doubted whether NATO's mission to Afghanistan would contribute to peace in that country.[90] However, both recent Polish governments have held firm in their support of the NATO mission. Shortly after becoming the Minister of Defence, Bogdan Klich stated that Poland would remain committed to the NATO mission in Afghanistan "with the view to Poland's credibility in NATO."[91] Recently, the Minister of National Defence also stated that Poland had not ruled out further extensions of the mission.[92] The United States has certainly looked favorably on Poland's contributions to Iraq and Afghanistan. The Polish Military has received almost $750 billion in military aid under President Bush.[93]

Poland's record of troop contributions is interesting because it provides insights into the willingness versus capability issue of burden-sharing posed in Chapter 5. In the nine years since attaining membership, Poland's average and maximum troop contributions to individual NATO and U.S.-led missions have increased steadily (see

Table 6.1). In 2008, Poland had over 2,300 troops deployed between Afghanistan, Iraq, and Kosovo compared to only 1,200 in 1999. This level of support to NATO is remarkable in the face of the strong domestic opposition already mentioned and the rational incentives for Poland to *free ride*. Based on the collective security guarantees of NATO, Poland shifted focus from a larger territorial defense orientation towards a more deployable crisis management force structure. During this period, the size of the Polish armed forces has dropped from 205,000 in 1999 to 150,000 in 2007, a reduction of approximately 25%.[94] By 2010, this will be reduced further to 125,000. Concurrently, the Polish armed forces have undergone an extensive modernization and transformation. By the end of 2009, Poland will have a completely professional army. In addition, many missions that were not inherently military have been transferred to other security agencies.

With its military transformation, Poland has been able to provide a larger and more capable percentage of their armed forces to NATO missions since joining NATO. In 2007, the number of Polish ground forces deployed equaled about 4.5% of its land forces. In 2008, this percentage will increase to 5.8%.[95] This increasing level of support in spite of domestic opposition and declining force structure lends credence to the proposed explanation from the last chapter that what appeared to be free-riding behavior, might have been a lack of capability versus a lack of political will. As can be seen below in Table 6.1, as Poland has increased capability, they have also increased their contributions to NATO missions.

Table 6.1: Poland's annual contributions to NATO/U.S.- led missions

	SFOR (1999-2004)	KFOR (1999-2008)	ISAF (2003-2008)	OIF (2003-2008)
AVG	316	527	410	1700
MAX	450	763	1,130	2,300

Case Study: the Czech Republic

While the Czech Republic shares a similar recent history with Poland, a stronger case could be made for the fear of abandonment argument in the case of the Czech Republic. In 1938, France and Great Britain signed the Munich Agreement with Germany and Italy, ceding part of Czechoslovakia to Germany in an attempt to appease Hitler. This was in spite of a Czechoslovakian security alliance with France signed in 1924.[96] The Munich Agreement was widely viewed as a betrayal of the Czech people. To this day, Czech Foreign policy lives under the "shadow of Munich."[97]

The Soviet Union actively intervened in Czechoslovakia twice during the Cold War. Czechoslovakia initially maintained a freely elected government, known as the National Front Government, with about half of ministers coming from outside the Communist Party. In February 1948, a majority of non-communist ministers became disgruntled with Communist excesses and resigned from the government in the hopes of forcing a new election. Instead, the Communist Prime Minister, with assistance from the Soviet Union, headed a coup and formed a government that was dominated by the

Communist Party. The Czech population became increasingly disenchanted with the communist system in the early 1960's. In 1968, Czechoslovakia initiated a series of democratic, economic, and social reforms.[98] This liberalization movement, known in the west as Prague Spring, was threatening to Moscow. In August 1968, the Soviet Union, in conjunction with other Warsaw Pact military forces, invaded Czechoslovakia with some 400,000 to 500,000 troops. Following the invasion, some 300,000 people emigrated from Czechoslovakia.

In 1989, the Velvet Revolution toppled the communist regime in Czechoslovakia. At the request of President Havel, Russian troops finally exited the country in 1991.[99] After elections in 1992, Czechoslovakia's federal government acquiesced to the requests of the Czech and Slovak Republics to separate into two distinct countries.[100] The Czech Republic is in a more benign geostrategic position than Poland. No longer a border country of the Warsaw Pact, the Czech Republic is today surrounded by NATO members. The distance from Prague to Moscow is 1,664 km, making the Czech Republic one of the furthest new NATO members from Russia. However, the Czech Republic (like Poland) faced Russian threats in retaliation for agreeing to host radar systems in support of the U.S. missile defense system.

The Czech Republic and Hungary (like Belgium and Portugal) are about the median size of NATO members, with a population of just over10 million (over 90% being ethnic Czechs).[101] Thus they might be expected to spend a smaller percentage of their GDP on military expenditures based on the results of Chapter 4. The Czech

Republic's total area, at 78,866 sq km, is smaller than Poland (312,679), Hungary (90,030) and Portugal (92,391), but larger than Belgium (30,528). Even during the Cold War, Czechoslovakia was wealthier than other Eastern European countries and had a relatively small amount of external debt.[102] The Czech Republic remains a relatively wealthy member of NATO, with a GDP of $251 billion in 2007.[103] This equates to a per capita GDP (PPP) of $24,500, which is less than Belgium ($36,200), but larger than both Hungary ($19,300) and Portugal ($21,800).[104] The Czech Republic has experienced an annual average growth rate of almost 12%.[105]

As with all new members, the Czech Republic also faces the conflicting EU pressures on defense spending. However, the Czech Republic is in a relatively stronger position in this regard than other new EU members. In 2008, the Czech deficit was 3.1%, while its public debt has remained around 35% of GDP, which is well below Maastricht levels.[106] This is partially attributable to a sound fiscal policy, including a declining level of social welfare expenditure. By 2003, social expenditures as a percentage of GDP had dropped from over 25%[107] to approximately 21% of GDP.[108] Thus the Stability Pact imposes a less onerous constraint on the Czech Republic.

During the Cold War, Czechoslovakia generally ignored Warsaw Pact spending targets. In fact, after 1968, the Czechoslovakian military expenditures continued to decline as a percentage of GDP and exceeded only those of Hungary and Romania, if measured in dollars.[109] As a member of NATO, the Czech Republic has been more willing to devote resources to support military capabilities. Czech defense expenditure, as a percentage of GDP, is below NATO's burden-sharing target of 2% of GDP, but close to the NATO average. While the Czech Republic met or exceeded NATO standards from 1999 to 2003, its expenditures began a gradual decline coinciding with the second round of NATO expansion in 2004. This fact is interesting in that the Czech Republic is one of the wealthiest new members. In the last few years, the defense budget has been cut to 1.6% of GDP. However, this average rate of expenditure (1.96% since 1999) was consistently above those of founding NATO members of comparable size (Belgium and Portugal). This average was also above the Czech Republic's much larger neighbor, Poland, and the other 1999 member, Hungary (see Figure 6.2).

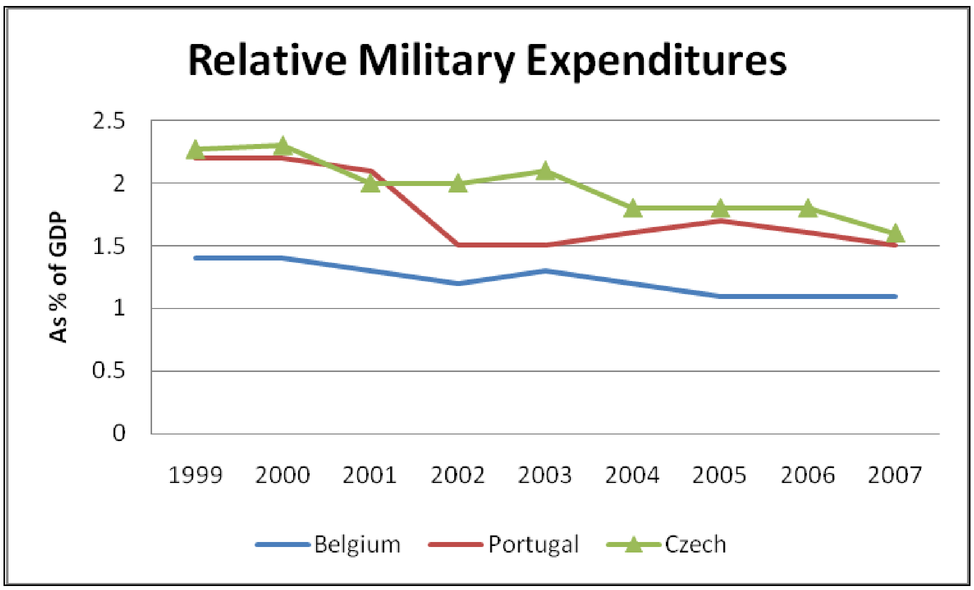

Figure 6.2: The Czech Republic's military expenditures vs. older members[110]

Having examined defense expenditures it is now necessary to look at troop commitments. According to the Czech Constitution, the President is the commander in chief of the armed forces.[111] However, it is the Czech cabinet and Prime Minister who must first approve a mission before sending a request to Parliament for approval. Each year, the Ministry of Defence submits a list of troop and budget needs to the government, which includes planned deployments. The government submits these to Parliament for approval.[112] Decisions to send Czech military forces abroad are then included in a government resolution, the most recent one being Resolution No. 1179 passed on October 22, 2007.[113] The Ministry of Defence announced in 2008 that it planned to pass a new resolution including an increased presence in ISAF in 2009.[114] However, the Czech Parliament failed to approve this resolution in December 2009 by two votes, due to the opposition of the Social Democratic Party (ČSSD)).[115]

The Czech Republic has also been an active supporter of NATO operations. As discussed in the last chapter, the Czech Republic's relative contribution to SFOR averaged 325 troops (declining from a high of 560 troops in 1999). This level of commitment represented 1.0% percent of the NATO force, while the Czech Republic comprised approximately 1.3% of NATO's population. The Czech Republic increased both its average and relative contribution to KFOR (averaging 365 soldiers per year from 1999 to 2008) which equaled about 2.0% percent of NATO force. As discussed in the last chapter, the Czech Republic also committed 300 troops to Operation Iraqi Freedom beginning in 2003. The decision to support Operation Iraqi Freedom was made in the face of significant domestic opposition to Czech participation. With both Germany and France objecting to the invasion, the population was unsure that the Czech Republic should participate.[116] Last year, the Czech Foreign Minister, Karel Schwarzenberg from the Green Party, called for the complete withdrawal of Czech forces from OIF.[117]

Like Poland, the Czech Republic supported the U.S.-led Operation Enduring Freedom in Afghanistan, prior to ISAF. In 2008, the Czech Republic provided up to 100 Special Forces troops in the Kandahar region, in support of OEF.[118] On average, the Czech Republic's annual contributions to ISAF were 378 troops, although this has increased to 415 in 2008. For three years the Czech Republic contributed forces to a German Provincial Reconstruction Team (PRT) and in 2008 they opened their own PRT in Logar province. The Czech Republic also provides a chemical detachment, an Operational Mentor and Liaison Team (OMLT), and air traffic control group in the capital of Kabul. At the request of the Dutch government, the Czech Republic also increased the size of their forces in southern Afghanistan.[119]

The Czech contribution to ISAF exceeded its relative percentage of the NATO population. This level of commitment is impressive, given that the Czech government also faced domestic opposition to participation in Afghanistan, especially from the Communist Party and more recently from the opposition party, the Social Democrats.[120] The Czech government even had to sell government bonds to fund these additional operational expenditures.[121] In October 2008, the Czech government announced that it wanted to increase this number to 745, or almost double current levels. The Czech Republic has also agreed to donate twelve critically needed helicopters to Afghanistan, six of which have already been delivered. In addition, the Czech Government takes pride in pointing out that Czech units in Afghanistan are not restricted by any caveats. [122] Prime Minister Mirek Topolanek stated that the pending increase in contributions was due to "growing responsibilities in the region and obligations to our allies in NATO."[123]

However, this move is being opposed by the opposition Social Democratic Party (ČSSD) and again by the Communist Party. [124] According to a recent poll, 70% of Czech respondents were also against this increased commitment.[125]

A 2005 report from the Czech Minister of Foreign Affairs suggests that the Czech government feels that it is supporting NATO operations within its capability.[126] The Czech Republic's high level of support to both NATO and to U.S. operations has also been rewarded by the United States. According to the U.S. State Department, "the Czech Republic has made a significant contribution to the War on Terrorism relative to its size."[127] Therefore it is not surprising that the Czech Republic, like Poland, has received side payments from the United States in return for its efforts. In 2006, total U.S. government assistance to the Czech Republic equaled over $10 million.[128]

Since 1999, the Czech Republic has steadily increased its average troop contributions to individual NATO missions (see Table 6.2). The Czech Republic had almost 1,000 troops deployed between Afghanistan, Iraq, and Kosovo in 2008, compared to only 720 in 1999. The number of Czech ground forces deployed represented about 8.9% of its land forces, which exceeds NATO standards of 8%.[129] If the current MOD proposal is approved, this will increase to 1,400 troops in 2009.

This level of support is impressive in the face of a reduction in the Czech armed forces from around 73,591 professional and conscript soldiers in 1995 to 25,177 professional soldiers in 2008, a reduction of almost 70%.[130] Like Poland, this reduction in force structure was undertaken to meet NATO requirements. As with Poland, the Czech Republic's performance in spite of political and force structure constraints supports the conjecture that as capability increased, so too did contributions to NATO missions.

Table 6.2: The Czech Republic's annual contributions to NATO/U.S.- led missions

	SFOR (1999-2004)	KFOR (1999-2008)	ISAF (2003-2008)	OIF (2003-2008)
AVG	720	784	888	124
MAX annual	560	553	415	300

Case Study: Hungary

Its World War II experience differs from Poland and Czechoslovakia in that Hungary was an ally of Germany during the war. Hungary was finally conquered by the Soviet Union in April 1945, and a communist government was installed.[131] Following a series of democratic reforms in 1956 and a popular revolt against the Communist system, Soviet troops temporarily withdrew from Budapest. Hungary also announced its withdrawal from the Warsaw Pact on November 1, 1956. In response, the Soviet Union invaded the country on November 3, 1956.[132] The legitimate Hungarian government was ousted and a new Communist government installed. The Soviet Union stationed around 45,000 troops in Hungary until 1991, when they exited both Hungary and the

Czech Republic.[133] Today, Hungary is surrounded by EU and NATO members and aspirants. The distance from Budapest to Moscow is 1,565 km, similar to the Czech Republic. According to its National Security Strategy, Hungary now faces minimal risk from traditional military aggression.[134] However, Hungary shares a border with Serbia, and therefore remains concerned with potential ethnic conflict and instability in the Balkans.

Hungary has a slightly larger land mass than the Czech Republic and roughly the same size population, around 10 million (over 92% being ethnic Hungarian).[135] Historically, Hungary has had a more agriculturally based economy than Czechoslovakia. Hungary is also a relatively poorer member of NATO, with a GDP of $192 billion in 2007.[136] This equates to a per capita GDP (PPP) of $19,300, which is smaller than either Belgium, the Czech Republic, or Portugal, but is greater than Poland.[137] Hungary has grown at a much slower rate than other new members, but still managed an annual average growth rate of 8.6 % from 1993 to 2006.[138] However, this rate of growth slowed to about 2% in 2007 due to government programs to reduce public sector spending.[139]

Of all of the new members of NATO, Hungary faces the most fiscal constraints due to the EU's Stability and Growth Pact requirements. While Hungary was aggressive in its post-Cold War economic privatization efforts, it was also saddled with an expansive social welfare system and large amount of public debt.[140] Under economic reforms initiated by Finance Minister Lajos Bokros, Hungary was able to cut social expenditures as a percentage of GDP from 32% in 2000[141] to 23% of GDP in 2006.[142] However, it still has a long way to go. In 2008, the Hungarian deficit was 7.8%, while its public debt has remained around 72% of GDP. Both of these are well above the Stability Pact levels as well as above those of the other new members.[143] Interestingly, only Belgium (90%), Greece (106%), and Italy (119%) have higher percentages of debt than Hungary. This high debt load may also contribute to Hungary's low military expenditures which, at 1.1% of GDP in 2007, are at the same level as Belgium.

Even as a member of the Warsaw Pact, Hungary had a reputation as a free-rider.[144] In a Cold War study on burden-sharing, Bruce Russett stated that Hungary was "consistently at the bottom of the D/GNP list… The need to appease Hungarian consumers, a legacy from 1956, accounts for [its] laggardness."[145] In the late 1980s, the Soviet Union and other Warsaw Pact countries attempted to pressure Hungary into increasing its defense expenditures, with little effect. During that time, Hungary had the smallest military budget in the Warsaw Pact.[146] When Hungary applied for NATO membership, it promised to keep military expenditure at a minimum between 1.7 and 1.8 % of GDP.[147] However, Hungary has found it difficult to meet this commitment. Former Hungarian defense minister Gyoergy Keleti admitted "that in order to achieve NATO membership the country had made commitments it was not prepared to keep."[148]

Since gaining NATO membership in 1999, Hungary's defense expenditures, as a percentage of GDP, have been consistently below NATO's burden-sharing target of 2% of GDP. In 2002, Hungary's Ambassador to NATO lamented Hungary's dismal record. "The problem is that, after getting into the club through considerable effort, we stopped caring."[149] Since joining NATO, Hungarian military expenditures have been, on average, 1.5% of GDP. This rate has steadily declined since 2003. Hungary's average expenditures are below that of Portugal (1.8%) and the Czech Republic (1.96), however they are above Belgium's average of 1.2% over this period (see Figure 6.3).

NATO officials and other member countries have voiced their frustration with Hungary's failure to follow through on their defense spending commitments. In 2004, the NATO Secretary General chided Hungary for its low level of defense expenditures.[150] More recently, in 2007, a British Member of Parliament called for a suspension of Hungary's NATO membership. Both Hungarian political and military leaders acknowledged that Hungary had to do better. István Simicskó, a member of the Christian Democrats (KDNP), suggested that his country's lackluster effort put Hungary's international reputation at stake. "Embarrassingly, within NATO only Iceland spends less on defence than Hungary."[151] At the 2008 NATO meeting in Budapest, the Hungarian Defense Minister announced that Hungary would increase its defense expenditures by 0.2 percent in the next five years.[152] However, even this meager improvement will be difficult to accomplish given recent economic problems. In 2008, Hungary was given a $25.5 billion bailout package from the IMF, EU, and World Bank. The conditionality imposed on these loans might add additional pressure on Hungary to cut its government expenditures even further in order to lower the deficit.[153]

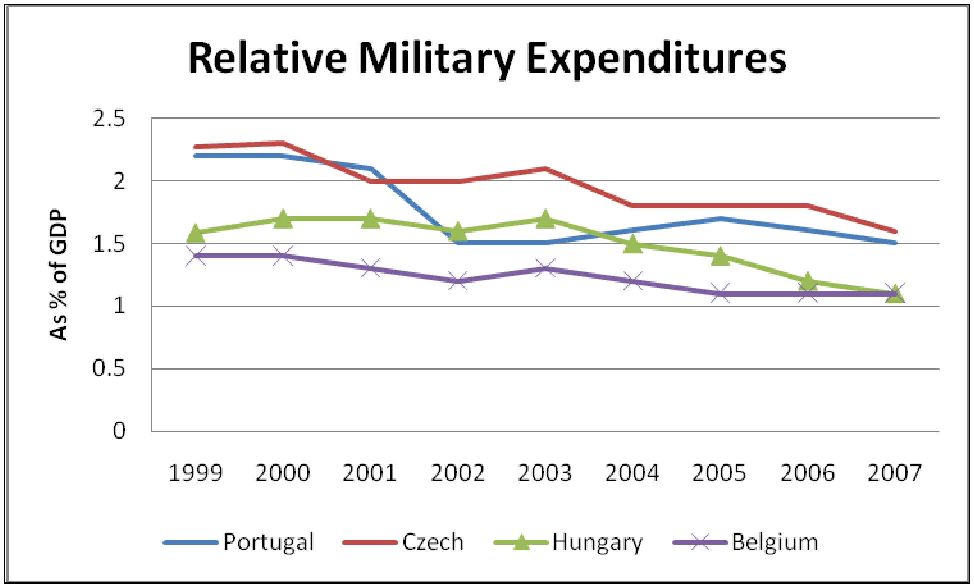

Figure 6.3: Hungary's military expenditures vs. other NATO members[154]

A better picture emerges when looking at troop commitments even though the constraints for Hungary are significant. In Hungary, the President's role in the military is more limited than in Poland. The President only controls promotions and firings of military personnel.[155] In order to deploy forces overseas, the Hungarian Parliament must first approve the operation in law. This even applies to aircraft participating in military exercises. Once NATO identifies a requirement, the Military Chief of Staff submits a request to the Ministry of Defence. Once the Prime Minister and government approve the request, it is sent to Parliament for approval. Therefore these decisions are much more sensitive to public opinion.

As a member of the Warsaw Pact, Hungary was reluctant to send forces abroad to support Soviet foreign policy, unlike Czechoslovakia which was very active in the Third World.[156] Hungary has not carried this reluctance forward into NATO missions. As discussed in the last chapter, Hungary's average contribution to SFOR was 280 troops between 1999 and 2004, slightly below that of the Czech Republic (325), and well below that of Belgium (402) and Portugal (398). Like the Czech Republic, Hungary increased its average contribution to KFOR to 342 troops per year. While Hungary's average contribution was still below that of the Czech Republic (365) and Belgium (592), it exceeded that of Portugal (310) during the last ten years of KFOR. However, Hungary's participation in KFOR was noteworthy, given the concern over retribution against ethnic Hungarians living in Serbia and tenuous public support.[157] Hungary also provided significant logistical and transportation support and critical air and land transit authority in support of NATO operations in the Balkans.[158] These unique contributions are hard to quantify and balance against other national contributions.

Hungary was also keen to demonstrate its support to the United States during Operation Iraqi Freedom. As the Hungarian National Military Representative stated in an interview, "because the U.S. was involved [in Iraq], we had to be there."[159] In fact, Hungary committed 500 troops to OIF in 2003 and approximately 290 in 2004 and 2005 before withdrawing its forces. As in the other new member countries, there was strong domestic opposition to Hungarian participation in Iraq. The Hungarian Parliament had bitter debates about extending the mandate for the forces serving in Iraq, and most Hungarians were against involvement.[160] Hungary's average participation in OIF exceeded that of the Czech Republic (124 troops) and of Portugal (124 troops). Belgium did not participate in OIF.

In ISAF Hungary's contributions increased from 130 troops in 2004 to 240 troops in 2008. This level of contribution (averaging 152 troops per year) was again below that of the Czech Republic (379), and Belgium (292), but it again exceeded that of Portugal (72). These Hungarian forces have been committed to a Provincial Reconstruction Team in the Baghlan Province, between Kabul and Mazar-e-Sharif in the north. Hungary also provides an Operational Mentor and Liaison Team and a Special Forces Team. As the Hungarian National Military representative stated in an interview with the author, "the military leadership recognizes that once you join the alliance you also have requirements to meet. But the difficulty is to determine how to contribute to operations while dealing with force cuts and a declining budget."[161]

Hungary's contributions to NATO missions do not demonstrate a strong willingness to contribute forces (see Table 6.3). Unlike Poland and the Czech Republic, Hungary's total commitment has actually dropped from 1999 (when it had 635 troops in SFOR and KFOR) to 2008 (557 troops between KFOR and ISAF). Since Hungary has a much smaller Army than the Czech Republic, Hungary's percentage of ground forces deployed equaled about 9.6% of its land forces.[162]

Hungary's Cold War military was too large to be affordable and unsuited for interoperability with NATO.[163] Like the other new members, Hungary thus underwent a significant modernization and overhaul of its military forces during this timeframe, including the switch from conscription to an all professional force by 2004.[164] Since joining NATO, the size of the Hungarian armed forces have declined from 68,261in 1999 to 20,000 in 2007, a reduction of over 70%.[165] While Hungary's contributions to NATO are less impressive than that of the Czech Republic, it did make a big commitment to OIF in 2003. Therefore it is not surprising that Hungary also received side payments from the United States. In 2006, total U.S. government assistance to Hungary equaled approximately $15 million.[166] Unlike Poland and the Czech Republic, it is harder to characterize Hungary's lack-luster burden-sharing as a lack of capability. Rather it appears that Hungary lacks the political willingness to fully meet its NATO obligations.

Table 6.3: Hungary's annual contributions to NATO/U.S.- led missions

	SFOR (1999-2004)	KFOR (1999-2008)	ISAF (2003-2008)	OIF (2003-2008)
AVG	280	342	152	217
MAX	314	484	240	500

2004 Wave Case Study: Romania

Romania is one of two countries from the 2004 wave of NATO enlargement chosen for examination. Romania, like Poland, had security guarantees from Britain and France at the beginning of World War II. After ceding territory to both Hungary and the Soviet Union under pressure, Romania joined forces with Nazi Germany[167]. Romania's pro-Axis leader, Marshal Ion Antonescu, was finally overthrown by King Michael on August 23, 1944, and Romania was occupied by the Soviet Union in August 1944. Like the members of the 1999 wave, Romania was a founding member of the Warsaw Pact.

However, unlike the other countries examined, Romania maintained a relatively independent foreign policy from the Soviet Union during the Cold War. At Romania's request, Soviet troops were withdrawn from Romania in 1958.[168] In addition, Romania was the only Warsaw Pact country that did not participate in the invasion of Czechoslovakia in 1968.[169]

Romania had one of the most autocratic governments in Eastern Europe during the Cold War. In 1989, near the end of the Cold War, Romania violently overthrew the communist government of Nicolae Ceausescu. Immediately after the revolution, the National Salvation Front (FSN) ruled Romania and won the first post-communist election in 1990.[170] The FSN became the Party for Social Democracy in Romania (PDSR), and its candidate, Ion Illiescu, won the general election in 1992. The PDSR ruled from 1992 to 1996 and again from 2000 until 2004. From November 1996 until 2000, Romania was governed by a coalition government, formed by the center-right Democratic Convention, the center-left Union of Social Democrats, and the Democratic Union of Hungarians in Romania (UDMR). In spite of this active party system, democratic institutions during this period were weak and corruption was rampant. Therefore Romania required significant political reform prior to entering NATO and the European Union. Of the five countries examined in this chapter, Romania was the only country rated by Freedom House as only partially free after 1991; it did not improve to a free rating until 1996.[171]

Romania is in a relatively secure geographic position. Romania shares a border with two NATO countries (Hungary and Bulgaria) as well as with Serbia, Moldova, and the Ukraine. Like the Czech Republic and Hungary, Romania does not share a land border with Russia. However both Russia and Romania are Black Sea states. The distance from Bucharest to Moscow is 1,498 km, only slightly closer than the Czech Republic or Hungary.

Romania is a median-size NATO member, with a combined area of 237,500 sq km, smaller than Poland, but larger than the Czech Republic, Estonia, or Hungary. Romania has a population of approximately22.3 million (90% ethnic Romanian and 7% ethnic Hungarians). Romania's GDP was $247 billion in 2007; it has grown an average of 14.9% since 1993.[172] This makes Romania one of the poorest new members of NATO, with a per capita GDP (PPP) of $11,100, although its inflation rate is modest at 4.8%.[173] Despite a high rate of poverty, Romania has a low level of public debt, at approximately 13% of GDP,[174] and a relatively low budget deficit of 2.6% of GDP in 2007.[175] This low level of debt again relieves Romania of some of the fiscal pressure of the Stability Pact requirements.

Because of its relatively independent foreign policy and other economic concerns, Romania was not supportive of the Warsaw Pact's spending targets during the Cold War.[176] Therefore, it spent a relatively small amount of GDP on military expenditures. In contrast, Romania is the only country examined in this chapter to meet NATO standards in every year, except one, as a NATO member. This is consistent with the findings in Chapter 4 that wealth was not necessarily correlated with military expenditures as a percentage of GDP. Since 1999, Romania's military expenditures as a percentage of GDP have averaged 2.16% (see Figure 6.4). In 2003, the Romanian Government made a commitment to spend a minimum of 2.38 percent of GDP for defense from 2003 to 2006.[177] While it has not been able to meet this commitment, it has managed to exceed the NATO standard. The Romanian President gave two reasons for this level of military expenditures: the need to update old or inferior equipment in Iraq and Afghanistan and the commitment to fulfill Romania's obligations to NATO.[178] However, conditions attached to IMF loans, in response to the global economic crisis, might make it difficult to sustain these high levels of defense spending. In 2009, an agreement was reached to potentially give Romania a $27 billion loan package from the IMF, EU, and the World Bank.[179]

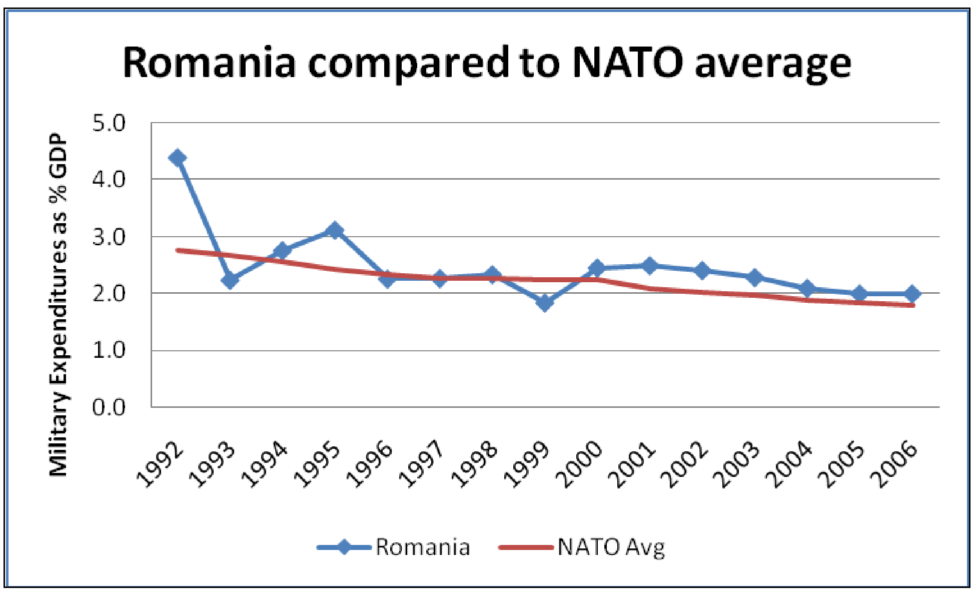

Figure 6.4: Romania's military expenditures vs. NATO average[180]

Romania has also made strong contributions to NATO missions. Like Poland, the Romanian President approves the deployment of troops to NATO missions. Article 92 of the Constitution defines the President as commander-in-chief of the country's armed forces.[181] However, Parliament has to approve any mobilization of the armed forces, after the decision is debated in the Supreme Council of National Defence. The Parliament also has to approve the budget and the number of troops being sent on any deployment. Parliamentary decisions establish the legal framework for participation in NATO operations and provide the government with the authority and resources necessary for Romanian participation.[182]

While Romania was very active in the Third World during the Cold War, their involvement was mostly through diplomatic contacts in Africa. However, unlike some Warsaw Pact countries, Romania dealt primarily with non-Warsaw Pact clients.[183] Romania has been a much more active ally under NATO. As a member of the PfP, Romania committed 200 troops to SFOR.[184] However, this project focuses on contributions since attaining membership. As in SFOR, Romania's contribution to KFOR was relatively modest at 226 troops in 2004 (averaging 180 soldiers per year between 2004 and 2008). This represented about half of Romania's fair share based on percentage of NATO population. Romania also made a significant contribution to the coalition forces during U.S.-led Iraqi Freedom. On February 12, 2003 the Romanian Parliament voted to join OIF with around 800 troops.[185] From 2004 until 2007, Romania had, on average, over 760 troops in Iraq and currently maintains about 496 troops there. Clearly, Romania wanted to demonstrate its commitment to the United States as a reliable partner. The decision to stay in Iraq after Spain withdrew was not an easy political decision. The Romanian President, from the conservative Democratic Party, was for sustaining the mission, while the Prime Minister, from a small liberal party, was against continuing the mission. In the end, the President prevailed. A Romanian officer attending the U.S. Army War College, who was the former plans officer in Iraq, attributed that decision to the Romanian view that its true security interests were aligned with a close partnership with the United States.[186]

Romania made a significant contribution to the U.S.-led Operation Enduring Freedom in Afghanistan and to NATO's ISAF. Retired Lieutenant General Barno, former OEF commander from October 2003 until May 2005, was especially praiseworthy of the Romanian contributions to OEF and their willingness to fight with few caveats.[187] Romania continued this robust level of contribution during NATO operations in Afghanistan with 950 soldiers deployed in 2006 and averaging over 622 troops per year since 2004. Secretary General Jaap de Hoop Scheffer commended Romania after the Bucharest Summit for its active participation in Afghanistan and other NATO missions.[188] Romania's participation is also qualitatively above what other allies are contributing. For example, Romania is one of the few NATO countries deploying to Afghanistan with its own strategic airlift assets. It has also deployed its troops into the more dangerous southern provinces of Afghanistan, with no national caveats. It is not surprising then that Romania also received side payments from the United States. U.S. aid to Romania in FY 2006 totaled approximately $43.55 million, of which almost $17 million was in security and law enforcement assistance.[189] More importantly, the United States maintains a training base inside of Romania that gives Romania an enhanced feeling of security in addition to increasing the capability of Romanian forces.

The increasing level of commitment demonstrated by Romania is consistent with the earlier results in these case studies. Both Romania's average and maximum troop contributions to NATO and U.S.-led missions have increased steadily since 2004 (see table 6.4). During this same period, the size of the Romania armed forces has dropped from 217,400 in 1999 to 76,000 in 2007.[190] Romania also phased out conscription in 2007 as a part of its modernization and transformation efforts.[191] Romania's increasing level of support to NATO missions also lends credence to the explanation that as new members increased capability, they increased their contributions to NATO missions.

Table 6.4: Romania's annual contributions to NATO/U.S.- led missions

	KFOR (2004-2008)	ISAF (2004-2008)	OIF (2004-2008)
AVG	180	596	764
MAX	226	950	865

2004 Wave Case Study: Estonia

Estonia's history certainly informs its attitude towards NATO and its large neighbor, Russia. Estonia gained its independence from the Soviet Union in 1920. With the outbreak of World War II, Estonia was invaded by Russian troops in 1940 and re-incorporated into the Soviet Union. In 1941, Germany occupied Estonia and some

Estonians joined the German armed forces. In 1944, the Soviet Union drove Nazi German forces from Estonia and re-established control over the country. Estonia again lost its independence at the end of World War II. Therefore, unlike the other case studies in this chapter, Estonia was never a member of the Warsaw Pact, nor did it have an independent army. While Estonia's path to independence began earlier, in 1989 over one million people in the three Baltic countries formed a human chain linking Vilnius in Lithuania to Riga in Latvia to Tallinn in Estonia to protest against the Soviet Union. The following year, Estonia's Parliament declared its intention to regain independence. However, Estonia did not gain its independence until 1991. Since that gaining independence, Estonia has had a tense relationship with Russia. In fact, Russian troops were stationed in Estonia until 1994. This made Estonia one of the last East European countries occupied by Russian troops. Estonia remains in a vulnerable strategic location. The distance from Vilnius to Moscow is only 867 km, making Estonia one of the closest new NATO members to Russia. Since independence, tensions have increased over attempts to remove Soviet-era memorials and over treatment of Estonia's Russian minority. In 2007, Russia's major cyber attack against Estonia increased anxiety over security, as did the Russian invasion of Georgia in 2008.[192]

Estonia is one of the smallest NATO countries and is the smallest new member state. Therefore it should face greater incentives to *free ride* within NATO than our other countries studied. Estonia has a population of approximately1. 3 million (68% ethnic Estonians and 26% ethnic Russians) and shares a border with Russia. At 29% of the population, Estonia's large ethnic Russian population is second in size only to Latvia's.

Estonia's GDP was $28.7 billion in 2007. This makes Estonia one of the richest new members of NATO, with a per capita GDP (PPP) of $21,800.[193] Estonia's GDP has grown 8.8% on average since 2000[194] and 18.5% since 1993.[195] This rapid growth has led to a relatively high inflation rate of 6.6% in 2007. In addition to its wealth, Estonia also has an extremely low level of public debt (3.8% of GDP in 2007)[196] and a low deficit of 1.2% in 2008.[197]

The security guarantee from NATO is a major pillar of Estonia's National Security Strategy. In a government sponsored survey, over 60% of Estonians "named NATO membership as the key security guarantee for Estonia."[198] At the first year anniversary of NATO accession, Estonia's Foreign Minister stated that Estonia "must fulfill all the promises and commitments made when joining NATO, including the maintaining of defense expenditures at 2% of GDP….We must not forget that 2% of GDP, as a reliable partner in NATO, is… a bigger security guarantee than… even 100% of GDP without membership in NATO!"[199] As in Poland, all political parties in the Estonian parliament (Riigikogu) agree in principle on the 2% goal. Commitments to NATO force goals are often used as support by the MOD to justify resource allocations.[200] There is also strong domestic support for the military in Estonia. Over 76% of the Estonian population support maintaining or increasing military expenditures.[201]

For the past four years, Estonia has maintained its defense expenditures at approximately 1.6% of GDP. This is well below NATO's burden-sharing target of 2% of

GDP, but on par with the non-U.S. NATO average, 1.7%. This poor showing can be partially attributed to Estonia's high growth rate. In 2006, Estonia's real growth rate for its GDP was over 11%.[202] In gross terms, Estonia's defense budget has increased steadily since accession to NATO (see Figure 6.5). In any case, Estonia has made a commitment to meet the NATO goal of spending 2% of GDP on defense by 2010.[203]

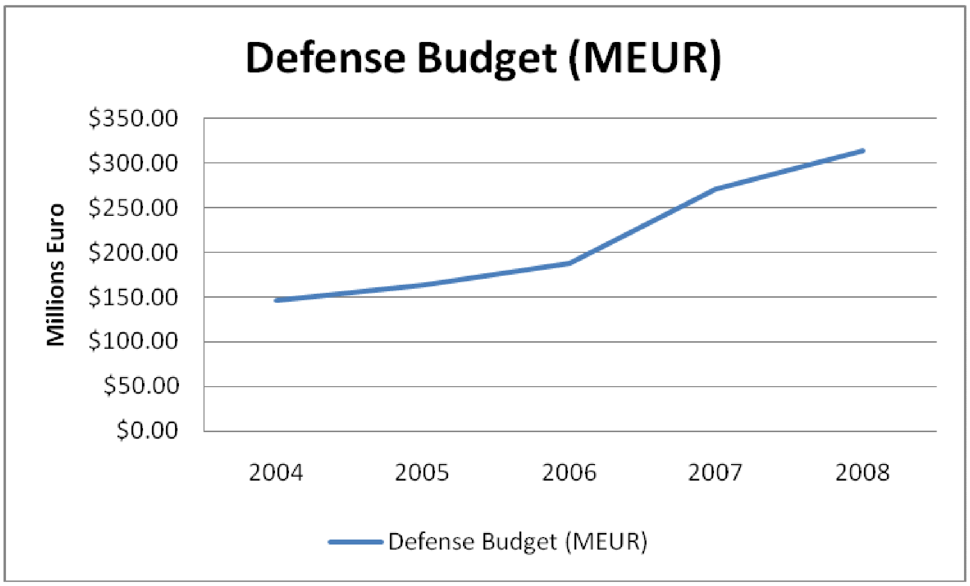

Figure 6.5: Estonia's Defense Budget in €millions (MEUR)[204]

Estonia, though having a small military, has also contributed to NATO operations and the U.S. global war on terror. Estonia must first get the approval from its Parliament. The Minister of Defence has been delegated this authority for Article 5 missions. In order to contribute to non-Article 5 missions, The MOD requests approval from Parliament, through the government, for these missions by outlining the purpose, the troop limits, and the time limits. Normally, the Parliament looks for UN Security

Council Resolutions to legitimate participation in these missions prior to approval. These mandates from parliament must be periodically renewed.

Like Romania, Estonia also sent forces to SFOR under the Danish Battalion. However, this study focuses on contributions to NATO after membership. In line with other small NATO members, Estonia's relative contribution to KFOR (averaging 49 soldiers per year) roughly equaled its fair share based on percentage of NATO population. While these numbers appear relatively small, Estonia contributed a total of 500 troops to UN, NATO, or U.S.-led operations in 2007. This represents nearly 8% of Estonia's total defense forces, which is above the European average and in compliance with NATO's deployability goals.[205] Given Estonia's current military capability (especially in the area of manpower), this level of participation is at its limit.[206] Like Poland, Estonia had to contend with competing commitments for forces during this period due to troops participating in Operation Iraqi Freedom. From 2004 to 2007 Estonia maintained (on average) over 36 soldiers in Iraq. This was in the face of strong domestic opposition to the Iraq war, with almost 60% opposing the Iraq mission in 2005. This opposition was even higher among Russian Estonians (76%).[207]

Like Poland, Estonia had few forces in ISAF prior to 2007. At the request of NATO, Estonia sent military forces to NATO operations in Afghanistan in November 2006, and they have remained there through 2008. Like Poland, this decision was made in the face of domestic doubts about the ISAF mission. In a 2007 Ministry of Defence public opinion poll, a majority of respondents support discontinuation of Estonian involvement in current missions in areas of conflict.[208] This represents a change over previous opinion polls that favored continued participation. Estonia saw participation in ISAF both as a national obligation and as an opportunity to increase its credibility in NATO.[209] Estonia's relative contribution to ISAF (approximately 120 soldiers per year in 2007 and 2008) is roughly double its fair share based on population. Estonia's Parliament recently increased the mandate for the mission size from 150 to 180 troops.[210] In addition to the size of Estonia's commitment, these forces are stationed in the southern province of Helmand, with Danish and British forces.[211] This is arguably one of the more dangerous sectors in Afghanistan and two Estonian soldiers were killed there in the summer of 2007. Thus Estonian participation is qualitatively above what many other allies are contributing.

As with Poland, Estonian officials were proud to point out that their forces in ISAF have no caveats, a major point of contention within the alliance. In an address to Parliament in 2006, the Estonian Foreign Minister justified this level of commitment in Afghanistan by stating that it strengthened Estonia's position in NATO.[212] The Deputy National Military Representative from Estonia at SHAPE justified their commitment to ISAF using the logic of appropriateness. "We don't want to be only the security consumers when we are members of NATO."[213]

Like most of our other case studies, Estonia's contributions to NATO missions have increased over time (see table 6.5). This level of support also lends credence to the capability argument. Unlike our other case studies, Estonia was never an independent country under the Warsaw Pact. During the post-Cold War period, Estonia has had to build its armed forces from scratch. The size of the Estonian armed forces has increased from 3,270 in 1999 to approximately 5,000 in 2007.[214] Estonia was the only new member examined that actually increased its force structure during this period. In spite of its small size and relative lack of military experience, Estonia increased its contributions to NATO missions after gaining membership. This burden-sharing behavior supports the commitment made by Estonia's Foreign Minister at the flag raising ceremony at NATO Headquarters in 2004. "Estonia has already demonstrated its trustworthiness as a partner in Bosnia, Kosovo, Afghanistan, and also in Iraq. Now, as a full member of the Alliance, our responsibility in addressing common threats is even greater and we intend to meet our obligations as a reliable ally in the future as well."[215]

Table 6.5: Estonia's annual contributions to NATO/U.S.- led missions

	KFOR (2004-2008)	ISAF (2004-2008)	OIF (2004-2008)
AVG	41	51	36
MAX	98	128	45

Summary of Case Studies

The cases studies examined in this section are generally consistent with the results from earlier chapters: the largest new member states had higher levels of military expenditure rates as a percentage of GDP than two of the smaller members. However, the Czech Republic, characterized as a small NATO state in Chapter 4, also had a relatively high average expenditure rate in comparison with Hungary (also from the 1999 wave) and with two original members of similar size: Belgium and Portugal. In all five cases, military expenditures as a percentage of GDP decreased with the length of membership. This is also in line with the findings of Chapter Four that suggested burden-sharing decreased with age.

When looking at the additional constraints on military expenditures, states with a higher GDP per capita did not necessarily have greater military expenditures. In looking at expenditures, it is interesting to note that two of the three highest average military expenditures as a percentage of GDP came from Romania and Poland, the two poorest new member countries in terms of GDP per capita. The findings suggest that pressure from the European Union might have been a constraint on military expenditures. Hungary's level of debt (72% of GDP) and deficits (7.8%) were the highest of any of the case studies examined. In consideration of the EU Stability Pact incentives, perhaps there is a tipping point after which a large government debt inhibits military expenditures. While outside the purview of this project, further study is required on the impact of high levels of debt on military expenditures.

The second part of the case study examined contributions to NATO missions. The findings provided insight into the capabilities versus willingness issue. As discussed earlier, burden-sharing behavior is a function of two components: willingness to burden share and capability to burden share. In the case of military expenditures, new members burden-sharing behavior appeared to vary based on the level of political willingness and possibly the level of debt. The results of the case study suggest that limited military capability probably constrained earlier contributions to NATO missions examined in the last chapters. Four out of the five cases studies showed increasing average annual contributions to NATO missions over time (sustainability) and three had increasing maximum levels of contribution (deployability). Thus contributions to ISAF exceeded those to KFOR, which exceeded those made to SFOR. These results support the argument that as capability increased, new member burden-sharing levels increased.

This chapter also analyzed the constraints facing these countries in making decisions to support NATO operations. One major constraint to burden-sharing examined was domestic political opposition. In many of the case studies, increased contributions to NATO missions were made in the face of significant political opposition. This finding reinforces the results of interviews of NATO officials examined earlier in the chapter. These officials all suggested that new members had the willingness to share in the alliance burden, but often lacked capability. The other major constraint was the declining force size in the new member countries. Four of five new members experienced significant reductions in force structure. Three of these actually increased contributions over time. The other case, Estonia, was building a military force from scratch and therefore had increasing force levels and increasing contributions.

In only one case is it difficult to make the case for strong political willingness to share alliance burdens: Hungary. Of all the new members since 1999, Hungary had the lowest military expenditures as a percentage of GDP. Hungary was also the only country studied that had an actual decrease in average and maximum contributions to NATO missions. However, Hungary did improve its relative contributions over time from SFOR to ISAF in relation to old NATO states of comparable size (Belgium and Portugal).

Conclusions

This chapter examined issues of why states exhibit particular burden-sharing behaviors and the difference between capability and willingness. In looking at the rationale behind burden-sharing decisions, it appears that multiple logics are at work and that the logic of collective action offers insights into only a portion of this process. While explanations based on the logic of consequences dominate the assessment of burden-sharing behavior by outside actors, new members themselves have a more complex rationale for burden-sharing in NATO. Military elites from new member countries predominantly use identity-based explanations for the burden-sharing behavior. The fact that most of the new member discourse examined justified burden-sharing by emphasizing appropriateness suggests that socialization may have had a positive impact in mitigating the rational incentives to *free ride*. Not surprisingly, concerns for credibility also seem to inform the burden-sharing decisions of new NATO members. While rational motivations (such as concerns over credibility and side payments) may drive burden-sharing decisions, they are often supported using arguments based on identity.

This chapter also examined the issue of capability versus political will. Based on the views of NATO officials and results of the case studies, it appears that new NATO members generally have the political will to bear their fair share of NATO burdens. This was evident in the both the assessment of NATO officials and in the examination of new member contributions to NATO missions. The results also indicate that, contrary to hypothesis H2a, new member contributions have risen over time as their capabilities improved.

Even where there have been legitimate concerns over free-riding by new members, as in Hungary, the alliance appears willing to accept less than optimal burden-sharing in return for alliance solidarity and democratic governance. This has long been a feature of NATO. As James Golden pointed out in his study of NATO in the 1980's, "The long-run advantages of the alliance – democratic processes, consensual decision making, relatively free and efficient economic markets –frequently translate into short-run problems in building consensus and sustaining defense commitments."[216] However, the increasing pressures of the ongoing operations in Afghanistan may change this dynamic within NATO.

NATO officials realize that the magnitude of changes since the end of the Cold War necessarily constrained new member contributions to NATO missions. As a senior

NATO official stated, “all former Warsaw Pact countries had to establish new governance institutions and reform their militaries at the same time. We wanted them to become a more democratic, not necessarily a more capable force.”[217] In spite of these major challenges, the case studies demonstrate that new member contributions to NATO missions have generally increased in the years after attaining membership. Therefore, despite facing differing strategic environments and international and domestic constraints, new members seem to share the burdens of NATO within the limits of their capability.

[1] General Sir John McColl (Deputy Supreme Allied Commander Europe), interview by author, 1 February 2008, SHAPE Headquarters, Mons, Belgium.

[2] Judith Kelley, "International Actors on the Domestic Scene: Membership Conditionality and Socialization by International Institutions." *International Organization,* 58 (2004).

[3] James Fearon and Alexander Wendt, "Rationalism v. Constructivism: A Skeptical View," in *Handbook of International Relations*, edited by Walter Carlsnaes, Thomas Risse, and Beth Simmons, (London: Sage Publications, 2002), 52.

[4] Adriano Milovan, "Under the Security Umbrella: 60% of World's GDP is created," *PV International*, no.0016 (31 March 2008). Available online at www.privredni.hr/pvint/PVI0016.pdf (accessed 10 April 2008).

[5] Alastair Smith, "Alliance Formation and War," *International Studies Quarterly* 39, (1995): 419.

[6] Traian Basescu (President of Romania) "Preparing for Bucharest," video interview 31 January 2008, http://www.nato.int/multi/2008/video.html#jan (accessed 13 February 2008).

[7] See, for example, Glenn H. Snyder, "The Security Dilemma in Alliance Politics." *World Politics* 36, no. 1 (1984): 474-475; Kenneth A. Oye, "Explaining Cooperation under Anarchy: Hypotheses and Strategies." *World Politics* 38, no. 1 (1985): 1-24; Michael Mandelbaum, *The Fate of Nations: The search for national security in the Nineteenth and Twentieth Centuries,* Cambridge: Cambridge University Press, 1988; Charles A. Kupchan, "NATO and the Persian Gulf: Examing Intra-Alliance Behavior." *International Organization* 42, no. 2 (1988): 317- 346; and Avery Goldstein, "Discounting the Free Ride: Alliances and Security in the Postwar World." *International Organization* 49, no. 1 (1995): 39-71

[8] Barre R. Seguin, "Why did Poland Choose the F-16?" George C. Marshall Center for Security Studies, Occasional Paper No. 11, June 2007. For further details on the loan, see the article in *Janes*, "Defence Budget, Poland," *Jane's Sentinel Security Assessment,* August 6, 2008, http://www8.janes.com (accessed 5 November 2008).

[9] Tamás S. Kiss, "Suspend America says, 'Thank you'," *Budapest Sun Online*, 28 October 2004, http://www.budapestsun.com/cikk.php?id=14018 (accessed on 28 March 2008).

[10] U.S. Department of State, "Military Assistance," undated, http://www.state.gov/documents/organization/17783.pdf (accessed 21 November 2006).

[11] U.S. Department of State, Bureau of European and Eurasian Affairs, "Foreign Operations Appropriated Assistance: Estonia," fact sheet, 28 April 2008, http://www.state.gov/p/eur/rls/fs/104123.htm (accessed 5 November 2008).

[12] Kiss, "Suspend America says, 'Thank you'."

[13] Frank Schimmelfenning, "International Socialization in the New Europe: Rational Action in an Institutional Environment," *European Journal of International Relations* 6, no. 1 (2000): 122.

[14] Anonymous (Senior Diplomat and Member of the NATO International Staff), interview by author, 31 January 2008, NATO Headquarters, Brussels, Belgium.

[15] Kelley, "International Actors on the Domestic Scene," 425.

[16] Ibid.

[17] Jamie Shea (Director of Policy Planning) interviewed by author, 31 January 2008, NATO Headquarters, Brussels, Belgium.

[18] "NATO – An Important Investor," *Warsaw Voice Online*, 4 November 2004, http://www.warsawvoice.pl/view/6978 (accessed on 1 April 2008).

[19] Krzysztof Sidor, "The Changing Face of NATO," *Warsaw Voice Online*, http://www.warsawvoice.pl/view/866315 June 2005, (accessed on 1 April 2008).

[20] Robert Keohane, *After Hegemony: Cooperation and Discord in the World Political Economy* (Princeton: Princeton University Press, 1984), 105–106; Robert Keohane, "International Institutions: Can Interdependence work?," *Foreign Policy* 110, no. 1 (1998).

[21] Frank Schimmelfenning, "The Community Trap: Liberal Norms, Rhetorical Action, and the Eastern Enlargement of the European Union," *International Organization* 55, (2001): 47.

[22] Senator Jim Talent, "New Wine in Old Bottles: Moving Towards a Post Cold War Policy," *Forward!* (The Heritage Foundation, 28 November 2007), http://www.heritage.org/press/commentary/112807a.cfm (accessed on 31 December 2008).

[23] James G. March and Johan P. Olsen, "The Institutional Dynamics of International Political Orders," *International Organization* 52, no. 4, (1998) as cited in Thomas Risse, "Let's Argue!: Communicative Action in World Politics," *International Organization* 54, no. 1 (2000): 1-39.

[24] "Poland spurns U.S. air defense offer," *Los Angeles Times*, 5 July 2008, http://www.latimes.com/news/nationworld/world/la-fg-poland5-2008jul05,0,1045291.story?track=ntothtml (accessed 25 March 2009).

[25] Thomas Risse, "Let's Argue! Communicative Action in World Politics," *International Organization* 54, no. 1, (2000): 4.

[26] Jeffrey Checkel, "International Institutions and Socialization in Europe: Introduction and Framework," *International Organization* 59, no. 4 (2005).

[27] Alexandria Ghiecu, "Security Institutions as Agents of Socialization? NATO and the New Europe," *International Organization* 59, no. 4, (2005): 981.

[28] Jeffrey Checkel, "International Institutions and Socialization in Europe: Introduction and Framework," 804.

[29] Ibid.

[30] Ghiecu, "Security Institutions as Agents of Socialization? NATO and the New Europe," 974.

[31] Ibid., 988.

[32] NATO Public Diplomacy Division, *NATO Handbook* (Brussels, Belgium: NATO, 2001). http://www.nato.int/docu/handbook/2001/hb020201.htm (accessed 21 September 2008).

[33] NATO Public Diplomacy Division, *NATO Handbook* (Brussels, Belgium: NATO, 2006), 196.

[34] Schimmelfenning, "International Socialization in the New Europe," 126.

[35] Ibid., p. 127.

[36] NATO, "Membership Action Plan," Press Release NAC-S(99)66, 24 April 1999, http://www.fas.org/man/nato/natodocs/99042460.htm (accessed 5 November 2008).

[37] Basescu, "Preparing for Bucharest."

[38] Steven Erlanger and Steven Lee Myers, "NATO Allies Oppose Bush on Georgia and Ukraine," *The New York Times*, 3 April 2008, available online at http://www.nytimes.com/2008/04/03/world/europe/03nato.html?8au&emc=au (accessed 3 April 2008).

[39] Ghiecu, "Security Institutions as Agents of Socialization? NATO and the New Europe," 976.

[40] Ibid., 986.

[41] Elizabeth Weinstein,, "NATO gives new member mixed review," *Prague Post Online*, 30 June 1999, http://www.praguepost.com/P02/pp.php/?id=30507&a=3 (accessed on 28 March 2008).

[42] *NATO Handbook*, 2006, 90.

[43] Colonel Janusz Adamczak, interview by author, 5 June 2007, U.S. Army War College, Carlisle Barracks, PA.

[44] Colonel Vasile Roman, interview by author, 11 December 2007. U.S. Army War College, Carlisle Barracks, PA.

[45] Colonel Antanas Jurgaitis, interview by author, 28 January 2008, SHAPE Headquarters, Mons, Belgium.

[46] Colonel Indrek Sirel, interview by author, 6 November 2008, U.S. Army War College, Carlisle Barracks, PA.

[47] Basescu, "Preparing for Bucharest."

[48] Andras Simonyi (formerly Hungarian Ambassador to the U.S. and Permanent Representative to NATO), "Hungary in NATO – after two years of membership," speech to NATO, 2001, http://www.atlanticcommunity.org/Hungary%20in%20NATO.html (accessed 5 December 2006).

[49] "Suspend NATO Membership," *Budapest Sun Online*, 21 January 2007, http://www.budapestsun.com/cikk.php?id=55 (accessed on 28 March 2008).

[50] Lieutenant Colonel Nicolaas Tak, interview by author, U.S. Army War College, Carlisle Barracks, PA, 11 January 2008.

[51] W. Bruce Weinrod (Secretary of Defense Representative, U.S. Mission to NATO), interviewed by author, 31 January 2008, NATO Headquarters, Brussels, Belgium.

[52] Colonel Tucker Mansager (Executive Officer to the Supreme Allied Commander Europe), based on interviews conducted 28 January 2008 at SHAPE Headquarters, Mons, Belgium.

[53] Claudio Bisogneiro (Deputy Secretary General of NATO) interviewed by author, 31 January 2008, NATO Headquarters, Brussels, Belgium.

[54] General John Craddock (Supreme Allied Commander Europe) based on interviews conducted 1 February 2008 at SHAPE Headquarters, Mons, Belgium.

[55] Victoria Nuland (U.S. Ambassador to NATO), "Ambassador Discusses Security Issues on Eve of NATO Ministerial," (webchat on 5 December 2007), http://www.america.gov/st/washfile-english/2007/December/20071205163651eaifas0.8371393.html (accessed on 27 February 2008).

[56] Ann Scott Tyson, and Josh White, "Gates Hits NATO Allies' Role in Afghanistan," *Washington Post.com*, 7 February 7 2008, http://www.washingtonpost.com/wp-dyn/content/article/2008/02/06/AR2008020604690.html (accessed on 13 February 2008).

[57] Larry Fogli, Paul R. Sackett, and Sheldon Zedeck, "Relations Between Measures of Typical and Maximum Job Performance," *Journal of Applied Psychology* 73, no. 3 (1988): 482-486.

[58] Neil Anderson and Ute-Christine Klehe, "Working Hard and Working Smart: Motivation and Ability during Typical and Maximum Performance," *Journal of Applied Psychology* 92, no. 4 (2007): 978.

[59] Friedrich Forsterling, *Attribution: An Introduction to Theories, Research and Applications,* (East Sussex, UK: Psychology Press, 2001), 150-151.

[60] NATO, "Comprehensive Political Guidance," *NATO Online Library*, 29 November 2006, http://www.nato.int/docu/basictxt/b061129e.htm (accessed 6 December 2008).

[61] European Union, "Europa Glossary," undated, http://europa.eu/scadplus/glossary/european_security_defence_policy_en.htm (accessed 5 November 2008).

[62] European Union, "Capabilities Improvement chart II/2005,", Press Release 14729/05(Presse 307), Brussels, Belgium, 21 November 2005, http://europa.eu (accessed 5 November 2008).

[63] European Union, "Europa Glossary."

[64] Glenn E. Curtis, "Poland: A Country Study," (Washington: GPO for the U.S. Library of Congress, 1992), available online at http://countrystudies.us/poland/89.htm (accessed 11 November 2008).

[65] Major Generals ING. Svetozar Nadovic, Hartmut Foertsch, Imre Karacsony, and Zdzislaw Ostrowski, *The Great Withdrawal*, (Bratislava: Slovak Republic Ministry of Defence, 2005), 237.

[66] "Europe Uneasy over Russian Plans to Deploy Missiles," *Deutsche-Welte*, 6 November 2008, available online at http://www.dw-world.de/dw/article/0,2144,3768711,00.html (accessed 14 November 2008).

[67] Andrew Curry, "Will Poland Split EU over Russia Policy?," Spiegel Online International, 18 August 2008. Internet accessed 14 December 2008. http://www.spiegel.de/international/europe/0,1518,572105,00.html

[68] David Ljunggren, "Poland raps NATO members over Afghan commitments," *Reuters*, 4 February 2008, http://www.reuters.com/article/topNews/idUSN0458791220080204 (accessed 13 February 2008).

[69] Central Intelligence Agency, *World Factboook*, undated, https://www.cia.gov/library/publications/the-world-factbook/geos/pl.html (accessed 5 November 2008).

[70] International Monetary Fund, "Reports for Selected Countries and Subjects," *World Economic Outlook Database*, (April 2008), http://www.imf.org (accessed 5 November 2008).

[71] Organization for Economic Co-Operation and Development (OECD) "Country statistical profiles 2008," OECD.Stat Extracts, http://stats.oecd.org/wbos/viewhtml.aspx?queryname=460&querytype=view&lang=en (accessed 5 November 2008).

[72] "Poland revising budget, but holding planned deficit steady," *The Warsaw Voice Online*, 20 November 20 2008, http://www.warsawvoice.pl/newsX.php/7311/2549017099 (accessed 20 November 2008).

[73]Ibid.

[74] Condoleezza Rice, "Defense Burden-Sharing," in *The Warsaw Pact: Alliance in Transition*, eds. David Holloway and Jane M.O. Sharp, (Ithaca: Cornell University Press, 1984), 64.

[75] Bogdan Klich (Polish Minister of National Defence), "Europe-NATO-American Perspectives of Partnership," speech given at the Forum on Euro-Atlantic Security, Krakow, October 23-24, 2008. Recording provided by Nathan Harig, Jagiellonian University.

[76] Colonel Slawomir Wojciechowski, based on interviews conducted 11 December 2007 at the U.S. Army War College, Carlisle Barracks, PA.

[77] International Institute for Strategic Studies, *The Military Balance* (London: Routledge, 2003), 36. Also found in Polish Ministry of National Defence, "Basic Information on the MOND Budget for 2007," http://www.wp.mil.pl/en/strona/126/LG_89 (accessed on 4 November 2008.

[78] "Defence Budget, Poland," *Jane's Sentinel Security Assessment*, 6 August 2008, http://www8.janes.com (accessed 5 November 2008).

[79] "President and Prime Minister bickering again over foreign policy," *The Warsaw Voice Online*, 12 December 2007, http://www.warsawvoice.pl/newsX.php/5359/2549017099/printVer/ (accessed 4 January 2008).

[80] Bogdan Zaryn, "New Defense Minister promises to pull out Polish troops from Iraq in 2008," Polish Radio, 19 November 2007, http://www.polskieradio.pl/zagranica/news/print.aspx?id=69776 (accessed 20 November 2007).

[81] Rice,"*Defense Burden-Sharing*," 81.

[82] Slawomir Majman, "Why Poland is in Iraq," *The Warsaw Voice Online*.11 September 2003, http://www.warsawvoice.pl/printArticle.php?a=3423 (accessed 4 January 2008).

[83] Zaryn, "New Defense Minister promises to pull out Polish troops."

[84] Molly Moore and John Anderson, "NATO Faces Growing Hurdle as Call for Troops Falls Short," Washington Post, 18 September 2006. http://www.washingtonpost.com/wp-dyn/content/article/2006/09/17/AR2006091700570.html (accessed 4 January 2008).

[85] Klich, "Europe-NATO-American Perspectives of Partnership."

[86] Ljunggren, "Poland raps NATO members over Afghan commitments."

[87] Stephen Fidler and Jon Boone, "Fields of little glory: NATO begins to scale back its Afghan ambitions," *Financial Times*, 18 November 2007, 10.

[88] Slawek Szefs, "Poles not pleased with decision to send 1000 troops to Afghanistan," *Network Europe*, 22 September 2006, http://networkeurope.radio.cz/feature/poles-not-pleased-with-decion-to-send-1000-troops-to-afghanistan (accessed on 21 November 212006).

[89] "Military Involvement in Iraq and Afghanistan, October 2007," *World Opinion Update* 32, no. 1, (2008), 2.

[90] "Iraq and Afghanistan: Involvement of the Polish Military, June 2007," World Opinion Update, Vol. 31, no. 5, September/October 2007, p. 100.

[91] Gabriela Baczynska, "Polish troops may train, not fight in Iraq," *Reuters*, 19 November 2007, http://www.reuters.com/articlePrint?articleID=USL1964979720071119 (accessed 19 November 2007).

[92] Klich, "Europe-NATO-American Perspectives of Partnership."

[93] Nicholas Kralev and Andrew Borowiec, "Warsaw Ups Ante for U.S. Shield," *Washington Times*, 16 January 2008, http://www.washingtontimes.com/news/2008/jan/16/warsaw-ups-ante-for-us-shield/ (accessed 16 January 2008).

[94] Jeffrey Simon, "NATO Expeditionary Operations: Impacts Upon New Members and Partners," occasional paper, Strategic Studies Institute, National Defense University, Washington, D.C., March 2005. For data from 2007, see NATO, "NATO-Russia Compendium of Financial and Economic Data Relating to Defence," information for press, NATO Headquarters, 20 December 2007,

http://www.nato.int/issues/defence_expenditures/index.html (accessed 11 November 2008).

[95] NATO, "National Commitments to operations and missions," Poland, (Brussels, Belgium: 2008), http://www.nato.int/issues/commitment/docs/080325-poland.pdf, (accessed 21 November 2008).

[96] Ihor Gawdiak, ed. *Czechoslovakia: A Country Study* (Washington: GPO for the Library of Congress, 1987). Availabe online at http://countrystudies.us/czech-republic/ (accessed 11 November 2008).

[97] Dominik Jun, "The long shadow of the Munich Agreement," Radio Praha. September 30, 2008. http://www.radio.cz/en/article/108781 (accessed 11 November 2008).

[98] Stephen F. Larrabee, "Soviet Crisis Management in Eastern Europe," in *The Warsaw Pact: Alliance in Transition*, eds. David Holloway and Jane M.O. Sharp, (Cornell University Press: Ithaca, 1984), 122–123.

[99] Ibid., 89.

[100] Central Intelligence Agency, "World Factbook,". undated, https://www.cia.gov/library/publications/the-world-factbook/geos/ez.html (accessed 5 November 2008), Czech Republic.

[101] Ibid.

[102] Robert, R. Kaufman, "Market Reform and Social Protection: Lessons from the Czech Republic, Hungary, and Poland," *East European Politics and Societies* 21, no. 1 (2007): 115.

[103] Central Intelligence Agency, "World Factbook," Czech Republic.

[104] Ibid.

[105] International Monetary Fund "Reports for Selected Countries and Subjects."

[106] OECD, "Country statistical profiles 2008."

[107] Ibid.

[108] Organization for Economic Co-Operation and Development (OECD), "Society at a Glance," 2007, http://www.oecd.org/dataoecd/12/7/38138100.xls (accessed 5 November 2008).

[109] Rice, "Defense Burden-Sharing," 60–64.

[110] NATO, "NATO-Russia Compendium of Financial and Economic Data Relating to Defence," information for press, NATO Headquarters, 20 December 2007, http://www.nato.int/issues/defence_expenditures/index.html (accessed 11 November 2008).

[111] Czech Ministry of Defence, "General Information for Visiting this Website," http://www.army.cz/scripts/detail.php?pgid=122 (accessed 12 November 2008).

[112] Major General Josef Sedlak (Czech National Military Representative), based on interviews conducted 28 January 2008 at the SHAPE Headquarters, Mons, Belgium.

[113] Czech Ministry of Defence, "NATO Operation 'Joint Enterprise' in Kosovo," http://www.army.cz/scripts/detail.php?id=6527 (accessed 12 November 2008).

[114] Colonel Josef Kopecky, interview by author, 6 November 2008, National Defense University, Ft. McNair, Washington, D.C..

[115] Karel Janicek, "Czech lawmakers do not extend Afghanistan mission," *The Miami Herald*, 19 December 2008, http://www.miamiherald.com/news/world/AP/story/819725.html (accessed 29 December 2008).

[116] Kopecky.

[117] Kimberly Ashton, "Czech Troops to remain in Iraq," *The Prague Post Online*, 17 October 2007, http://www.praguepost.com/articles/2007/10/17/czech-troops-to-remain-in-iraq/print (accessed 24 January 2008).

[118] Czech Ministry of Defence, "Current Deployments," http://www.army.cz/scripts/detail.php?id=6568 (accessed 6 January 2009).

[119] Ibid.

[120] Jan Velinger, "Czech government to send troops to counter Al-Qaeda in Afghanistan," *Radio Prague*, 15 January 2004, http://www.radio.cz/en/article/49458 (accessed 12 November 12 2008).

[121] Simon, "NATO Expeditionary Operations,"17.

[122] Cyril Svoboda, (Minister of Foreign Affairs), "Report on the Foreign Policy of the Czech Republic 2005," 2005, 12, http://www.mzv.cz/wwwo/mzv/default.asp?ido=19275&idj=2&amb=1&ikony=&trid=1&prsl=&pocc1 (accessed 2 April 2008).

[123] Ondrej Bouda, “Politicians debate foreign missions,” The Prague Post, October 15, 2008. Internet accessed November 12, 2008. http://www.praguepost.com/articles/2008/10/15/politicians-debate-foreign-missions.php (accessed November 12, 2008).

[124] Ibid.

[125] “Czech Oppose More Afghan Deployments,” *Angus Reid Global Monitor*, 12 October 2008, http://www.angus-reid.com/polls/view/31995 (accessed 21 November 2008).

[126] Svoboda, “Report on the Foreign Policy of the Czech Republic 2005,” 12.

[127] U.S. Department of State, Bureau of European and Eurasian Affairs, “Background Note: Czech Republic,”. http://www.state.gov/r/pa/ei/bgn/3237.htm (accessed 2 April 2008).

[128] U.S. Department of State, Bureau of European and Eurasian Affairs, “U.S. Government Assistance to Eastern Europe under the Support for East European Democracy (SEED) Act,” January 2006, http://www.state.gov/p/eur/rls/rpt/64007.htm (accessed 11 November 2008).

[129] NATO, “National Commitments to operations and missions,” Czech Republic, (Brussels, Belgium: 2008), http://www.nato.int/issues/commitment/docs/080730-czech.pdf (accessed 21 November 2008).

[130] Czech Ministry of Defence, “Personnel Size in 1993-2008,” undated, http://www.army.cz/scripts/detail.php?id=5770 (accessed 15 December 2008. Also see Simon, “NATO Expeditionary Operations.”

[131] Stephan R. Burant, *Hungary: A Country Study* (Washington: GPO for the U.S. Library of Congress, 1989). Available online at http://countrystudies.us/hungary/35.htm (accessed 11 November 2008).

[132] Larrabee, “Soviet Crisis Management in Eastern Europe,” 118–119.

[133] Nadovic et al, *The Great Withdrawal*, 213,.228.

[134] Hungarian Ministry for Foreign Affairs, *The National Security Strategy of the Republic of Hungary*, (Budapest, Hungary: Ministry for Foreign Affairs, undated), available online at

http://www.mfa.gov.hu/kum/en/bal/foreign_policy/security_policy/national_sec_strategy_of_hun.htm (accessed 15 December 2008).

135 Central Intelligence Agency, "World Factbook," Hungary.

136 Ibid.

137 Central Intelligence Agency, "World Factbook," Poland

138 International Monetary Fund "Reports for Selected Countries and Subjects,"

139 Central Intelligence Agency, "World Factbook," Hungary.

140 Kaufman, "Market Reform and Social Protection," 119.

141 Ibid.

142 OECD, "Society at a Glance."

143 OECD, "Country statistical profiles 2008."

144 Anonymous (NATO official speaking on background), based on interviews conducted 1 February 2008 at SHAPE Headquarters, Mons, Belgium. Also see Rice,*"Defense Burden-Sharing*," 64.

145 Bruce M. Russett, *What Price Vigilance?: The Burdens of National Defense* (New Haven: Yale University Press, 1970), 114.

146 Kenneth E. Nyirády, *Hungary: A Country Study* (Washington: GPO for the U.S. Library of Congress, 1989). http://lcweb2.loc.gov/cgi-bin/query/r?frd/cstdy:@field(DOCID+hu0195)
(accessed 11 November 2008).

147 Lieutenant Colonel István Biró, "The National Security Strategy and transformation of the Hungarian Defense Forces," U.S. Army War College Strategy Research Paper, 2005, http://handle.dtic.mil/100.2/ADA432740 (accessed 12 November 2008).

148 Celeste A. Wallander, "NATO's Price," *Foreign Affairs* 81, no. 6 (2002): 2-8. http://proquest.umi.com/pqdweb?did=276842621&sid=1&Fmt=3&clientId=20167&RQT=309&VName=PQD (accessed March 27, 2008).

149 András Simonyi (formerly Hungarian Ambassador to the U.S. and Permanent Representative to NATO), "Our three wasted years," *Budapest Sun Online*, 6 June 2002, http://www.budapestsun.com/cikk.php?id=16652 (accessed 12 November 2008).

[150] Tamas S. Kiss, "NATO and PM in talks over funding," *Budapest Sun Online*, 28 October 2004, http://www.budapestsun.com/cikk.php?id=14018 (accessed 12 November 2008).

[151] "Suspend NATO Membership."

[152] "Hungary ups defence Expenses," *Budapest Sun Online*, 15 October 2008, http://www.budapestsun.com/cikk.php?id=28870 (accessed 5 November 2008).

[153] Zoltan Simon, "Hungary Pays with Growth Prospects for IMF–led Bailout Package," *Bloomberg.com*, 29 October 2008, http://www.bloomberg.com/apps/news?pid=20670001&refer=&sid=aFkdVbffn19k (accessed 30 October 2008).

[154] NATO, "NATO-Russia Compendium of Financial and Economic Data Relating to Defence."

[155] Brigadier General Csaba Ujfalusi (Hungarian National Military Representative), based on interviews conducted 28 January 2008 at SHAPE Headquarters, Mons, Belgium.

[156] Rice,*"Defense Burden-Sharing*," 80–81.

[157] Simon, "NATO Expeditionary Operations,"11.

[158] Colonel Tibor Benko, *Hungary: From Warsaw Pact to NATO*, Strategy Research Project (Carlisle Barracks: U.S. Army War College, 2001), 11.

[159] Ujfalusi, interview.

[160] "Suspend NATO Membership."

[161] Ujfalusi, interview.

[162] NATO, "National Commitments to operations and missions." Hungary, http://www.nato.int/issues/commitment/docs/080325-hungary.pdf (accessed 21 November 2008).

[163] Colonel Tibor Bozo, *Hungary A Member of NATO*, Strategy Research Project (Carlisle Barracks: U.S. Army War College, 2003), 6.

[164] Cindy Williams, "From Conscripts to volunteers: NATO's transitions to all-volunteer forces," *Naval War College Review*, (2005): 12.

[165] Simon, "NATO Expeditionary Operations." For data from 2007, see, NATO, "NATO-Russia Compendium of Financial and Economic Data Relating to Defence."

[166] U.S. Department of State, Bureau of European and Eurasian Affairs, "U.S. Government Assistance to Eastern Europe under the Support of East European Democracy (SEED) Act," Hungary, January 2006, http://www.state.gov/p/eur/rls/rpt/64009.htm (accessed 5 November 2008).

[167] Ronald D. Bachman, ed. *Romania: A Country Study* (Washington: GPO for the Library of Congress, 1989). Available online at http://countrystudies.us/romania/ (accessed November 11, 2008).

[168] Ibid.

[169] Larrabee, "Soviet Crisis Management in Eastern Europe," 126.

[170] United Kingdom, Foreign and Commonwealth Office, "Romania," 22 May 2007, http://www.fco.gov.uk/en/about-the-fco/country-profiles/europe/romania?profile=history&pg=3 (accessed 5 November 2008).

[171] Freedom House, "Comparative scores for all countries from 1973 to 2008," 2008, http://www.freedomhouse.org/template.cfm?page=15 (accessed 15 November 2008).

[172] International Monetary Fund "Reports for Selected Countries and Subjects,"

[173] Central Intelligence Agency, "World Factbook," Estonia.

[174] Ibid.

[175] "Romania's Budget Deficit at 2.6 pct/GDP in 2007," *Romania News Watch*, 29 February 2008, http://www.romanianewswatch.com/2008/02/romanias-budget-deficit-at-26-pctgdp-in.html (accessed 5 November 2008).

[176] Rice, "Defense Burden-Sharing," 61.

[177] Lieutenant Colonel Nicolae-Stefan Z. Ciocoiu, *Romanian Armed Forces Transformation Process – The Core Issue of the National Military Strategy towards NATO Integration*, (Carlisle Barracks: U.S. Army War College, 2004). Available online at http://www.dtic.mil (accessed 14 November 2008).

[178] Roman, interviews.

[179] "Romania gets IMF emergency loan," *BBC News Online*, 25 March 2009, http://news.bbc.co.uk/2/hi/business/7962897.stm (accessed 25 March 2009).

[180] NATO, "NATO-Russia Compendium of Financial and Economic Data Relating to Defence."

[181] Claudia Degeratu, “Civil-Military Relations in Romania,” in *Civil-Military Relations in South Eastern Europe*, ed. Plamen Pantev (Institute for Security and International Studies, Sofia, Bulgaria, 2001), 160. Available online at http://www.isn.ethz.ch/isn/Digital-Library/Publications/Detail/?ord516=OrgaGrp&ots591=0C54E3B3-1E9C-BE1E-2C24-A6A8C7060233&lng=en&id=131(accessed 5 November 2008).

[182] Romanian Ministry of Foreign Affairs, “Romania: an active ally within an active and solid Alliance,” undated, http://www.mae.ro/index.php?unde=doc&id=4995&idlnk=1&cat=3 (accessed 5 November 2008).

[183] Thomas P.M. Barnett, *Romanian and East German Policies in the Third World*, (London: Praeger, 1992), 23–30.

[184] Jeffrey Simon, “The IFOR/SFOR Experience: Lessons Learned by PFP Partners,” National Defense University, Institute for National Strategic Studies Strategic Forum, Number 120, July 1997, http://www.ndu.edu/inss/strforum/SF120/forum120.html (accessed 18 November 2008).

[185] Roman, *From Partner to Ally – Romania’s Interest and War on Terrorism* (Carlisle Barracks: U.S. Army War College, 2004). Available online at http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA478505&Location=U2&doc=GetTRDoc.pdf (accessed November 5, 2008).

[186] Roman, interviews.

[187] Lieutenant General David Barno, interview by author, 25 January 2008, U.S. Army War College, Carlisle Barracks, PA.

[188] Secretary General Jaap de Hoop Scheffer, “Romanian President Visit,” *NATOchannel.tv*, 3 June 2008, http://www.natochannel.tv/default.aspx?aid=2645&lid=315 (accessed 18 November 2008).

[189] U.S. State Department, Bureau of European and Eurasian Affairs, “U.S. Government Assistance to and Cooperative Activities with Central and Eastern Europe,” January 2007, http://www.state.gov/p/eur/rls/rpt/92682.htm (accessed, 11 November 2007).

[190] Simon, “NATO Expeditionary Operations.” For data from 2007, see, NATO, “NATO-Russia Compendium of Financial and Economic Data Relating to Defence.”

[191] Polish Ministry of National Defence, “Briefing of highest-ranked authorities of MoND and Polish Armed Forces,” 2 April 2008, http://www.wp.mil.pl/en/artyku/4601 (accessed 18 November 2008).

[192] NATO News, “Estonian President visits NATO,” 4 February 2008, http://152.152.94.201/docu/update/2008/02-february/e0204a.html (accessed 5 November 2008).

[193] Central Intelligence Agency, “World Factbook,” Estonia.

[194] Estonian Ministry of Foreign Affairs, “Economy at a Glance,” 10 October 2008, http://www.vm.ee/estonia/kat_398/pea_172/281.html (accessed 5 November 2008).

[195] International Monetary Fund “Reports for Selected Countries and Subjects,”

[196] “Estonia Public debt,” *Index Mundi*, undated, http://www.indexmundi.com/estonia/public_debt.html (accessed 20 November 2008).

[197] “Estonian central bank announces budget deficit,” *The Baltic Times*, 23 October 2008, http://www.baltictimes.com/news/articles/21624/ (accessed 20 November 2008).

[198] Estonian Ministry of Foreign Affairs, “Support for NATO Membership,” *Estonia in NATO*, 15 December 2005, http://www.vm.ee/eng/nato/kat_359/1007.html (accessed 5 November 2008).

[199] Rein Lang (Estonian Foreign Minister), “Address by Foreign Minister Rein Lang at the celebrating of the first anniversary of Estonia’s NATO accession,” Tallinn, 4 April 2005. Available on line at http://www.vm.ee/eng/nato/aken_prindi/5363.html (accessed 5 November 2008).

[200] Sirel, interview.

[201] Tonis Ormisson, “Public Opinion and National Defence, July 2007,” Estonian Ministry of Defence, 2008, http://www.mod.gov.ee/static/sisu/files/ENG_NATO_report_2007_06-summary.pdf (accessed 5 November 2008).

[202] International Monetary Fund (IMF), “Estonia – 2007 Article IV Consultation Concluding Statement of the IMF Mission,” 14 May 2007, http://www.imf.org/external/np/ms/2007/051407.htm (accessed 5 November 2008).

[203] U.S. Department of State, Bureau of European and Eurasian Affairs, "Foreign Operations Appropriated Assistance: Estonia," fact sheet, 28 April 2008, http://www.state.gov/p/eur/rls/fs/104123.htm (accessed 5 November 2008).

[204] International Monetary Fund "Reports for Selected Countries and Subjects,"

[205] Ibid.

[206] Sirel, interview.

[207] Estonian Ministry of Defence, "Public Opinion and National Defence, March 2005," Research Centre Faktum, March 2005, http://www.kmin.ee/static/sisu/files/2005-04-25_Kmin_eng_parandatud.pdf (accessed 5 November 2008).

[208] Ormisson, "Public Opinion and National Defence, July 2007."

[209] Sirel, interview.

[210] Ibid.

[211] Urmas Paet (Estonian Foreign Minister), "Estonia's contribution to rebuilding Afghanistan," speech to Riigikogu, Tallinn, 15 November 2006. http://www.vm.ee/eng/nato/aken_prindi/7913.html (accessed 5 November 2008).

[212] Ibid.

[213] Lieutenant Colonel Kaoidume, Deputy NMR, based on interviews conducted at the SHAPE Headquarters, Mons, Belgium, 28 January 2008.

[214] Jeffrey Simon, "NATO Expeditionary Operations." For data from 2007, see, NATO, "NATO-Russia Compendium of Financial and Economic Data Relating to Defence."

[215] Kristiina Ojuland (Estonian Foreign Minister), "Address by Foreign Minister at the flag-raising ceremony at NATO Headquarters," 2 April 2004. Available online at http://www.vm.ee/eng/nato/kat_360/4385.html (accessed 5 November 2008).

[216] James R. Golden, *The Dynamics of Change in NATO: A burden-sharing perspective*, (New York: Praeger Publishing, 1983), vii.

[217] NATO official speaking on background, based on interviews conducted at SHAPE on Friday, 1 February 2008.

CHAPTER 7

CONCLUSIONS AND THE WAY FORWARD

Insights into burden-sharing in NATO

The challenge of NATO integration is not so much a question of military equipment modernization … but of building a capable military institution that is supported by society and government.[1]

Jeffrey Simmon, "The New NATO Members: Will They Contribute"

This dissertation set out to answer some fundamental questions about burden-sharing in NATO in the aftermath of enlargement from 16 to 26 members and the fall of the Soviet Union. While much has been written about burden-sharing in NATO, little has been written on the variations in burden-sharing within Europe and the impact of enlargement on burden-sharing and the burden-sharing of new members. This project examined those issues, building upon the previous body of study, in particular the logic of collective action. In the process, this study yielded some important insights into burden-sharing behavior in NATO.

A general finding is that larger NATO states often shoulder a disproportionate share of the alliance burdens under certain conditions. This is in line with the "exploitation of the great" hypothesis discussed in Chapter 2. On average, larger states tend to have higher military expenditures as a percentage of GDP. Larger states also tend to provide a significantly greater proportion of the air power during NATO missions. Yet this can be attributed to an implicit division of labor within the alliance and the maximization of comparative advantage. When looking at troop contributions to NATO peacekeeping missions, the rival explanation (the joint product model) provides greater insight into burden-sharing behavior. The findings suggest that the difference between private and public benefits was a better predictor of burden-sharing than size during the missions examined.

The findings support the second hypothesis (see Table 7.1) that new members would burden-share at a relatively higher level than older members, ceteris paribus. This was especially true for military expenditures and contributions to ISAF. For a variety of rational and identity-oriented reasons, new members have been willing to overcome numerous constraints and incentives to *free ride* in order to contribute to the alliance. These reasons include side payments, concerns for credibility, and successful socialization into NATO burden-sharing norms. In fairness, the relative burden-sharing levels between new and old NATO members varied depending upon the mission and the degree of private benefits attributable to a particular collective good. Older member contributions to those NATO missions immediately after enlargement exceeded new member contributions. However, as military capabilities of the new members increased over time, they were willing and able to assume greater levels of alliance burdens. This finding is not consistent with the corollary hypothesis that new member burden-sharing would decline after accession into NATO (see H2a in table 7.1).

Given the results above, the findings do not support the third hypothesis (see Table 7.1) that old members would burden-share at a relatively higher level than new members. When looking at military expenditures as a percentage of GDP, old members' expenditures, on average, lagged those of new members. While, old member troop contributions exceeded those of newer members in both the Stabilization Force (SFOR) in Bosnia and the Kosovo Force (KFOR), this was largely attributable to greater military capability of older members. The disparity was greatest between Spain and Poland. However, new members contributed at a higher level in both Operation Iraqi Freedom (OIF) and International Security Assistance Force (ISAF) in Afghanistan.

The test results for the fourth hypothesis were mixed, although a closer analysis suggests free-riding behavior did not increase after NATO enlargement. This is a major finding and is contrary to the expectations from the logic of collective action. In the peacekeeping missions examined, non-U.S. NATO members, both small and large, maintained or increased their relative levels of troop contributions after both waves of enlargement in 1999 and 2004. Declining levels of military expenditures appear to be the result of reduced threat perception, increasing prosperity on the part of non-U.S. allies, and the pursuit of private benefits by the United States.

This chapter, divided into three main parts, summarizes the findings of this study and extrapolates possible insights for future policy decisions and continued academic research. The first section of this chapter reviews the key findings from the previous chapters by hypothesis. It also examines some additional interesting findings that were discovered during the project. In the second section, some predictions are made concerning the subsequent rounds of NATO expansion. These forecasts are based on the results of the previous chapters. The final section proposes an agenda for future research into burden-sharing in NATO.

Table 7.1: Summary of findings

		Findings
H1:	*Large states will share greater relative proportion of burdens than small states*	*Supported for military expenditures* *Supported for air contributions.* *(Division of labor)* *Not supported for troop contributions.* *(Joint Product Model)*
H2:	*New members will share greater relative proportion of burdens than old members*	*Supported for military expenditures.* *Supported for OIF & ISAF* *(based on willingness)*
H2a:	*New member burden-sharing declines after accession into NATO.*	*Not Supported*
H3:	*Old members will share greater relative proportion of burdens than new members*	*Not Supported for military expenditures or OIF/ISAF.* *Supported for SFOR/KFOR* *(based on capability)*
H4:	*Free-riding behavior should increase with NATO enlargement*	*Not Supported for missions.* *Can't reject null hypothesis for Military expenditures* *(alternate explanations)*

Detailed Review of findings by Hypothesis

Hypothesis 1: Large states will share greater relative proportion of burdens than small states

The results for this hypothesis were strongest when using the traditional measure of burden-sharing (military expenditures as a percentage of GDP). Chapters 3 and 4 used a regression model, based on the demand function for military expenditures developed by Sandler and Hartley and informed by Mancur Olson's logic of collective action. The key dependent variable was military expenditures as a percentage of GDP, a proxy measure for burden-sharing. Several different independent variables were tested in the model to control for economic growth, spillover effects from ally spending, and perceived threats.

Using OLS and the FEVD statistical methods, all three measures of size (GDP, population, and area) were positive and statistically significant in five out of six cases in the post-Cold War period. The results were most robust for population and area. These two measures of size were positive and statistically significant in six out of eight cases even when not controlling for NATO/EU membership and length of membership in NATO. These results were statistically significant both with and without the U.S. included in the data set when using the FEVD method. This finding suggests that, on average, larger countries (GDP, population, and area) had higher military expenditures as a percentage of GDP. This finding is in line with the "exploitation of the great" hypothesis from the logic of collective action discussed in Chapter 2.

The results were also consistent with this hypothesis when using air power contributions to NATO missions as a measure of burden-sharing. This project used several case studies of NATO missions to test this hypothesis. While larger NATO states consistently provided a greater relative proportion of the air power, this could be attributable to reasons other than free-riding. First, this disparity reflects a de facto division of labor within NATO. Small countries are actively discouraged by the alliance from developing redundant military capabilities, such as air superiority, where the alliance has surplus capability. Second, the provision of air power by larger states utilizes their comparative advantage in technology and scale and is usually reciprocated by greater relative troop contributions from smaller allies.

The examination of troop contributions to NATO missions (see Chapter 5) did not support the first hypothesis. This finding is particularly important as troop contributions reflect the willingness of NATO states to assume political risk in pursuit of alliance-wide benefits. When looking at troop contributions to NATO peacekeeping missions, the joint product model provides the best insight into burden-sharing behavior. The United States, as the largest and wealthiest NATO state, did not always contribute its proportionate share of ground troops to NATO missions. Much depended upon the perceived private benefits and risks associated with a particular mission. When it did contribute a larger relative percentage of the force, as in ISAF, the United States was pursuing private benefits, such as the Global War on Terror. The same is true of the Big Four European members of NATO. In the two Balkans operations, SFOR and KFOR, the European members had more to lose from failure (i.e. illegal immigration and the spread of ethnic conflict) and therefore provided more than their fair share of troops. On average, the smaller NATO countries also provided their fair share of troops to the NATO missions examined. These findings suggest that the difference between private and public benefits was a better predictor of burden-sharing than size during the missions examined.

Hypothesis 2: New members will share greater relative proportion of burdens than old members

The findings also support the second hypothesis that new members would burden-share at a relatively higher level than older members. This was true for both alliance inputs (defense expenditures as a percentage of GDP) and alliance outputs (troop contributions to OIF & ISAF). The statistical analysis in Chapter 4 suggested that as the length of membership increased, military expenditures as a percentage of GDP decreased. While the coefficient for length of membership was negative using all three statistical methods, they were only statistically significant using FEVD. Therefore, additional comparisons were made between the new members that entered NATO in 1999 (the Czech Republic, Hungary, and Poland) and the older members of similar population size (Belgium, Portugal, and Spain). Unlike the Cold War period, these findings were conclusive and supported the hypothesis that newer members of the alliance shared a greater relative proportion of burdens than old members.

A comparison was also made between new member spending and Russian military expenditures. This test helped to control for the alternative explanation that perceived threat was responsible for greater military spending levels by new members. However, changes in the average military expenditure levels of these three new members were inversely correlated with Russian military expenditures after 1999. This supported the regression findings that conventional threat perception was not a significant predictor of military expenditures during this period.

The examination of alliance outputs (troop contributions) also supported the second hypothesis. During the humanitarian mission by the NATO Response Force (NRF) to Pakistan in 2005, the Czech Republic and Hungary contributed a greater percentage of the force than did their counterparts of equal size, Belgium and Portugal. While Spain's level of contributions exceeded that of Poland, this was largely due to Spain's role as the land component headquarters during NRF 5. However, since the NRF responsibilities rotate with each NRF, caution should be used when generalizing the findings from this case. There was a similar pattern of new member burden-sharing in NATO peacekeeping missions. While Belgium and Portugal contributed more troops to the earlier NATO missions, Bosnia and Kosovo, the Czech Republic and Hungary contributed a greater proportion of forces to the ISAF in Afghanistan. While troop contributions from Spain exceeded those from Poland early in ISAF, Polish contributions were constrained by a large commitment of troops to OIF. As OIF troop levels fell, Poland increased its contributions to ISAF, exceeding Spain in 2007 and 2008. The contributions of new member states also came with less restrictions than those of the older members. This finding suggests that new member states were willing to take on additional responsibility and burdens as their capabilities increased.

The findings from the qualitative analysis also support this conjecture. Chapter 6 took a different methodological approach, using interviews with NATO elites and case studies of new member countries to better understand burden-sharing behavior. Based on the views of NATO officials and the results of the case studies, it appears that new NATO members, in general, had the political will to bear their fair share of NATO burdens, but often lacked the military capability. Where political will was lacking, as in Hungary, free-riding behavior was more prevalent. Even then, Hungary made an effort to bear some of the risks involved.

Given the magnitude of the challenges faced by the new NATO members since the end of the Cold War, they have made significant contributions to the alliance. It is surprising that new members have contributed as much as they have to NATO missions, even when the operations had little direct linkage to their traditional security concerns. It appears that the pursuit of private benefits, such as credibility, certainly played a factor in the burden-sharing behavior of new members. Interestingly, new members primarily used the logic of appropriateness to explain their contributions to NATO. This suggests that both socialization and rational incentives influenced the willingness of new members to share burdens.

Hypothesis 2a: New member burden-sharing declines after accession into NATO.

The results were similar for the corollary hypothesis that new member burden-sharing would decline after accession into NATO. While new member military expenditures as a percentage of GDP declined after accession they did not decline on a relative basis. New members' military expenditures as a percentage of GDP remained at or above the average, non-U.S. NATO military expenditures after enlargement. These findings were true for both the 1999 and 2004 wave of new members. Therefore, the declines represent a broader trend of declining military expenditures in non-U.S. NATO allies. Much of this decline can be attributed to more rapid economic growth by new members after 1999. On average, new members had an average growth rate of 6.9% compared to 2.27% for the U.S. during this period. These new members also felt a greater sense of security once inside NATO. As already mentioned, new member military spending as a percentage of GDP was inversely related to Russian military expenditures after 1999.

The case studies revealed that, on average, new member relative contributions to NATO missions increased in the years after attaining membership. In general, as military capability increased, relative contributions to NATO missions increased. This was true in all three NATO missions examined: SFOR, KFOR, and ISAF. While there were individual cases where absolute troop contributions declined, these were usually in concert with a reduction in the size of the total NATO force due to decreasing mission requirements. In ISAF, where mission requirements increased every year, the average troop contributions from new members increased steadily.

Hypothesis 3: Old members will share greater relative proportion of burdens than new members

The findings did not support the third hypothesis that old members would burden-share at a relatively higher level than newer members. This was especially true for alliance inputs (defense expenditures as a percentage of GDP). As already mentioned, military expenditures as a percentage of GDP decreased as the length of membership increased. Additionally, the comparisons between the new members that entered NATO in 1999 and the older members of similar population size supported the hypothesis that newer members of the alliance shared a greater relative proportion of burdens than old members.

The results for troop contributions were more nuanced. Older NATO members generally contributed more troops to SFOR and KFOR than did the new members. However, this reflects the greater capability of the older members rather than a greater willingness to share burdens. During the most recent NATO mission in Afghanistan, new members have contributed a greater proportion of forces to the International Security Assistance Force (ISAF) in Afghanistan than did the older members of similar size. The findings suggest that new member states were more willing to take on additional responsibility and risk as their capabilities increased.

Hypothesis 4: Free-riding behavior should increase with NATO enlargement

The test results for the fourth hypothesis were also mixed, but suggest that overall free-riding behavior did not increase after NATO enlargement. In all three peacekeeping operations, the findings did not support the hypothesis that free-riding behavior would increase with NATO enlargement. After NATO expanded in 1999 and again in 2004, the average annual contribution of small NATO countries increased during SFOR, KFOR, and ISAF. Had NATO expansion led to greater free-riding, these levels of contributions should have declined after enlargement. This suggests that future rounds of enlargement will not lead to increased free-riding behavior as suggested by the logic of collective action.

At first glance, the findings regarding military expenditures appear to support a linkage between enlargement and free-riding behavior. Average non-U.S. military expenditures did decrease as a percentage of GDP after both waves of enlargement. However, this correlation does not suggest causation. There are three alternative explanations for this phenomenon. While non-U.S. military expenditures as a percentage of GDP declined after enlargement, some of this was attributable to economic growth which was inversely related to military expenditures in the regression models of Chapters 3 and 4. Non-U.S. NATO members had a slightly higher growth rate at 2.31% compared to 2.27% for the U.S. during this period. Most importantly, rising levels of U.S. military expenditures after 2001 could also be explained by the pursuit of private benefits by the United States. For example, the U.S. war in Iraq was responsible for a large portion of the increase in U.S. military expenditures during this period. Of note, the gap between the U.S. and non-U.S. NATO military expenditures in 2006 was still less than in 1992.

Finally, declining military expenditures can also be explained by a declining conventional threat perception in Europe.

Other findings

This project also revealed some important findings that were not included in the initial hypotheses. These concern how burden-sharing decisions are made, the components of burden-sharing and the role of threat. Burden-sharing is a complex process that consists of weighing national interests, alliance commitments, and domestic constraints. The decision making process is dynamic and unique to each country. However, there are some patterns that seem to emerge. While rational motivations (such as concerns over credibility and side payments) may drive burden-sharing decisions, they are often supported using arguments based on identity. Politicians and leaders often cite obligations to the alliance when trying to increase military expenditures or justify troop contributions. This language, which suggests a logic of appropriateness, was also used by new members in explaining their contributions to NATO during the interviews.

This study also examined the distinction between willingness and capability in burden-sharing borrowing insight from psychology. The focus of the burden-sharing literature has been on willful free-riding as rational behavior. Often what appears to be free-riding behavior actually reflects a lack of capability rather than a lack of willingness to contribute. This is important in that the remedies for lagging contributions differ based on the root cause. In this project, new members increasingly contributed to the alliance in the face of significant fiscal, physical and political constraints. While most new members were unable to sustain their military expenditures at the NATO standard of 2% of GDP, they did relatively better than their older counterparts. Poland, for example, enacted new laws to peg its defense budget to the NATO standard.

The examination of troop contributions to NATO missions yields a similar finding. Early shortfalls to troop contributions reflected a lack of capability. As military capabilities increased, so too did contributions to NATO missions. In Afghanistan, new members have provided more troops, with fewer restrictions, than their older NATO counterparts of similar size. Often this was done in the face of stiff domestic opposition and declining force structure.

Finally, this study yielded some interesting insights about the perception of threat. Not surprisingly, threat perceptions differ between the Cold War period and the post-Cold War period. During the statistical analysis of the Cold War period, the threat variable was positively related to non-U.S. military expenditures as a percentage of GDP. This result was statistically significant and robust using three different methods. As Russian spending increased, so too did non-U.S. NATO spending. In the post-Cold War period, the threat variable was still positively correlated to non-U.S. military expenditures, but only using one of the three statistical methods discussed in Chapter 4.

During the Cold War, increases in Russian military expenditures seemed to follow increases in U.S. military expenditures as a percentage of GDP, although they were only moderately correlated. In addition, non-U.S. NATO military expenditures as a percentage of GDP were strongly correlated with Russian military expenditures, with a correlation coefficient of 0.81. In the post-Cold War period, U.S. and Russian military expenditures were strongly correlated, with a correlation coefficient of .87.   Again, Russian military expenditures seemed to follow increases in U.S. military expenditures as a percentage of GDP. Surprisingly, Russian military expenditures explained only 11% of the variance in non-U.S. NATO defense expenditures after the Cold War.   As the Supreme Allied Commander Europe said, "after the Cold War ended, many believed that Europe and Eurasia were no longer at threat of being invaded."[2] At least until the Russian invasion of Georgia in 2008, most NATO allies no longer saw Russia as a conventional security threat.

Future Policy Considerations for NATO and the United States

The results of this study provide some insights that could help strengthen the alliance as a whole while helping the United States achieve its national interests. NATO already has many mechanisms that facilitate cooperation and security in the trans-Atlantic region. However, some relatively minor changes could enhance alliance capabilities and lead to more equitable burden-sharing within the alliance.

An area for future examination concerns NATO's common funding. NATO should continue to push for the expansion of capabilities resourced through common funding. Common funding tends to bind states, enabling them to more easily justify their NATO commitments domestically. Each NATO nation has an established cost-share for NATO common funds. These funds pay for alliance-wide facilities and capabilities. For example, NATO owns a fleet of airborne surveillance and early warning aircraft. NATO could add a limited amount of common funded strategic airlift assets to help share the burdens of supporting NATO missions and minimize the domestic political constraints to increased spending. NATO is already moving to expand common funding for the NATO Reaction Force. This will make it easier for both new and old members to commit forces to the NRF and to follow through when the NRF is activated.

NATO also has to look for ways to increase capability in the face of increasing economic pressures. While nations should be held accountable for meeting NATO commitments, it is not realistic to expect that European nations will be able to meet the 2% GDP standard in the face of the current global crisis. Therefore, NATO should increase capability by promoting a further division of labor both externally in its coordination with the European Union and internally during its force planning process. The European Union has developed substantial peacekeeping capabilities that could alleviate some of the stress on NATO and the United States. The European Union is already moving in this direction in Bosnia and Kosovo. NATO should continue to work with the EU to develop complementary capabilities. Within the alliance, NATO should continue to encourage smaller members to develop niche capabilities. By maximizing each nation's comparative advantage, the alliance will get more capability at a lower cost.

This study also identifies policy implications for the United States foreign policy. While the U.S. and NATO should continue to hold allies accountable for meeting their alliance commitments (both expenditures and contributions to NATO missions), they also need to recognize the constraints faced by allies and work with them in increasing their military capability. One such way to build NATO capabilities is to support the European Security and Defense Policy (ESDP) of the European Union. The EU has sanctioning mechanisms (e.g. fines imposed based on the Stability Pact) that could be extended to ESDP requirements and thus provide incentives for allies to increase their military capability. Additionally, EU requirements are easier to justify domestically than are NATO requirements.

The United States needs to recognize the contributions made by new members and increase its efforts to enhance new member capabilities. The focus should be on building capability in the new NATO members and sustaining their willingness to contribute through military assistance, bi-lateral cooperation, and continued public recognition. As time goes on, new members may feel less compelled to live up to their commitments if other NATO members continue to *free ride*. To address burden-sharing issues with older members, the United States must look for ways to increase their willingness to contribute more to the alliance and to justify the importance of the alliance contributions to their constituents.

NATO remains one of the most successful alliances in history. This study demonstrates that although burden-sharing is a dynamic process, most allies have continued to contribute to the alliance in the face of significant constraints. Shared risk and responsibility is a founding principle of NATO and the glue that holds it together. NATO enlargement has not led to greater free-riding behavior, but rather has added vitality to burden-sharing efforts in NATO. This is important as NATO has committed to at least one more round of expansion.

Grousing over lagging allied contributions will not go away. Nor will the enormous strains on the alliance lessen in the near future. The NATO mission in Afghanistan is anticipated to persist as Al Qaeda and the Taliban resist NATO efforts. In light of this, what can be expected with the next wave of NATO enlargement? Based on the analysis in this project, it is reasonable to expect that the leaders of the alliance, especially the United States, will continue to bear a larger proportion of the burdens especially in areas where they have a comparative advantage: air and sea power, precision munitions, and other high technologically advanced capabilities. Smaller members can and should be expected to provide commensurate contributions in areas such as ground forces and niche capabilities. By maximizing each nation's comparative advantage, all NATO members can benefit.

It is likely that new member states will be eager to contribute to the alliance, though constrained by political and military capability shortfalls. NATO's newest members admitted on April 1, 2009 (Albania and Croatia) and the country next in line (the Former Yugoslav Republic of Macedonia) face similar obstacles to integration as did the 1999 and 2004 waves. All three required significant economic and political reforms to meet alliance standards. These three states are also relatively less wealthy than other NATO members, with a per capita GDP of $15,500 for Croatia, $5, 800 for Albania, and $8,400 for Macedonia. All three share a common socialization experience with the 2004 wave of NATO enlargement, including the Partnership for Peace program (Albania since 1994, Former Yugoslav Republic of Macedonia since 1995 and Croatia since 2000) and the Membership Action Plan. Croatia's Ambassador to the United States made a telling statement on April 1, 2009, the day Croatia was accepted into NATO. "…and let me reassure you that you can continue to count on Croatia as a responsible and a reliable ally."[3] This sentiment reflects a commitment to NATO norms shared by all new members.

NATO can expect its new members to demonstrate their credibility to NATO as did previous new members. In return, participation in PfP, MAP, and NATO missions abroad will enhance the interoperability and military capability of new members. While contributions to NATO missions will necessarily be constrained by military and economic factors, new members can be expected to contribute their fair share. In fact, Albania, Croatia, and Macedonia's contributions to Afghanistan are proportionate to their population (Albania - 140 troops; Croatia – 200; troops and Macedonia -135 troops).

Future Research

One of the important findings from this project concerns the impact of threat on burden-sharing decisions. In the post-Cold War period, it appears that NATO states have become less sensitive to increased military expenditures by Russia. With the recent deterioration of NATO-Russian relations, especially after the invasion of Georgia, this phenomenon may change. The impact of a more assertive Russian foreign policy on burden-sharing decisions in NATO needs further examination. Two possible outcomes are foreseeable. First, as insecurity increases, NATO states may reverse the trend of declining levels of military expenditures. This should be more pronounced in those NATO countries closest to Russia. Second, NATO members may shift their focus towards territorial defense and reduce their contributions to expeditionary NATO missions. For example, the former Warsaw Pact countries might eschew the development of niche capabilities to focus on more conventional deterrent forces.

Another interesting area for further research is the impact of the global financial crisis on relative levels of military expenditures in NATO. Since the election of President Obama, there has been speculation that the U.S. might cut its defense budget by up to 10%. The President has also pledged to withdraw U.S. troops from Iraq. If NATO is a uniquely privileged group, as discussed in Chapter 4, the relative decline in U.S. economic power as well as declining requirements in Iraq should lead to a decline in U.S. military expenditures relative to NATO. If so, NATO allies should increase their levels of burden-sharing in response to these changes. Alternatively, the greater fiscal demands facing all NATO allies might constrain growth in military expenditures. These economic pressures might lead to reduced support to NATO peacekeeping operations. Some nations are already scaling down non-NATO contributions. For example, Poland's Defense Minister Bogdan Klich announced on February 4, 2009 that Poland would "end its military missions in Lebanon, the Golan Heights and Chad as part of the Government's plan to cut spending in response to the global economic crisis."[4]

The growing involvement of both NATO and the EU in peacekeeping operations provides another interesting research question. Does burden-sharing behavior differ substantially between NATO and the EU? While NATO is primarily a military/political alliance and the EU is a political/legal institution historically focused on economic and social issues. Both NATO and the EU have recent experience in undertaking peacekeeping missions in Europe and abroad. Both NATO and the EU recently underwent enlargement, which largely consisted of the same countries. Two of the major differences between these institutions are the absence of the United States in the EU and the institutional competencies of each. With the inclusion of the United States, NATO has been characterized as a uniquely privileged group. As a uniquely privileged group, NATO should be more prone to free-riding behavior than the EU. It would be interesting to see if this hypothesis bears out in contributions to EU missions. It would interesting to see whether or not the "exploitation of the great" occurs in the EU, where there is not one dominant actor.

NATO has been one of the most resilient and successful alliances in history. Undergoing significant changes in the past twenty years, NATO still faces a future full of volatility and uncertainty. Despite this turmoil, one feature that has consistently sustained the alliance has been its ability and willingness to collectively share burdens and risk. This is not to imply that all members share the same burdens and risk. Rather NATO has developed a dynamic burden-sharing culture where there is a de facto division of labor. As in any organization, the more powerful members often have to assume greater responsibility and costs. However, other members often pick up the slack when required and able to do so. The also contribute valued niche capabilities.

As Kori Schake, a Professor of Secuirty Studies at the United States Military Academy and Hoover Fellow, stated immediately prior the 60th Anniversary of NATO. "The fundamental bargain [in NATO] is sound; and while it's often frustrating that Europeans won't do more, without NATO they would do much less."[5] This project has focused on updating the literature on burden-sharing in NATO in the context of current NATO issues. The U.S. and its NATO allies will likely continue to face difficult issues in the near future. Certainly burden-sharing debates will remain a salient feature of NATO and a topic of interest for both academics and policy makers.

[1] Jeffrey Simmon. "The New NATO Members: Will they contribute?," *Strategic Forum*, no. 160, April 1999, Institute for National Strategic Studies. http://www.ndu.edu/inss/strforum/SF120/forum120.html (accessed 9 May 2007).

[2] "Obama Voices Support for NATO Expansion Despite Russian Qualms," *Deutsche Welle* , 25 March 2009. http://www.dw-world.de/dw/article/0,,3894552,00.html (accessed 31March 2009).

[3] Kolinda Grabar-Kitarovic (Croatia's Ambassador to the United States), "Remarks at the Acceptance of the Instruments of Accession to the North Atlantic Treaty," 1 April 2009. http://www.state.gov/s/d/2009/121233.htm (accessed 3 April 2009).

[4] "Poland to end three military missions," *The Warsaw Voice Online*, 5 February 2009. http://www.warsawvoice.pl/newsX.php/6999/2549017099/printVer/ (accessed 5 February 2009).

[5] Kori Schake, posting on the Expert Blogs, "NATO at 60: Birthday Party or Funeral," *National Journal*, 30 March 2009. http://security.nationaljournal.com/2009/03/nato-at-60-birthday-party-or-f.php (accessed 1 April 2009).

SELECTED BIBLIOGRAPHY

Adamczak, Colonel Janusz. Interview by author, 5 June 2007, U.S. Army War College, Carlisle Barracks, PA.

AFSOUTH. “SFOR Air Component,” AFSOUTH Fact Sheets, NATO, 18 August 2003,. http://www.afsouth.nato.int/factsheets/SFORAirComponent.htm (accessed on 7 January 2008).

———. “Operation Deliberate Force.” AFSOUTH Fact Sheets, NATO, 18 August 2003, http://www.afsouth.nato.int/factsheets/DeliberateForceFactSheet.htm.(accessed on 7 January 2008).

———. “Operation Deny Flight.” AFSOUTH Fact Sheets, NATO, 18 July 2003, http://www.afsouth.nato.int/operations/denyflight/DenyFlightFactSheet.htm (accessed on 7 January 2008).

Anderson, Neil, and Ute-Christine Klehe. "Working Hard and Working Smart: Motivation and Ability during Typical and Maximum Performance." *Journal of Applied Psychology* 92, no. 4 (2007): 978.

Anonymous (NATO official speaking on background). Based on interviews conducted 1 February 2008 at SHAPE Headquarters, Mons, Belgium.

Anonymous (Senior Diplomat and Member of the NATO International Staff). Interview by author, 31 January 2008, NATO Headquarters, Brussels, Belgium,.

Ashton, Kimberly. “Czech Troops to remain in Iraq.” *The Prague Post Online*, 17 October 2007, http://www.praguepost.com/articles/2007/10/17/czech-troops-to-remain-in-iraq/print (accessed 24 January 2008).

Asiedu, Dita. “NATO’s six years of dramatic change—how has the Czech Republic fared?” *Český rozhlas 7* (Radio Praha), 11 March 2005, http://www.radio.cz/en/article/64286 (accessed 25 March 2009).

Axelrod, Robert. *The Evolution of Cooperation.* New York: Basic Books, 1984.

Axelrod, Robert, and Robert O. Keohane. "Achieving Cooperation under Anarchy." In *Cooperation under Anarchy*, edited by Kenneth A. Oye, Princeton: Princeton University Press, 1986.

Bachman, Ronald D. *Romania: A Country Study*. Washington: GPO for the Library of Congress, 1989. http://countrystudies.us/romania/ (accessed 11 November 2008).

Baczynska, Gabriela. "Polish troops may train, not fight in Iraq." *Reuters*, 19 November 2007, http://www.reuters.com/articlePrint?articleID=USL1964979720071119 (accessed 19 November 2007).

Banks, Arthur, William Overstreet, and Thomas Muller, *Political Handbook of the World 2007*, Washington: CQ Press, 2007.

Barnett, Thomas P.M. *Romanian and East German Policies in the Third World.* London: Praeger, 1992.

Barno, Lieutenant General (Retired) David W. (former Commander, Operation Enduring Freedom and Director, NESA Center at National Defense University). Interview by author at Carlisle Barracks on 25 January 2008.

Benko, Colonel Tibor. *Hungary: From Warsaw Pact to NATO*. Strategy Research Project (Carlisle Barracks: U.S. Army War College, 2001).

Bisogneiro, Claudio, Deputy Secretary General of NATO. Interview by author, 31 January, 2008. Brussels, Belgium

Biró, István. "The National Security Strategy and transformation of the Hungarian Defense Forces," U.S. Army War College Strategy Research Paper, 2005. http://handle.dtic.mil/100.2/ADA432740 (accessed 12 November 2008).

Bozo, Colonel Tibor. "Hungary A Member of NATO," Strategy Research Project (Carlisle Barracks: U.S. Army War College, 2003).

Bräuninger, Thomas. "A Partisan Model of Government Expenditure." *Public Choice* 125, no. 3-4 (2005): 409-429.

———."Partisan Veto players, Party Preferences, and the Composition of Government Expenditures." *Annual meeting of Public Choice Society.* Nashville, 2002.

Breunig, Christian. "The more things change, the more things stay the same: a comparative analysis of budget punctuations." *Journal of European Public Policy* 13, no. 7 (2006).

Burant, Stephan R. *Hungary: A Country Study.* (Washington: GPO for the U.S. Library of Congress, 1989). Available online at http://countrystudies.us/hungary/35.htm (accessed 11 November 2008).

Central Intelligence Agency. "World Factboook," 2008. https://www.cia.gov/library/publications/the-world-factbook/index.html

Checkel, Jeffrey. "International Institutions and Socialization in Europe: Introduction and Framework." *International Organization* 59, no. 4 (2005).

Ciocoiu, Lieutenant Colonel Nicolae-Stefan Z. *Romanian Armed Forces Transformation Process – The Core Issue of the National Military Strategy towards NATO Integration*, Strategic Research Project (Carlisle Barracks: U.S. Army War College, 2004). Available online at http://www.dtic.mil (accessed 14 November 2008).

Clark, General Wesley K. *Waging Modern War.* New York: Public Affairs, 2001.

Congressional Budget Office. "NATO Burdensharing after Enlargement." Congress of the United States, August 2001, http://www.cbo.gov/showdoc.cfm?index=2976&sequence=2&from=0 (accessed 13 November 2006).

Congressional Research Service (CRS), Report RL33110. "The Cost of Iraq, Afghanistan, and Other Global War on Terror Operations Since 9/11," 14 July 2008. http://www.fas.org/sgp/crs/natsec/RL33110.pdf (accessed 11 August 2008).

Conybeare, John. "Public Goods, Prisoners' Dilemmas and the International Political Economy." *International Studies Quarterly*, 1984.

Council on Foreign Relations, *Political Handbook of the World*, New York: McGraw-Hill, 1975-2007.

Craddock, General John (Supreme Allied Commander Europe). Interview by author, SHAPE Headquarters, Mons, Belgium, 1 February 2008.

Crawley, Vince. "NATO Faces Challenge in Pakistan Earthquake Response." U.S. Department of State: Bureau of International Information Programs. *The Washington File*, 16 November 2005, http://www.globalsecurity.org/military/library/news/2005/11/mil-051116-usia03.htm (accessed 21 September 2008).

Curry, Andrew. "Will Poland Split EU over Russia Policy?" *Spiegel Online International*, 18 August 2008, http://www.spiegel.de/international/europe/0,1518,572105,00.html (accessed 14 December 2008.

Curtis, Glenn E. "Poland: A Country Study," Washington: GPO for the U.S. Library of Congress, 1992. http://countrystudies.us/poland/89.htm (accessed November 11, 2008).

Czech Ministry of Defense. "Current Deployments." http://www.army.cz/scripts/detail.php?id=6527 (accessed 6 January 2009).

———. "General Information for Visiting this Website," http://www.army.cz/scripts/detail.php?pgid=122 (accessed 12 November 2008).

———. "MOD History of Czech Military Operations Abroad (1990-2007)." Available online at http://www.army.cz/scripts/detail.php?id=5717 (accessed 21 September 2008).

———. "NATO Operation 'Joint Enterprise' in Kosovo." http://www.army.cz/scripts/detail.php?id=6527 (accessed 12 November 2008).

———. "Personnel Size in 1993-2008," undated, http://www.army.cz/scripts/detail.php?id=5770 (accessed 15 December 2008.

Czech Ministry of Foreign Affairs, "Report on the Foreign Policy of the Czech Republic 2005." Cyril Svoboda. http://www.mzv.cz/wwwo/mzv/default.asp?ido=19275&idj=2&amb=1&ikony=&trid=1&prsl=&pocc1 (accessed 2 April 2008).

"Czech Oppose More Afghan Deployments." *Angus Reid Global Monitor*, 12 October 2008, http://www.angus-reid.com/polls/view/31995 (accessed 21 November 2008).

"Defence Budget, Poland." *Jane's Sentinel Security Assessment*, 6 August 2008, http://www8.janes.com (accessed 5 November 2008).

Degeratu, Claudia. "Civil-Military Relations in Romania," In *Civil-Military Relations in South Eastern Europe*, edited by Plamen Pantev, Sofia: Institute for Security and International Studies, 2001.

Downs, Anthony. *An Economic Theory of Democracy.* Boston: Addison-Wesley, 1957.

Economist.com. "Country Briefings," undated, http://www.economist.com/countries/ (accessed 21 August 2007).

Erlanger, Steven and Steven Lee Myers. "NATO Allies Oppose Bush on Georgia and Ukraine." *New York Times*, 3 April 2008. Available online at http://www.nytimes.com/2008/04/03/world/europe/03nato.html?8au&emc=au (accessed 3 April 2008).

"Estonian central bank announces budget deficit." *The Baltic Times*, 23 October 2008, http://www.baltictimes.com/news/articles/21624/ (accessed 20 November 2008)

Estonian Ministry of Defense. "Public Opinion and National Defence, March 2005." Research Centre Faktum, March 2005, http://www.kmin.ee/static/sisu/files/2005-04-25_Kmin_eng_parandatud.pdf (accessed 5 November 2008).

———. “Support for NATO Membership.” 15 December 2005 http://www.vm.ee/eng/nato/kat_359/1007.html (accessed 5 November 2008).

Estonian Ministry of Foreign Affiars, “Economy at a Glance,” 10 October 2008. http://www.vm.ee/estonia/kat_398/pea_172/281.html (accessed 5 November 2008).

“Estonia Public debt.” *Index Mundi*, undated, http://www.indexmundi.com/estonia/public_debt.html (accessed 20 November 2008).

Europa. “The history of the European Union.” undated, http://europa.eu/abc/history/2000_today/index_en.htm (accessed 20 November 2008).

Europa Publications. *Western Europe,* London: Routledge, 1989-2009.

———, *Central and South Eastern Europe,* London: Routledge, 2001-2009.

“Europe Uneasy over Russian Plans to Deploy Missiles.” *Deutsche-Welte*, 6 November 2008. Available online at http://www.dw-world.de/dw/article/0,2144,3768711,00.html (accessed 14 November 2008).

European Union. “Capabilities Improvement chart II/2005.” Press Release 14729/05(Presse 307), Brussels, Belgium, 21 November 2005, http://europa.eu (accessed 5 November 2008).

———, “Europa Glossary,” Brussels, Belgium, undated, http://europa.eu/scadplus/glossary/european_security_defence_policy_en.htm (accessed 5 November 2008).

Fearon, James and Alexander Wendt. “Rationalism v. Constructivism: A Skeptical View.” In *Handbook of International Relations*, edited by Walter Carlsnaes, Thomas Risse, and Beth Simmons, London: Sage Publications, 2002.

Fidler, Stephen and Boone, Jon. “Fields of little glory: NATO begins to scale back its Afghan ambitions.” *Financial Times*, 18 November 2007

Flowers, Sergeant Claude. “CENTCOM Public Affairs 2006-07-27.” Ministry of National Defense: Republic of Poland, 27 July 2006, http://www.mon.gov.pl/en/artykul/2100 (accessed 18 January 2008).

Foertsch, Hartmut; Imre Karacsony; Svetozar Nadovic; and Zdzislaw Ostrowski, *The Great Withdrawal*. Bratislava: Slovak Republic Ministry of Defence, 2005.

Fogli, Larry, Paul R. Sackett, and Sheldon Zedeck. "Relations Between Measures of Typical and Maximum Job Performance." *Journal of Applied Psychology* 73, no. 3 (1988): 482-486.

Forster, Peter K., and Stephen J. Cimbala. *The US, NATO and Military Burden-Sharing.* New York: Frank Cass, 2005.

Forsterling, Friedrich. *Attribution: An Introduction to Theories, Research and Applications.* East Sussex, UK: Psychology Press, 2001.

Freedom House. "Comparative scores for all countries from 1973 to 2008." 2008, http://www.freedomhouse.org/template.cfm?page=15 (accessed 15 November 2008).

Fritz-Assmus, Dieter, and Klaus Zimmermann. "West German Demand for Defence Spending," In *The Economics of Defense Spending*, edited by Keith Hartley and Todd Sandler, London: Routledge , 1990.

Gallis, Paul. "NATO in Afghanistan: A Test of the Transatlantic Alliance." *Congressional Research Service*, 16 July 2007.

Gates, William R., and Katsuaki L. Terasawa, "Reconsidering Publicness in Alliance Defence Expenditures: NATO Expansion and Burden Sharing," *Journal of Defence and Peace Economics* (October 2003).

Gawdiak, Ihor, editor. *Czechoslovakia: A Country Study*. Washington: GPO for the Library of Congress, 1987. Availabe online at http://countrystudies.us/czech-republic/ (accessed 11 November 2008).

General Accounting Office, Report GAO-08-423R,"Global War on Terrorism: Reported Obligations for the Department of Defense," January 30,2008. http://www.gao.gov/new.items/d08423r.pdf, (accessed 11 August 2008).

German Marshall Fund of the United States and the Compagnia di San Paolo. "Transatlantic Trends 2003: Key Findings." 2003. http://www.transatlantictrends.org/trends/doc/2003_english_key.pdf (accessed 11 November 2008).

Gheciu, Alexandria. "Security Institutions as Agents of Socialization? NATO and the New Europe." *International Organization* 59 (2005).

Global Security. "Iraq Coalition Troops, February 2007." http://www.globalsecurity.org/military/ops/iraq_orbat_coalition.htm (accessed 21 September 2008).

———. "Russian Military Budget Expenditures." http://www.globalsecurity.org/military/world/russia/mo-budget-expenditures.htm (accessed 21 September 2008).

Golden, James R. *The Dynamics of Change in NATO: A burden-sharing perspective.* New York: Praeger Publishing, 1983.

Goldsmith, Benjamin E. "Bearing the Defense of Burden, 1886-1989", *Journal of Conflict Resolution* 47, no. 5, (2003).

Goldstein, Avery. "Discounting the Free Ride: Alliances and Security in the Postwar World." *International Organization* 49, no. 1 (1995).

Gordon, Michael R. "The 2000 Campaign: The Military; Bush would stop U.S. Peacekeeping in Balkan Fights." *New York Times*, 21 Oct 2000, http://query.nytimes.com/gst/fullpage.html?res=9C07E4DE1E3EF932A15753C1A9669C8B63&sec=&spon=&pagewanted=3 (accessed 18 January 2008).

Grabar-Kitarovic, Kolinda (Croatia's Ambassador to the United States), "Remarks at the Acceptance of the Instruments of Accession to the North Atlantic Treaty," April 1, 2009. http://www.state.gov/s/d/2009/121233.htm (accessed 3 April 2009).

Hartley, Keith, and Todd Sandler. *The Economics of Defense.* London: Routledge, 1995.

———. *The Political Economy of NATO.* New York: Cambridge University Press, 1999.

Hasenclever, Andreas, Peter Mayer, and Volker Rittberger. *Theories of International Regimes.* Cambridge : Cambridge University Press, 1997.

Hendrickson, Ryan C. "The Miscalculation of NATO's Death ." *Parameters*, Spring (2007).

Hibbs, Douglas. "Political Parties and Macroeconomic Policy." *American Political Science Review* 71 (1977).

Hillison, Joel R., "New NATO Members: Security Consumers or Producers?" Monograph, Strategic Studies Institute, U.S. Army War College, Carlisle, PA, April 2009.

Hooper, John and Ian Black. "Anger at Rumsfeld attack on 'old Europe'." *The Guardian*, 24 January 2003, http://www.guardian.co.uk/world/2003/jan/24/germany.france (accessed 16 January 2009).

de Hoop Scheffer, Jaap (Secretary General of NATO). "Romanian President Visit." *NATOchannel.tv*, 3 June 2008, http://www.natochannel.tv/default.aspx?aid=2645&lid=315 (accessed 18 November 2008).

———. “Statement by the Secretary General on enhanced NATO assistance for Pakistan.” NATO Press Release 2005(134), 21 October 2005, http://www.nato.int/docu/pr/2005/p05-134e.htm (accessed 21 September 2008).

Hungarian Ministry for Foreign Affairs. *The National Security Strategy of the Republic of Hungary*. Budapest, Hungary, undated. Available online at http://www.mfa.gov.hu/kum/en/bal/foreign_policy/security_policy/national_sec_strategy_of_hun.htm (accessed 15 December 2008).

“Hungary ups defence Expenses,” *Budapest Sun Online*, 15 October 2008, http://www.budapestsun.com/cikk.php?id=28870 (accessed 5 November 2008).

International Institute for Strategic Studies. *The Military Balance.* London: Routledge, 1977-2007.

International Monetary Fund. “Reports for Selected Countries and Subjects.” *World Economic Outlook Database*, (April 2008), http://www.imf.org (accessed 5 November 2008).

———. “Estonia – 2007 Article IV Consultation Concluding Statement of the IMF Mission.” May 14, 2007, http://www.imf.org/external/np/ms/2007/051407.htm (accessed 6 November 2008).

“Iraq and Afghanistan: Involvement of the Polish Military, June 2007.” *World Opinion Update* 31, no. 5, (2007).

Islamic Republic News Agency (IRNA). "Pakistan: Italian engineers to join NATO forces in Kashmir." Available on *Relief Web*, 2 December 2005, http://www.reliefweb.int/rw/rwb.nsf/db900sid/VBOL-6JPE8W?OpenDocument (accessed 25 March 2009).

Janes. “Defence Budget, Poland.” *Jane’s Sentinel Security Assessment*, 6 August 2008, http://www8.janes.com (accessed 5 November 2008).

Janicek, Karel.“Czech lawmakers do not extend Afghanistan mission.” *Miami Herald*, 19 December 2008, http://www.miamiherald.com/news/world/AP/story/819725.html (accessed 29 December 2008). Article is no longer available on Miami Herald website.

Johnston, Alastair Iain. "Conclusions and Extensions: Toward Mid-Range Theorizing and Beyond Europe." *International Organization* 59 (2005).

——. "Treating International Institutions as Social Environments." *International Studies Quarterly* 45, no. 1 (2001).

Jun, Dominik. “The long shadow of the Munich Agreement.” *Radio Praha*, 30 September 2008, http://www.radio.cz/en/article/108781 (accessed 11 November 2008).

Jupille, Joseph, James A. Caporaso, and Jeffrey T. Checkel. "Integrating Institutions: Rationalism, Constructivism, and the Study of the European Union." *Comparative Political Studies* 36, no. 1 (2003).

Jurgaitis, Colonel Antanas. Interview by author, 28 January 2008, SHAPE Headquarters, Mons, Belgium.

Kaoidume, Lieutenant Colonel Kalev Interview by author, 28 January 2008, SHAPE Headquarters, Mons, Belgium.

Kaufman, Robert, R., “Market Reform and Social Protection: Lessons from the Czech Republic, Hungary, and Poland,” *East European Politics and Societies* 21, no. 1 (2007).

Kelley, Judith. "International Actors on the Domestic Scene: Membership Conditionality and Socialization by International Institutions." *International Organization* 58 (2004).

Keohane, Robert O. *After Hegemony: Cooperation and Discord in the World Political Economy.* Princeton: Princeton University Press, 1984.

———. "International Institutions: Can Interdependence work?" *Foreign Policy* Spring, no. 110 (1998): 82-96.

King, Gary, Robert O. Keohane, and Sidney Verba. *Designing Social Inquiry.* New Jersey: Princeton University Press, 1994.

Kiss, Tamás S. “NATO and PM in talks over funding.” *Budapest Sun Online*, 28 October 2004, http://www.budapestsun.com/cikk.php?id=14018 (accessed 12 November 2008).

———. “Suspend America says, 'Thank you'.” *Budapest Sun Online*, 28 October 2004, http://www.budapestsun.com/cikk.php?id=14018 (accessed on 28 March 2008).

Klich, Bogdan (Polish Minister of National Defence).“Europe-NATO-American Perspectives of Partnership.” Speech given at the Forum on Euro-Atlantic Security, Krakow, October 23-24, 2008. Recording provided by Nathan Harig, Jagiellonian University.

Klingemann, Hans-dieter, Richard I. Hofferbert, and Ian Budge. *Parties, Policies, and Democracy.* Oxford: Westview Press, 1994.

Kopecky, Colonel Josef. Interview by author, 6 November 2008, National Defense University, Ft. McNair, Washington, D.C..

Kosovo Force (KFOR). NATO graphic available at http://www.nato.int/kfor/structur/nations/placemap/kfor_placemat.pdf (accessed 21 September 2008).

Kralev, Nicholas and Borowiec, Andrew. “Warsaw Ups Ante for U.S. Shield.” *Washington Times*, 16 January 2008, http://www.washingtontimes.com/news/2008/jan/16/warsaw-ups-ante-for-us-shield/ (accessed 16 January 2008).

Krebs, Ronald. “Perverse Institutionalism: NATO and the Greco-Turkish Conflict,” *International Organization*, 53, no. 2 (1999).

Kupchan, Charles A. “NATO and the Persian Gulf: Examing Intra-Alliance Behavior.” *International Organization* 42, no. 2 (1988).

Lang, Rein (Estonian Foreign Minister). “Address by Foreign Minister Rein Lang at the celebrating of the first anniversary of Estonia’s NATO accession.” Tallinn, 4 April 2005. Available on line at http://www.vm.ee/eng/nato/aken_prindi/5363.html (accessed 5 November 2008).

Larrabee, Stephen F. “Soviet Crisis Management in Eastern Europe.” In *The Warsaw Pact: Alliance in Transition*, edited by David Holloway and Jane M.O. Sharp. Ithaca: Cornell University Press, 1984.

Lepgold, Joseph. "NATO's Post-Cold War Collective Action Problem." *International Security* 23, no. 1 (1998).

Lipson, Charles. "Why are some International Agreements Informal." *International Organization* 45, no. 4 (1991).

Ljunggren, David. “Poland raps NATO members over Afghan commitments.” *Reuters*, 4 February 2008, http://www.reuters.com/article/topNews/idUSN0458791220080204 (accessed 13 February 2008).

Looney, Robert E. and Stephen L. Mehay. "United States Defence Expenditures: Trends and Analysis." In *The Economics of Defense Spending*, edited by Keith Hartley and Todd Sandler, London: Routledge , 1990.

Mandelbaum, Michael. *The Fate of Nations: The search for national security in the Nineteenth and Twentieth Centuries*, Cambridge: Cambridge University Press, 1988

Mansager, Colonel Tucker (Executive Officer to the Supreme Allied Commander Europe). Based on interviews conducted 28 January 2008 at SHAPE Headquarters, Mons, Belgium.

March, James G. and Johan P. Olsen. “The Institutional Dynamics of International Political Orders.” *International Organization* 52, no. 4, (1998) As cited in Thomas Risse, “Let’s Argue!: Communicative Action in World Politics,” *International Organization* 54, no. 1 (2000):1-39.

Majman, Slawomir. “Why Poland is in Iraq.” *The Warsaw Voice Online*.11 September 2003, http://www.warsawvoice.pl/printArticle.php?a=3423 (accessed 4 January 2008).

McColl, General Sir John (Deputy Supreme Allied Commander Europe). Interview by author, 1 February 2008, SHAPE Headquarters, Mons, Belgium.

“Military Involvement in Iraq and Afghanistan, October 2007.” *World Opinion Update* 32, no. 1, (2008).

Milovan, Adriano. “Under the Security Umbrella: 60% of World’s GDP is created.” *PV International*, no.0016 (31 March 2008). Available online at www.privredni.hr/pvint/PVI0016.pdf (accessed 10 April 2008).

Milner, Helen V., and Robert O. Keohane. *Internatinalization and Domestic Politics.* Cambridge: Cambridge University Press, 1996.

Mirr, Colonel (Ret.) Steven, former military aide to General Jones and Director of the Defense Operations Division, U.S. Delegation to NATO. Based on interviews conducted on 31 January 2008 at NATO Headquarters, Brussels, Belgium.

"Misiones Internacionales." *Revista Espanola de Defensa* 18, no. 214 (December 2005).

Moravcsik, Andrew. "Taking Preferences Seriously: A Liberal Theory of International Politics." *International Organization* 51 (1997).

Mosley, Layna. "Private Governance for the Public Good? Exploring Private Sector Participation in Global Financial Regulation." *Paper prepared for a Festschrift in Honor of Robert O. Keohane Conference at Princeton University.* Princeton, 2005.

Murdoch, James C., and Todd Sandler. "Controversy: Alternative Approaches to the Study of Alliance Burden Sharing. "*International Studies Quarterly* 35 (1991).

———. "Nash-Cournot or Lindahl Behavior?: An Empirical Test for the NATO Allies." *Quarterly Journal of Economics* 105 (1990).

———. "NATO Burden Sharing and the Forces of Change." *International Studies Quarterly* 25 (1991).

NATO.“Comprehensive Political Guidance.” *NATO Online Library*, 29 November 2006, http://www.nato.int/docu/basictxt/b061129e.htm (accessed 6 December 2008).

NATO. "Membership Action Plan." Press Release NAC-S(99)66, 24 April 1999, http://www.fas.org/man/nato/natodocs/99042460.htm (accessed 5 November 2008).

———. "National Commitments to operations and missions." Czech Republic, http://www.nato.int/issues/commitment/docs/080730-czech.pdf (accessed 21 November 2008).

———. "National Commitments to operations and missions." Hungary, http://www.nato.int/issues/commitment/docs/080325-hungary.pdf (accessed 21 November 2008).

———. "National Commitments to operations and missions." Poland, http://www.nato.int/issues/commitment/docs/080730-czech.pdf (accessed 21 November 2008).

———. "NATO-Russia Compendium of Financial and Economic Data Relating to Defence." Iinformation for press, NATO Headquarters, 20 December 2007, http://www.nato.int/issues/defence_expenditures/index.html (accessed 11 November 2008).

NATO Allied Command Operations. "All NATO countries contribute to Pakistan Relief." 28 February 2006, http://www.nato.int/shape/news/2005/pakistan_contributions.htm (accessed 21 September 2008).

———. "The Last NATO Cargo shipment arrived in the United States," *SHAPE News*. 4 October 2005, http://www.nato.int/SHAPE/news/2005/10/051005b.htm (accessed 23 October 2008).

———. "NATO Launches Response Force." 15 October 2003, http://www.nato.int/shape/news/2003/10/i031015.htm (accessed 27 January 2009).

———. "The NATO Response Force." http://www.nato.int/shape/issues/shape_nrf/nrf_intro.htm.(accessed 21 September 2008).

———. "NATO Response Force Continues Relief Effort," *SHAPE News*. 6 September 2005, http://www.nato.int/SHAPE/news/2005/09/050914a.htm (accessed 23 October 2008).

———. "NATO Response Force Q & A's." http://www.nato.int/shape/issues/shape_nrf/nrf_q_a.htm (accessed 21 September 2008).

NATO Euro-Atlantic Disaster Response Coordination Center (EADRCC), Daily Situation Reports. *Earthquake Pakistan, Final Situation Report No. 23.* Brussels, Belgium: NATO, 15 February 2006. Available online at http://www.nato.int/eadrcc/2005/pakistan/060215-final.pdf (accessed on 25 March, 2009)

NATO Information for Press, "NATO-Russia Compendium of Financial and Economic Data Relating to Defence," 1977-2007, http://www.nato.int/issues/defence_expenditures/index.html (accessed 11 November 2008).

———. Press Release NAC-S(99)66, "Membership Action Plan," NATO. 24 April 1999. http://www.fas.org/man/nato/natodocs/99042460.htm (accessed 5 November 2008).

———. "National Commitments to operations and missions," http://www.nato.int/issues/commitment/docs/080730-czech.pdf (accessed 21 November 2008).

———. NATO News, "Estonian President visits NATO," 4 February 2008. http://152.152.94.201/docu/update/2008/02-february/e0204a.html (accessed 21 November 2008).

NATO, ISAF. "International Security Assistance Force and Afghan National Army strength & laydown." 2006-2008, http://www.nato.int/isaf/docu/epub/pdf/isaf_placemat.pdf (accessed 21 September 2008).

NATO Public Diplomacy Division. *NATO Handbook.* Brussels, Belgium: NATO, 2001. Available online at http://www.nato.int/docu/handbook/2001/hb020201.htm (accessed 21 September 2008).

———. Public Diplomacy Division, *NATO Handbook* (Brussels, Belgium: NATO, 2006).

Nuland, Victoria (U.S. Ambassador to NATO). "Ambassador Discusses Security Issues on Eve of NATO Ministerial." Webchat on 5 December 2007, http://www.america.gov/st/washfile-english/2007/December/20071205163651eaifas0.8371393.html (accessed on 27 February 2008).

Nyirády, Kenneth E.. *Hungary: A Country Study*. Washington: GPO for the Library of Congress, 1989. Available online at http://lcweb2.loc.gov/cgi-bin/query/r?frd/cstdy:@field(DOCID+hu0195)

Ojuland, Kristiina (Estonian Foreign Minister). "Address by Foreign Minister at the flag-raising ceremony at NATO Headquarters." 2 April 2004, http://www.vm.ee/eng/nato/kat_360/4385.html (accessed 5 November 2008).

Olson, Mancur, Jr. *The Logic of Collective Action: Public Goods and the Theory of Groups.* revised. New York: Schocken Books, 1971.

Olson, Mancur, Jr., and Richard Zeckhauser. "An Economic Theory of Alliances." *Review of Economics and Statistics* 38 (1966): 266-279.

Oneal, John R. "The theory of collective action and burden sharing in NATO." *International Organization* 44, no. 3 (1990).

Oneal, John R., and Mark A. Elrod. "NATO Burden Sharing and the Forces of Change." *International Studies Quarterly* 33 (1989).

Ormisson, Tonis. "Public Opinion and National Defence, July 2007." Estonian Ministry of Defence, 2008, http://www.mod.gov.ee/static/sisu/files/ENG_NATO_report_2007_06-summary.pdf (accessed 5 November 2008).

Organization for Economic Co-Operation and Development. Stat Extracts, "Country statistical profiles 2008," http://stats.oecd.org/wbos/viewhtml.aspx?queryname=460&querytype=view&lang=en (accessed 5 November 2008).

———. "Society at a Glance," 2007. http://www.oecd.org/dataoecd/12/7/38138100.xls (accessed 5 November 2008).

———. "Conference on Security and Co-operation in Europe Final Act,"1975. http://www.osce.org/documents/mcs/1975/08/4044_en.pdf (accessed 30 July 2008).

———. "History of the OSCE," OSCE Handbook, 11 October 2007. http://www.osce.org/publications/sg/2007/10/22286_955_en.pdf (accessed 30 July 2008).

Oye, Kenneth A. "Explaining Cooperation under Anarchy: Hypotheses and Strategies." *World Politics* 38, no. 1 (1985).

"Poland Withdraws Troops from Iraq." *The Warsaw Voice Online*, October 6 2008, http://www.warsawvoice.pl/newsX.php/6999/2549017099/printVer/ (accessed 7 October 2008).

Romanian Ministry of National Defense, "Briefing of highest-ranked authorities of MoND and Polish Armed Forces," http://www.wp.mil.pl/en/artyku/4601. (accessed 18 November 2008).

Paet, Urmas (Estonian Foreign Minister). “Estonia’s contribution to rebuilding Afghanistan.” Speech to Riigikogu, Tallinn, 15 November 2006. Available online at http://www.vm.ee/eng/nato/aken_prindi/7913.html (accessed 5 November 2008).

“Poland revising budget, but holding planned deficit steady.” *The Warsaw Voice Online*, 20 November 20 2008, http://www.warsawvoice.pl/newsX.php/7311/2549017099 (accessed 20 November 2008).

“Poland spurns U.S. air defense offer.” *Los Angeles Times*. 5 July 2008, http://www.latimes.com/news/nationworld/world/la-fg-poland5-2008jul05,0,1045291.story?track=ntothtml (accessed 25 March 2009).

“Poland Withdraws Troops from Iraq.” *The Warsaw Voice Online*, October 6 2008, http://www.warsawvoice.pl/newsX.php/6999/2549017099/printVer/ (accessed 7 October 2008).

Polish Ministry for National Defense. “Basic Information on the MOND Budget for 2007,” http://www.wp.mil.pl/en/strona/126/LG_89 (accessed on 4 November 2008.

———. “Briefing of highest-ranked authorities of MoND and Polish Armed Forces.” 2 April 2008, http://www.wp.mil.pl/en/artyku/4601 (accessed 18 November 18 2008).

Polish Press Agency. “Polish premier starts visit to Afghanistan.” 22 August 2008. available at U.S. Open Source Center https://www.opensource.gov (accessed 4 November 2008).

———.Poland sends first two helicopters for Afghan contingent.” 4 August 2008, available at U.S. Open Source Center, https://www.opensource.gov (accessed 4 November 2008).

“President and Prime Minister bickering again over foreign policy.” *The Warsaw Voice Online*, 12 December 2007, http://www.warsawvoice.pl/newsX.php/5359/2549017099/printVer/ (accessed 4 January 2008).

Rice, Condoleezza., “*Defense Burden-Sharing*,” In *The Warsaw Pact: Alliance in Transition*, edited by David Holloway and Jane M.O. Sharp. Ithaca: Cornell University Press, 1984.Risse, Thomas. "Let’s Argue! Communicative Action in World Politics." *International Organization* 54, no. 1 (2000).

Risse, Thomas. “Let’s Argue!: Communicative Action in World Politics.” *International Organization* 54, no. 1 (2000).

Roman, Colonel Vasile V. Interview by author, 11 December 2007. U.S. Army War College, Carlisle Barracks, PA.

Roman, Colonel Vasile V. "From Partner to Ally – Romania's Interest and War on Terrorism." Strategy Research Project (Carlisle Barracks: U.S. Army War College, 2008). Available at http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA478505&Location=U2&doc=GetTRDoc.pdf (accessed 5 November 2008).

"Romania gets IMF emergency loan." *BBC News Online*, 25 March 2009, http://news.bbc.co.uk/2/hi/business/7962897.stm (accessed 25 March 2009).

Romanian Ministry of Foreign Affairs, "Romania: an active ally within an active and solid Alliance," http://www.mae.ro/index.php?unde=doc&id=4995&idlnk=1&cat=3 (accessed November 5, 2008). Russett, Bruce M. *What Price Vigilance?: The Burdens of National Defense.* New Haven: Yale University Press, 1970.

Romanian Ministry of National Defense. "Briefing of highest-ranked authorities of MoND and Polish Armed Forces." http://www.wp.mil.pl/en/artyku/4601. (accessed 18 November 2008).

"Romania's Budget Deficit at 2.6 pct/GDP in 2007." *Romania News Watch*, 29 February 2008, http://www.romanianewswatch.com/2008/02/romanias-budget-deficit-at-26-pctgdp-in.html (accessed 5 November 2008).

Sandler, Todd. "The Economic Theory of Alliances: A Survey." *Journal of Conflict Resolution*, 1993.

———. "Impurity of Defense: An Application to the Economics of Alliances." *KYKLOS*, 1977.

———. "NATO Burden Sharing: Rules or Reality?" In *Peace, Defence, and Economic Analysis*, edited by Christian Schmidt and Frank Backaby, London: Macmillan, 1987.

Sandler, Todd, and John F. Forbes. "Burden Sharing, Strategy, and the Design of NATO." *Economic Inquiry* 18 (1980).

Schake, Kori. posting on the Expert Blogs, "NATO at 60: Birthday Party or Funeral," *National Journal*, March 30, 2009. http://security.nationaljournal.com/2009/03/nato-at-60-birthday-party-or-f.php (accessed 1 April 2009).

Schimmelfenning, Frank. "International Socialization in the New Europe: Rational Action in an Institutional Environment." *European Journal of International Relations* 6, no. 1 (2000).

———. "The Community Trap: Liberal Norms, Rhetorical Action, and the Eastern Enlargement of the European Union," *International Organization* 55, (2001).

Sedlak, Major General Josef (Czech National Military Representative). Based on interviews conducted 28 January 2008 at the SHAPE Headquarters, Mons, Belgium.

Seguin, Barre R. "Why did Poland Choose the F-16?" George C. Marshall Center for Security Studies, Occasional Paper No. 11, June 2007.

Shea, Jamie, Director of Policy Planning NATO. Interview by author, 31 January 2008. Brussels, Belgium.

Sidor, Krzysztof. "The Changing Face of NATO." *Warsaw Voice Online*, 15 June 2005, http://www.warsawvoice.pl/view/8663, (accessed on 1 April 2008.

Simonyi, Ambassador Andras. "Hungary in NATO—after two years of membership." Speech to NATO, 2001, http://www.atlanticcommunity.org/Hungary%20in%20NATO.html (accessed 5 December 2006).

Simon, Jeffrey. "The IFOR/SFOR Experience: Lessons Learned by PFP Partners." National Defense University, Institute for National Strategic Studies Strategic Forum, Number 120, July 1997, http://www.ndu.edu/inss/strforum/SF120/forum120.html (accessed 18 November 2008).

———. "The New NATO Members: Will they contribute?," *Strategic Forum*, no. 160, April 1999, Institute for National Strategic Studies. http://www.ndu.edu/inss/strforum/SF120/forum120.html (accessed 9 May 2007).

———. "NATO Expeditionary Operations: Impacts Upon New Members and Partners." Occasional paper, Strategic Studies Institute, National Defense University, Washington, D.C., March 2005.

Simon, Zoltan. "Hungary Pays with Growth Prospects for IMF–led Bailout Package." *Bloomberg.com*, 29 October 2008, http://www.bloomberg.com/apps/news?pid=20670001&refer=&sid=aFkdVbffn19k (accessed 30 October 2008).

Sirel, Colonel Indrek. Interview by author, 6 November 2008, U.S. Army War College, Carlisle Barracks, PA.

Smith, Alastair. “Alliance Formation and War.” *International Studies Quarterly* 39, (1995):

Smith, Craig S. “Threats and Responses: Brussels; Chirac Scolding Angers Nations that Back U.S.” *New York Times*, 19 February 2003, http://query.nytimes.com/gst/fullpage.html?res=9E01E2DC173DF93AA25751C0A9659C8B63&sec=&spon=&pagewanted=1 (accessed 7 November 2008).

Smith, R.P.. “Models of Military Expenditure,” *Journal of Applied Econometrics* 4, no. 4 (1989):

Snidal, Duncan. "Rational choice and International Relations,” In *Handbook of International Relations*, edited by W. Carlnaes, B. Simmons, and T. Risse (New York: Sage Publishing, 2002).

Snyder, Glenn H. "The Security Dilemma in Alliance Politics." *World Politics* 36, no. 1 (1984).

Soroka, Stuart, and Christopher Wlezien. "Opinion-Policy Dynamics: Public Preferences and Public Expenditure in the UK." *British Journal of Political Science* 35 (2005).

Stabilization Force (SFOR). “History of the NATO-led Stabilisation Force (SFOR) in Bosnia and Herzegovina.” NATO, undated, http://www.nato.int/sfor/docu/d981116a.htm. (accessed 5 July 2008).

Sullivan, Vice Admiral William D., Military Representative of the U.S. to NATO. Interview by author, 1 February, 2008. Brussels, Belgium

“Suspend NATO Membership,” *Budapest Sun Online*, 21 January 2007, http://www.budapestsun.com/cikk.php?id=55 (accessed on 28 March 2008).

Svoboda, Cyril (Minister of Foreign Affairs). “Report on the Foreign Policy of the Czech Republic 2005.” Available online at http://www.mzv.cz/wwwo/mzv/default.asp?ido=19275&idj=2&amb=1&ikony=&trid=1&prsl=&pocc1 (accessed April 2, 2008). Szefs, Slawek. “Poles not pleased with decision to send 1000 troops to Afghanistan.” *Network Europe*, 22 September 2006, http://networkeurope.radio.cz/feature/poles-not-pleased-with-decion-to-send-1000-troops-to-afghanistan (accessed on 2 April 2008).

Tak, Lieutenant Colonel Nicolaas (Netherlands Army). Based on interviews conducted 11 January 2008 at the U.S. Army War College, Carlisle Barracks, PA

Talent, Senator Jim. "New Wine in Old Bottles: Moving Towards a Post Cold War Policy." *Forward!* (The Heritage Foundation, 28 November 2007), http://www.heritage.org/press/commentary/112807a.cfm (accessed on 31 December 2008).

"Transatlantic public opinion survey shows support for NATO rising," *NATO News*, 11 September 2008, http://www.nato.int/docu/update/2008/09-september/e0911c.html (accessed 21September 2008).

Tyson, Ann Scott and Josh White. "Gates Hits NATO Allies' Role in Afghanistan." *Washington Post.com*, 7 February 7 2008, http://www.washingtonpost.com/wp-dyn/content/article/2008/02/06/AR2008020604690.html (accessed on 13 February 2008).

Ujfalusi, Brigadier General Csaba (Hungarian National Military Representative). Based on interviews conducted 28 January 2008 at SHAPE Headquarters, Mons, Belgium.

United Kingdom, Foreign and Commonwealth Office. "Romania." 22 May 2007, http://www.fco.gov.uk/en/about-the-fco/country-profiles/europe/romania?profile=history&pg=3 (accessed 5 November 2008)

United Kingdom, Ministry of Defence. "Pakistan Earthquake Relief Operations: MOD Assistance Provided to the Relief Effort." Fact sheet, undated, http://www.mod.uk/DefenceInternet/FactSheets/OperationsFactsheets/PakistanEarthquakeReliefOperationsModAssistanceProvidedToTheReliefEffort.htm (accessed 21 September 2008)

United Nations, *United Nations Security Council Resolution 1776 (2007).* New York: 19 September 2007, http://www.nato.int/isaf/topics/mandate/unscr/resolution_1776.pdf (accessed 22 October 2008).

———. *United Nations Security Council Resolution 1833 (2008).* New York: 22 September 2008,. http://www.nato.int/isaf/topics/mandate/unscr/resolution_1833.pdf (accessed 22 October 2008).

U.S. Department of State."Military Assistance." undated, http://www.state.gov/documents/organization/17783.pdf (accessed 21 November 2006).

U.S. Department of State, Bureau of European and Eurasian Affairs. "Background Note: Czech Republic,". http://www.state.gov/r/pa/ei/bgn/3237.htm (accessed 2 April 2008).

———. "Foreign Operations Appropriated Assistance: Estonia." Fact sheet, 28 April 2008, http://www.state.gov/p/eur/rls/fs/104123.htm (accessed 5 November 2008).

———. “Foreign Operations Appropriated Assistance: Estonia,” Fact sheet, 28 April 2008, http://www.state.gov/p/eur/rls/fs/104123.htm (accessed 5 November 2008).

———. “U.S. Government Assistance to and Cooperative Activities with Central and Eastern Europe.” January 2007, http://www.state.gov/p/eur/rls/rpt/92682.htm (accessed 11 November, 2007).

———. “U.S. Government Assistance to Eastern Europe under the Support of East European Democracy (SEED) Act.” January 2006, http://www.state.gov/p/eur/rls/rpt/c17488.htm

U.S. Department of State, Office of the Spokesman. “U.S. Response to Pakistan's Earthquake Disaster.” 9 November 2005, http://www.state.gov/r/pa/prs/ps/2005/56703.htm (accessed 21 September 2008).

Velinger, Jan. “Czech government to send troops to counter Al-Qaeda in Afghanistan.” *Radio Prague*, 15 January 2004, http://www.radio.cz/en/article/49458 (accessed 12 November 12 2008).

Wallander, Celeste A. "NATO's Price." *Foreign Affairs* 81, no. 6 (2002).

Walt, Stephen M. "Alliance Formation and the Balance of World Power." *International Security* 9, no. 4 (1985).

Weinrod, W. Bruce (Secretary of Defense Representative, U.S. Mission to NATO). Interviewed by author, 31 January 2008, NATO Headquarters, Brussels, Belgium.

Wendt, Alexander. *Social Theory of International Politics.* Cambridge: Cambridge University Press, 1999.

Werkhäuser, Nina “Ten Years On, Germany Looks Back at Return to War in Kosovo,” *Deutsche Welte*, March 24 2009. http://www.dw-world.de/dw/article/0,,4123734,00.html?maca=en-rss-en-all-1573-rdf (accessed March 24 2009)

Williams,Cindy. “From Conscripts to volunteers: NATO’s transitions to all-volunteer forces,” *Naval War College Review* (2005).

Wlezien, Christopher. "Dynamics of Representation: The Case of U.S. Spending on Defense." *British Journal of Political Science* 26 (1996).

Wojciechowski, Colonel Slawomir. Based on interviews conducted 11 December 2007 at the U.S. Army War College, Carlisle Barracks, PA.

Zaryn, Bogdan. “New Defense Minister promises to pull out Polish troops from Iraq in 2008.” *Polish Radio*, 19 November 2007, http://www.polskieradio.pl/zagranica/news/print.aspx?id=69776 (accessed 20 November 2007).

APPENDIX A
CHAPTER 3: COLD WAR STATA RESULTS

MODEL 1 – spillover

reg gdp gdpchg dvlag spillover no po sp uk us fr ge gr it lux nl be ca dk

```
      Source |       SS       df       MS              Number of obs =     255
-------------+------------------------------           F( 17,   237) =  376.33
       Model |  527.553674    17  31.0325691           Prob > F      =  0.0000
    Residual |   19.543349   237  .082461388           R-squared     =  0.9643
-------------+------------------------------           Adj R-squared =  0.9617
       Total |  547.097023   254  2.15392529           Root MSE      =  .28716

------------------------------------------------------------------------------
         gdp |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      gdpchg |   .0048352   .0076197     0.63   0.526    -.0101757    .0198461
       dvlag |   .4967747   .0405927    12.24   0.000     .4168062    .5767432
   spillover |   .4952775   .0750094     6.60   0.000     .3475072    .6430479
          no |  -.8215593   .1187456    -6.92   0.000    -1.055491   -.5876276
          po |  -.7372042   .1067515    -6.91   0.000    -.9475072   -.5269012
          sp |  -1.359913   .1464021    -9.29   0.000    -1.648328   -1.071497
          uk |   .0781839   .1000652     0.78   0.435     -.118947    .2753147
          us |   .6219429    .111981     5.55   0.000     .4013376    .8425482
          fr |  -.3778738   .1037309    -3.64   0.000    -.5822262   -.1735215
          ge |  -.8781939    .117663    -7.46   0.000    -1.109993    -.646395
          gr |   .9805889   .1212375     8.09   0.000     .7417481     1.21943
          it |  -1.169707   .1344757    -8.70   0.000    -1.434628   -.9047869
         lux |  -1.858167   .1820557   -10.21   0.000    -2.216821   -1.499513
          nl |  -.8528464   .1196934    -7.13   0.000    -1.088645   -.6170475
          be |  -.9129419    .121747    -7.50   0.000    -1.152786   -.6730974
          ca |  -1.394512   .1491137    -9.35   0.000     -1.68827   -1.100755
          dk |  -1.269125   .1423834    -8.91   0.000    -1.549623   -.9886261
       _cons |   .6374896   .2857981     2.23   0.027     .0744605    1.200519
```

MODEL 2 dspll

reg gdp gdpchg dvlag dspill no po sp uk us fr ge gr it lux nl be ca dk

```
      Source |       SS       df       MS              Number of obs =     255
-------------+------------------------------           F( 17,   237) =  339.57
       Model |  525.521478    17  30.9130281           Prob > F      =  0.0000
    Residual |  21.5755458   237  .091036058           R-squared     =  0.9606
-------------+------------------------------           Adj R-squared =  0.9577
       Total |  547.097023   254  2.15392529           Root MSE      =  .30172

------------------------------------------------------------------------------
         gdp |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      gdpchg |  -.0065497   .0079859    -0.82   0.413    -.0222822    .0091828
       dvlag |   .5343015   .0419477    12.74   0.000     .4516635    .6169396
      dspill |   .1573534   .0379761     4.14   0.000     .0825395    .2321673
          no |  -.7397621   .1235951    -5.99   0.000    -.9832474   -.4962769
          po |  -.6916746   .1117831    -6.19   0.000     -.91189   -.4714592
          sp |  -.9997832   .1513401    -6.61   0.000    -1.297927   -.7016396
          uk |   .0383992   .1049099     0.37   0.715    -.1682758    .2450743
          us |   .5230927    .115816     4.52   0.000     .2949325     .751253
          fr |  -.3546201   .1089499    -3.25   0.001    -.5692539   -.1399863
          ge |  -.7986316   .1225195    -6.52   0.000    -1.039998   -.5572651
          gr |   .8479864   .1243286     6.82   0.000     .6030561    1.092917
          it |  -1.058766   .1394138    -7.59   0.000    -1.333414   -.7841174
         lux |  -1.677386   .1876491    -8.94   0.000    -2.047059   -1.307712
          nl |  -.7832577    .125026    -6.26   0.000    -1.029562   -.5369534
          be |  -.8343603   .1269509    -6.57   0.000    -1.084457   -.5842641
          ca |  -1.253811   .1539047    -8.15   0.000    -1.557007   -.9506146
          dk |  -1.151401   .1476725    -7.80   0.000    -1.442319   -.8604824
       _cons |   1.640809   .2257887     7.27   0.000        1.196    2.085618
```

MODEL 3 usspll

reg gdp gdpchg dvlag usspill no po sp uk us fr ge gr it lux nl be ca dk

Source	SS	df	MS
Model	524.566408	17	30.8568475
Residual	22.5306156	237	.095065888
Total	547.097023	254	2.15392529

Number of obs	= 255
F(17, 237)	= 324.58
Prob > F	= 0.0000
R-squared	= 0.9588
Adj R-squared	= 0.9559
Root MSE	= .30833

gdp	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
gdpchg	-.0028437	.0080982	-0.35	0.726	-.0187974	.0131099
dvlag	.5541765	.0424568	13.05	0.000	.4705355	.6378174
usspill	.0988194	.0390793	2.53	0.012	.0218323	.1758065
no	-.6912023	.1253684	-5.51	0.000	-.9381811	-.4442236
po	-.6600484	.113795	-5.80	0.000	-.8842273	-.4358695
sp	-1.164951	.1533468	-7.60	0.000	-1.467048	-.8628541
uk	.0368215	.1072069	0.34	0.732	-.1743787	.2480218
us	.4853126	.1177501	4.12	0.000	.2533421	.7172831
fr	-.3297239	.1110584	-2.97	0.003	-.5485117	-.1109361
ge	-.7490885	.1242241	-6.03	0.000	-.993813	-.5043641
gr	.8006052	.1261684	6.35	0.000	.5520505	1.04916
it	-.9888013	.1407477	-7.03	0.000	-1.266078	-.7115248
lux	-1.557491	.1879994	-8.28	0.000	-1.927855	-1.187128
nl	-.7291467	.1266229	-5.76	0.000	-.9785969	-.4796965
be	-.7763867	.1284419	-6.04	0.000	-1.02942	-.5233531
ca	-1.168618	.154963	-7.54	0.000	-1.473899	-.8633376
dk	-1.069991	.1487116	-7.20	0.000	-1.362957	-.777026
_cons	1.505724	.287052	5.25	0.000	.9402244	2.071223

MODEL 4 threat = dist

reg gdp gdpchg dvlag spillover dist

```
     Source |       SS       df       MS              Number of obs =     255
-------------+------------------------------           F(  4,   250) =  976.41
       Model |  514.184045     4  128.546011           Prob > F      =  0.0000
    Residual |  32.9129786   250  .131651915           R-squared     =  0.9398
-------------+------------------------------           Adj R-squared =  0.9389
       Total |  547.097023   254  2.15392529           Root MSE      =  .36284

------------------------------------------------------------------------------
         gdp |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      gdpchg |    .011849   .0092693     1.28   0.202     -.006407    .0301049
       dvlag |   .9639921   .0160532    60.05   0.000     .9323753    .9956089
   spillover |   .1399734   .0874336     1.60   0.111    -.0322268    .3121737
        dist |  -.0009948   .0123195    -0.08   0.936    -.0252581    .0232684
       _cons |  -.4195318   .3289613    -1.28   0.203    -1.067421     .228357
```

MODEL 5 threat = prox

reg gdp gdpchg dvlag spillover prox

```
      Source |       SS       df       MS              Number of obs =     255
-------------+------------------------------           F(  4,   250) =  976.57
       Model |  514.189014     4  128.547253           Prob > F      =  0.0000
    Residual |  32.9080098   250  .131632039           R-squared     =  0.9398
-------------+------------------------------           Adj R-squared =  0.9389
       Total |  547.097023   254  2.15392529           Root MSE      =  .36281

------------------------------------------------------------------------------
         gdp |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      gdpchg |    .011653   .0093149     1.25   0.212    -.0066926    .0299986
       dvlag |   .9640823   .0159403    60.48   0.000     .9326879    .9954766
   spillover |   .1397725    .087405     1.60   0.111    -.0323715    .3119164
        prox |  -.0193337   .0918881    -0.21   0.834    -.2003071    .1616398
       _cons |  -.4037076   .3388376    -1.19   0.235    -1.071048    .2636326
------------------------------------------------------------------------------
```

MODEL 6 threat = Russia

reg gdp gdpchg dvlag spillover Russia no po sp uk us fr ge gr it lux nl be ca dk

Source	SS	df	MS		
				Number of obs =	255
				F(18, 236) =	353.92
Model	527.55375	18	29.3085417	Prob > F =	0.0000
Residual	19.5432732	236	.08281048	R-squared =	0.9643
				Adj R-squared =	0.9616
Total	547.097023	254	2.15392529	Root MSE =	.28777

gdp	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
gdpchg	.004811	.0076775	0.63	0.531	-.0103141	.0199361
dvlag	.4966815	.040795	12.18	0.000	.4163127	.5770503
spillover	.4966619	.0879965	5.64	0.000	.3233029	.670021
Russia	9.34e-06	.0003088	0.03	0.976	-.000599	.0006177
no	-.821853	.1193918	-6.88	0.000	-1.057063	-.5866432
po	-.7374205	.1072156	-6.88	0.000	-.9486424	-.5261985
sp	-1.360348	.1474145	-9.23	0.000	-1.650764	-1.069931
uk	.0781918	.1002771	0.78	0.436	-.1193609	.2757444
us	.6221786	.1124876	5.53	0.000	.4005704	.8437867
fr	-.3780227	.1040666	-3.63	0.000	-.5830409	-.1730045
ge	-.8785068	.1183643	-7.42	0.000	-1.111692	-.6453212
gr	.9809031	.1219368	8.04	0.000	.7406795	1.221127
it	-1.170137	.135505	-8.64	0.000	-1.437091	-.9031829
lux	-1.858901	.1840434	-10.10	0.000	-2.221478	-1.496323
nl	-.8531876	.1204753	-7.08	0.000	-1.090532	-.6158432
be	-.913303	.1225867	-7.45	0.000	-1.154807	-.671799
ca	-1.395036	.150428	-9.27	0.000	-1.691389	-1.098683
dk	-1.269629	.1436535	-8.84	0.000	-1.552636	-.9866218
_cons	.6311939	.3539965	1.78	0.076	-.0662028	1.328591

Figure 3.1 = Russia vs. US

```
. correlate  var1 var2
(obs=17)

             |     var1     var2
-------------+------------------
        var1 |   1.0000
        var2 |   0.5578   1.0000
```

$(.5578)^2 = .31$ (coefficient of determination)

Figure 3.2 = Russia vs. non-US

```
. correlate  var1 var2
(obs=17)

             |     var1     var2
-------------+------------------
        var1 |   1.0000
        var2 |   0.8098   1.0000
```

$(.8098)^2 = .66$ (coefficient of determination)

MODEL 7 threat - threat only

reg gdp gdpchg dvlag spillover threat no po sp uk us fr ge gr it lux nl be ca dk

Source	SS	df	MS		
				Number of obs =	255
				F(18, 236) =	357.29
Model	527.731362	18	29.318409	Prob > F =	0.0000
Residual	19.3656611	236	.082057886	R-squared =	0.9646
				Adj R-squared =	0.9619
Total	547.097023	254	2.15392529	Root MSE =	.28646

gdp	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
gdpchg	.0055888	.0076182	0.73	0.464	-.0094196	.0205972
dvlag	.4972346	.0404944	12.28	0.000	.4174579	.5770114
spillover	.4338901	.0856689	5.06	0.000	.2651166	.6026637
threat	-.0009928	.0006747	-1.47	0.142	-.0023219	.0003363
no	-.8030254	.1191225	-6.74	0.000	-1.037705	-.5683462
po	-.7989541	.1144597	-6.98	0.000	-1.024447	-.5734609
sp	-1.410247	.1499957	-9.40	0.000	-1.705748	-1.114745
uk	.042669	.1026963	0.42	0.678	-.1596496	.2449876
us	.5193169	.1316898	3.94	0.000	.2598791	.7787547
fr	-.4091397	.1056357	-3.87	0.000	-.617249	-.2010304
ge	-.8557055	.1183655	-7.23	0.000	-1.088893	-.6225176
gr	.9476532	.1229942	7.70	0.000	.7053464	1.18996
it	-1.189545	.134822	-8.82	0.000	-1.455153	-.9239366
lux	-1.862938	.1816387	-10.26	0.000	-2.220778	-1.505097
nl	-.8645029	.1196627	-7.22	0.000	-1.100246	-.6287594
be	-.9290384	.1219404	-7.62	0.000	-1.169269	-.6888077
ca	-1.474958	.1584761	-9.31	0.000	-1.787166	-1.162749
dk	-1.237355	.1436661	-8.61	0.000	-1.520387	-.9543234
_cons	.9662671	.3622153	2.67	0.008	.2526786	1.679856

MODEL 7 threat - threat only **WITHOUT U.S.**

reg gdp gdpchg dvlag spillover threat no po sp uk us fr ge gr it lux nl be ca dk

Source	SS	df	MS		
Model	420.361978	17	24.7271752	Number of obs =	238
Residual	17.392984	220	.079059018	F(17, 220) =	312.77
Total	437.754962	237	1.84706735	Prob > F =	0.0000
				R-squared =	0.9603
				Adj R-squared =	0.9572
				Root MSE =	.28117

gdp	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
gdpchg	.0055011	.0078298	0.70	0.483	-.00993	.0209321
dvlag	.4646752	.0416552	11.16	0.000	.3825809	.5467695
spillover	.5724484	.0884192	6.47	0.000	.3981914	.7467053
threat	.0001827	.0001069	1.71	0.089	-.000028	.0003935
no	-.8856056	.1185741	-7.47	0.000	-1.119292	-.6519191
po	-.8616928	.1207594	-7.14	0.000	-1.099686	-.6236994
sp	-1.535153	.158392	-9.69	0.000	-1.847313	-1.222994
uk	.0453846	.0994628	0.46	0.649	-.1506373	.2414064
us	(dropped)					
fr	-.4515	.1050404	-4.30	0.000	-.6585142	-.2444858
ge	-.9290747	.1170734	-7.94	0.000	-1.159804	-.6983458
gr	1.024195	.1202734	8.52	0.000	.7871594	1.26123
it	-1.292182	.1388028	-9.31	0.000	-1.565735	-1.018629
lux	-2.025771	.1887684	-10.73	0.000	-2.397797	-1.653745
nl	-.9332936	.1211596	-7.70	0.000	-1.172075	-.6945116
be	-.9918515	.1234976	-8.03	0.000	-1.235241	-.7484617
ca	-1.732604	.2132867	-8.12	0.000	-2.152951	-1.312258
dk	-1.356417	.1436785	-9.44	0.000	-1.63958	-1.073255
_cons	.5661809	.3267376	1.73	0.085	-.0777555	1.210117

MODEL 8 economy size (gdpcat)

reg gdp gdpchg dvlag spillover threat gdpcat

```
      Source |       SS       df       MS              Number of obs =     255
-------------+------------------------------           F(  5,   249) =  782.26
       Model |  514.352619     5  102.870524           Prob > F      =  0.0000
    Residual |  32.7444046   249  .131503633           R-squared     =  0.9401
-------------+------------------------------           Adj R-squared =  0.9389
       Total |  547.097023   254  2.15392529           Root MSE      =  .36263

------------------------------------------------------------------------------
         gdp |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      gdpchg |   .0118152   .0093077     1.27   0.205    -.0065167     .030147
       dvlag |   .9585867   .0165318    57.98   0.000     .9260268    .9911466
   spillover |    .134418   .0954183     1.41   0.160    -.0535119    .3223479
      threat |  -.0004072   .0005242    -0.78   0.438    -.0014397    .0006252
      gdpcat |   .0105819   .0152152     0.70   0.487     -.019385    .0405488
       _cons |  -.3946901   .3951603    -1.00   0.319    -1.172973    .3835927
```

MODEL 9 population (popcat)

reg gdp gdpchg dvlag spillover threat popcat

```
      Source |       SS       df       MS              Number of obs =     255
-------------+------------------------------           F(  5,   249) =  780.82
       Model |  514.295771     5  102.859154           Prob > F      =  0.0000
    Residual |  32.8012521   249  .131731936           R-squared     =  0.9400
-------------+------------------------------           Adj R-squared =  0.9388
       Total |  547.097023   254  2.15392529           Root MSE      =  .36295

------------------------------------------------------------------------------
         gdp |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      gdpchg |   .0120928   .0093421     1.29   0.197    -.0063067    .0304924
       dvlag |   .9596215   .0168905    56.81   0.000      .926355    .9928879
   spillover |   .1184361   .0924235     1.28   0.201    -.0635953    .3004676
      threat |  -.0004343    .000535    -0.81   0.418     -.001488    .0006194
      popcat |   .0049367   .0217917     0.23   0.821     -.037983    .0478563
       _cons |  -.3053789   .3743228    -0.82   0.415    -1.042622    .4318637
```

MODEL 10 AREA

reg gdp gdpchg dvlag spillover threat areacat

```
      Source |       SS       df       MS              Number of obs =     255
-------------+------------------------------           F(  5,   249) =  781.95
       Model |  514.340103     5  102.868021           Prob > F      =  0.0000
    Residual |  32.7569207   249  .131553898           R-squared     =  0.9401
-------------+------------------------------           Adj R-squared =  0.9389
       Total |  547.097023   254  2.15392529           Root MSE      =   .3627

------------------------------------------------------------------------------
         gdp |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      gdpchg |   .0112077   .0094516     1.19   0.237    -.0074076    .0298229
       dvlag |   .9577375   .0169228    56.59   0.000     .9244073    .9910677
   spillover |   .1263945   .0931504     1.36   0.176    -.0570687    .3098576
      threat |  -.0003075   .0005758    -0.53   0.594    -.0014416    .0008266
     areacat |    .008357     .01341     0.62   0.534    -.0180544    .0347685
       _cons |  -.4265939   .4281867    -1.00   0.320    -1.269923    .4167356
```

Table 3.4 Stata results OLS w/ U.S.

reg gdp gdpchg dvlag spillover threat gdpcat popcat areacat

Source	SS	df	MS		
				Number of obs =	255
				F(7, 247) =	554.91
Model	514.388302	7	73.4840431	Prob > F =	0.0000
Residual	32.7087216	247	.132423974	R-squared =	0.9402
				Adj R-squared =	0.9385
Total	547.097023	254	2.15392529	Root MSE =	.3639

gdp	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
gdpchg	.0117396	.0095247	1.23	0.219	-.0070203	.0304995
dvlag	.9593974	.0172959	55.47	0.000	.9253312	.9934636
spillover	.1401808	.0965992	1.45	0.148	-.0500824	.330444
threat	-.0003968	.0005975	-0.66	0.507	-.0015736	.00078
gdpcat	.0158401	.0268818	0.59	0.556	-.0371066	.0687868
popcat	-.0160309	.033699	-0.48	0.635	-.082405	.0503432
areacat	.0042576	.0182637	0.23	0.816	-.0317149	.0402301
_cons	-.4519573	.4323411	-1.05	0.297	-1.303503	.3995881

Table 3.4 Stata results OLS w/o U.S.

reg gdp gdpchg dvlag spillover threat gdpcat popcat areacat

Source	SS	df	MS		
				Number of obs =	238
				F(7, 230) =	437.93
Model	407.202929	7	58.171847	Prob > F =	0.0000
Residual	30.5520326	230	.132834924	R-squared =	0.9302
				Adj R-squared =	0.9281
Total	437.754962	237	1.84706735	Root MSE =	.36447

gdp	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
gdpchg	.01216	.0099263	1.23	0.222	-.007398	.0317181
dvlag	.9400874	.0208827	45.02	0.000	.8989415	.9812333
spillover	.0642049	.1016039	0.63	0.528	-.1359886	.2643984
threat	-.0001472	.000082	-1.80	0.074	-.0003088	.0000143
gdpcat	-.0056136	.0292165	-0.19	0.848	-.0631798	.0519526
popcat	-.0069975	.035317	-0.20	0.843	-.0765837	.0625886
areacat	.0273757	.0205209	1.33	0.184	-.0130573	.0678087
_cons	-.273797	.3800044	-0.72	0.472	-1.022532	.4749378

Table 3.4 Stata results XTFEVD w/ U.S.

xtfevd gdp gdpchg dvlag spillover threat gdpcat popcat areacat, invariant(gdpcat popcat areacat)

panel fixed effects regression with vector decomposition

degrees of freedom fevd	= 233	number of obs	= 255
mean squared error	= .0709256	F(9, 233)	= 851.8979
root mean squared error	= .2663186	Prob > F	= 7.9e-168
Residual Sum of Squares	= 18.08602	R-squared	= .9669418
Total Sum of Squares	= 547.097	adj. R-squared	= .9639623
Estimation Sum of Squares	= 529.011		

gdp	fevd Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
gdpchg	.0062417	.0073032	0.85	0.394	-.0081471	.0206305
dvlag	.4758276	.0376385	12.64	0.000	.4016724	.5499828
spillover	.5152278	.0788443	6.53	0.000	.3598889	.6705667
threat	-.0013152	.0004623	-2.84	0.005	-.002226	-.0004044
gdpcat	.0178863	.0205816	0.87	0.386	-.0226635	.0584361
popcat	.1057049	.0272825	3.87	0.000	.0519531	.1594567
areacat	.0862779	.0152064	5.67	0.000	.0563182	.1162375
eta	1	.0728584	13.73	0.000	.8564545	1.143545
_cons	-1.332986	.3371733	-3.95	0.000	-1.997284	-.6686884

Table 3.4 Stata results XTFEVD w/o U.S.

```
tsset
      panel variable:  panelvar, 1 to 14
       time variable:  datevar, 1975 to 1991


. xtfevd gdp gdpchg dvlag spillover threat   gdpcat popcat areacat, invariant(
gdpcat popcat areacat)

panel fixed effects regression with vector decomposition

degrees of freedom fevd    =     217          number of obs      =     238
mean squared error        = .0688196          F( 9, 217)         = 697.8312
root mean squared error    = .2623349          Prob > F           = 3.0e-150
Residual Sum of Squares    = 16.37906          R-squared          = .9625839
Total Sum of Squares       =  437.755          adj. R-squared     = .9591355
Estimation Sum of Squares  = 421.3759

------------------------------------------------------------------------------
             |             fevd
         gdp |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      gdpchg |   .0064823   .0074939     0.87   0.388    -.0082879    .0212525
       dvlag |   .4330807   .0402091    10.77   0.000     .3538303     .512331
   spillover |   .5526451   .0844778     6.54   0.000     .3861431    .7191472
      threat |   .0001683   .0000659     2.55   0.011     .0000383    .0002983
      gdpcat |  -.1136791   .0233929    -4.86   0.000    -.1597855   -.0675727
      popcat |    .238499    .032089     7.43   0.000     .1752531    .3017449
     areacat |   .0361252   .0154819     2.33   0.021      .005611    .0666394
         eta |          1   .0729767    13.70   0.000     .8561661    1.143834
       _cons |  -.6671025   .2878833    -2.32   0.021    -1.234508   -.0996971
```

MODEL 11 Without DVLAG

```
reg  gdp gdpchg spillover threat no po sp uk us fr ge gr it lux nl be ca dk

      Source |       SS       df       MS              Number of obs =     255
-------------+------------------------------           F( 17,   237) =  226.38
       Model |  515.359009    17  30.3152358           Prob > F      =  0.0000
    Residual |  31.7380147   237  .133915674           R-squared     =  0.9420
-------------+------------------------------           Adj R-squared =  0.9378
       Total |  547.097023   254  2.15392529           Root MSE      =  .36594

------------------------------------------------------------------------------
         gdp |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      gdpchg |  -.0033247   .0096879    -0.34   0.732      -.02241    .0157607
   spillover |   .7012213   .1058477     6.62   0.000     .4926988    .9097439
      threat |  -.0009288   .0008618    -1.08   0.282    -.0026267     .000769
          no |  -1.610685   .1268753   -12.70   0.000    -1.860633   -1.360738
          po |  -1.281925   .1373159    -9.34   0.000    -1.552441    -1.01141
          sp |  -2.725326   .1341571   -20.31   0.000    -2.989618   -2.461033
          uk |   .1278343   .1308934     0.98   0.330    -.1300288    .3856974
          us |   1.154274   .1547193     7.46   0.000     .8494729    1.459075
          fr |  -.7853896   .1291459    -6.08   0.000     -1.03981    -.530969
          ge |  -1.635115   .1276293   -12.81   0.000    -1.886548   -1.383683
          gr |   1.786252   .1306747    13.67   0.000     1.528819    2.043684
          it |  -2.297189    .128003   -17.95   0.000    -2.549358    -2.04502
         lux |  -3.712289   .1297089   -28.62   0.000    -3.967819   -3.456759
          nl |  -1.671156   .1277712   -13.08   0.000    -1.922868   -1.419444
          be |  -1.783423   .1279272   -13.94   0.000    -2.035442   -1.531403
          ca |  -2.828031   .1454993   -19.44   0.000    -3.114668   -2.541393
          dk |  -2.476198   .1306601   -18.95   0.000    -2.733602   -2.218794
       _cons |   2.397391   .4381158     5.47   0.000     1.534293     3.26049
```

MODEL 12 L/R Party

reg gdp gdpchg dvlag spillover threat lrparty no po sp uk us fr ge gr it lux nl be ca dk

Source	SS	df	MS
Model	527.795529	19	27.778712
Residual	19.3014947	235	.08213402
Total	547.097023	254	2.15392529

Number of obs	= 255
F(19, 235)	= 338.21
Prob > F	= 0.0000
R-squared	= 0.9647
Adj R-squared	= 0.9619
Root MSE	= .28659

gdp	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
gdpchg	.0058208	.0076263	0.76	0.446	-.0092038	.0208454
dvlag	.4990864	.0405674	12.30	0.000	.4191642	.5790085
spillover	.4379214	.0858299	5.10	0.000	.268827	.6070159
threat	-.0011103	.0006879	-1.61	0.108	-.0024656	.000245
lrparty	-.0372553	.0421498	-0.88	0.378	-.1202951	.0457845
no	-.7748803	.1233584	-6.28	0.000	-1.01791	-.5318507
po	-.7942583	.1146359	-6.93	0.000	-1.020104	-.5684129
sp	-1.393004	.1513279	-9.21	0.000	-1.691137	-1.094872
uk	.0497144	.1030527	0.48	0.630	-.1533107	.2527395
us	.5151886	.1318337	3.91	0.000	.2554617	.7749154
fr	-.3942213	.1070239	-3.68	0.000	-.6050702	-.1833724
ge	-.8338703	.1209697	-6.89	0.000	-1.072194	-.5955467
gr	.9602561	.1238746	7.75	0.000	.7162095	1.204303
it	-1.178494	.1354628	-8.70	0.000	-1.44537	-.9116173
lux	-1.848495	.1824561	-10.13	0.000	-2.207953	-1.489036
nl	-.8574479	.119984	-7.15	0.000	-1.09383	-.6210662
be	-.9268858	.1220212	-7.60	0.000	-1.167281	-.6864906
ca	-1.461842	.1592425	-9.18	0.000	-1.775568	-1.148117
dk	-1.213352	.1462756	-8.29	0.000	-1.501531	-.9251734
_cons	.9578913	.3625072	2.64	0.009	.2437122	1.67207

MODEL 13 NATO

tsset
panel variable: panelvar, 1 to 15
time variable: datevar, 1975 to 1991

. xtgls gdp gdpchg dvlag spillover threat nato no po sp uk us fr ge gr it lux nl be ca dk

Cross-sectional time-series FGLS regression

Coefficients: generalized least squares
Panels: homoskedastic
Correlation: no autocorrelation

Estimated covariances = 1 Number of obs = 255
Estimated autocorrelations = 0 Number of groups = 15
Estimated coefficients = 20 Time periods = 17
Wald chi2(19) = 7088.94
Log likelihood = -30.71131 Prob > chi2 = 0.0000

gdp	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
gdpchg	.0031404	.0073416	0.43	0.669	-.0112489	.0175297
dvlag	.4844101	.0390114	12.42	0.000	.4079491	.5608711
spillover	.440808	.0816856	5.40	0.000	.2807071	.6009088
threat	-.0011624	.0006473	-1.80	0.073	-.0024311	.0001063
nato	.3093238	.1389715	2.23	0.026	.0369446	.5817029
no	-.8235361	.1138749	-7.23	0.000	-1.046727	-.6003455
po	-.8260897	.1097379	-7.53	0.000	-1.041172	-.6110073
sp	-1.33015	.1473786	-9.03	0.000	-1.619007	-1.041293
uk	.0341758	.0979247	0.35	0.727	-.1577531	.2261048
us	.5159999	.1254846	4.11	0.000	.2700546	.7619452
fr	-.4278875	.1010028	-4.24	0.000	-.6258494	-.2299256
ge	-.8758503	.1131427	-7.74	0.000	-1.097606	-.6540947
gr	.9612294	.117349	8.19	0.000	.7312295	1.191229
it	-1.226642	.1295368	-9.47	0.000	-1.48053	-.9727546
lux	-1.92104	.1750253	-10.98	0.000	-2.264084	-1.577997
nl	-.8936199	.1147642	-7.79	0.000	-1.118553	-.6686863
be	-.9597873	.1170047	-8.20	0.000	-1.189112	-.7304622
ca	-1.529308	.1529597	-10.00	0.000	-1.829103	-1.229512
dk	-1.271219	.1377297	-9.23	0.000	-1.541164	-1.001273
_cons	.7231734	.3619921	2.00	0.046	.0136819	1.432665

MODEL 14 EU

xtgls gdp gdpchg dvlag spillover threat eu no po sp uk us fr ge gr it lux nl be ca dk

Cross-sectional time-series FGLS regression

Coefficients: generalized least squares
Panels: homoskedastic
Correlation: no autocorrelation

Estimated covariances = 1 Number of obs = 255
Estimated autocorrelations = 0 Number of groups = 15
Estimated coefficients = 20 Time periods = 17
Wald chi2(19) = 6978.71
Log likelihood = -32.63944 Prob > chi2 = 0.0000

gdp	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
gdpchg	.0051843	.0073245	0.71	0.479	-.0091714	.0195399
dvlag	.4965189	.0388827	12.77	0.000	.4203102	.5727276
spillover	.448992	.0835528	5.37	0.000	.2852315	.6127525
threat	-.0010861	.0006541	-1.66	0.097	-.002368	.0001959
eu	.0873976	.0851855	1.03	0.305	-.0795629	.2543581
no	-.8047866	.1143757	-7.04	0.000	-1.028959	-.5806142
po	-.8384194	.1164246	-7.20	0.000	-1.066607	-.6102314
sp	-1.450875	.1493481	-9.71	0.000	-1.743591	-1.158158
uk	-.0482981	.1325971	-0.36	0.716	-.3081837	.2115875
us	.4248813	.1563855	2.72	0.007	.1183713	.7313912
fr	-.5014071	.1355462	-3.70	0.000	-.7670727	-.2357415
ge	-.9448721	.1430611	-6.60	0.000	-1.225267	-.6644776
gr	.8914957	.1301495	6.85	0.000	.6364073	1.146584
it	-1.284065	.1588738	-8.08	0.000	-1.595452	-.9726777
lux	-1.959868	.19833	-9.88	0.000	-2.348588	-1.571149
nl	-.9573893	.1462683	-6.55	0.000	-1.24407	-.6707087
be	-1.022558	.1483704	-6.89	0.000	-1.313359	-.7317575
ca	-1.488887	.1527487	-9.75	0.000	-1.788269	-1.189505
dk	-1.3281	.1638493	-8.11	0.000	-1.649239	-1.006961
_cons	.9314184	.3493978	2.67	0.008	.2466112	1.616226

MODEL 15 EU+NATO

generate natoeu=nato*eu
xtgls gdp gdpchg dvlag spillover threat nato eu no po sp uk us fr ge gr it lux nl be ca dk

```
Cross-sectional time-series FGLS regression
Coefficients:  generalized least squares
Panels:        homoskedastic
Correlation:   no autocorrelation
Estimated covariances      =        1         Number of obs      =       255
Estimated autocorrelations =        0         Number of groups   =        15
Estimated coefficients     =       21         Time periods       =        17
                                              Wald chi2(20)      =   7091.78
Log likelihood             = -30.66198        Prob > chi2        =    0.0000

------------------------------------------------------------------------------
         gdp |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      gdpchg |   .0031315   .0073402     0.43   0.670    -.0112552    .0175181
       dvlag |    .484815   .0390252    12.42   0.000      .408327     .561303
   spillover |   .4453278   .0829277     5.37   0.000     .2827925    .6078631
      threat |   -.001184   .0006509    -1.82   0.069    -.0024597    .0000916
        nato |   .2939982   .1472618     2.00   0.046     .0053703     .582626
          eu |   .0281407   .0895872     0.31   0.753     -.147447    .2037285
```

tab2 nato eu

-> tabulation of nato by eu

```
           |          eu
      NATO |         0          1 |     Total
-----------+----------------------+----------
         0 |         7          0 |         7
         1 |        72        176 |       248
-----------+----------------------+----------
     Total |        79        176 |       255
```

INTERACTIVE TERM without nato and eu

xtgls gdp gdpchg dvlag spillover threat natoeu no po sp uk us fr ge gr it lux nl be ca dk

Cross-sectional time-series FGLS regression

Coefficients: generalized least squares
Panels: homoskedastic
Correlation: no autocorrelation

Estimated covariances = 1 Number of obs = 255
Estimated autocorrelations = 0 Number of groups = 15
Estimated coefficients = 20 Time periods = 17
Wald chi2(19) = 6978.71
Log likelihood = -32.63944 Prob > chi2 = 0.0000

gdp	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
gdpchg	.0051843	.0073245	0.71	0.479	-.0091714	.0195399
dvlag	.4965189	.0388827	12.77	0.000	.4203102	.5727276
spillover	.448992	.0835528	5.37	0.000	.2852315	.6127525
threat	-.0010861	.0006541	-1.66	0.097	-.002368	.0001959
natoeu	.0873976	.0851855	1.03	0.305	-.0795629	.2543581
no	-.8047866	.1143757	-7.04	0.000	-1.028959	-.5806142
po	-.8384194	.1164246	-7.20	0.000	-1.066607	-.6102314
sp	-1.450875	.1493481	-9.71	0.000	-1.743591	-1.158158
uk	-.0482981	.1325971	-0.36	0.716	-.3081837	.2115875
us	.4248813	.1563855	2.72	0.007	.1183713	.7313912
fr	-.5014071	.1355462	-3.70	0.000	-.7670727	-.2357415
ge	-.9448721	.1430611	-6.60	0.000	-1.225267	-.6644776
gr	.8914957	.1301495	6.85	0.000	.6364073	1.146584
it	-1.284065	.1588738	-8.08	0.000	-1.595452	-.9726777
lux	-1.959868	.19833	-9.88	0.000	-2.348588	-1.571149
nl	-.9573893	.1462683	-6.55	0.000	-1.24407	-.6707087
be	-1.022558	.1483704	-6.89	0.000	-1.313359	-.7317575
ca	-1.488887	.1527487	-9.75	0.000	-1.788269	-1.189505
dk	-1.3281	.1638493	-8.11	0.000	-1.649239	-1.006961
_cons	.9314184	.3493978	2.67	0.008	.2466112	1.616226

MODEL 16 AGE IN YEARS

Table 3.8 Stata results GLS w/ U.S.

xtgls gdp gdpchg dvlag spillover threat nato eu age no po sp uk us fr ge gr it lux nl be ca dk

Cross-sectional time-series FGLS regression

Coefficients: generalized least squares
Panels: homoskedastic
Correlation: no autocorrelation

Estimated covariances   =   1   Number of obs   =   255
Estimated autocorrelations =   0   Number of groups   =   15
Estimated coefficients   =   22   Time periods   =   17
                                                Wald chi2(21)   =   7136.61
Log likelihood   = -29.88629   Prob > chi2   =   0.0000

gdp	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
gdpchg	.0044804	.0073974	0.61	0.545	-.0100183	.018979
dvlag	.489222	.0390667	12.52	0.000	.4126526	.5657914
spillover	.5663589	.1274711	4.44	0.000	.3165201	.8161977
threat	-.0025502	.001273	-2.00	0.045	-.0050452	-.0000552
nato	.3105299	.1474115	2.11	0.035	.0216088	.5994511
eu	.0090894	.0906115	0.10	0.920	-.1685058	.1866847
age	.014264	.0114346	1.25	0.212	-.0081474	.0366754
no	-.8536002	.1161215	-7.35	0.000	-1.081194	-.6260063
po	-.9691114	.1562202	-6.20	0.000	-1.275297	-.6629254
sp	-1.012578	.3105887	-3.26	0.001	-1.62132	-.4038351
uk	-.0613224	.1441384	-0.43	0.671	-.3438286	.2211837
us	.339557	.1964537	1.73	0.084	-.0454853	.7245992
fr	-.5275499	.1473371	-3.58	0.000	-.8163254	-.2387745
ge	-.82656	.155773	-5.31	0.000	-1.131869	-.5212506
gr	.9340686	.1314175	7.11	0.000	.6764951	1.191642
it	-1.326796	.1679273	-7.90	0.000	-1.655928	-.9976649
lux	-2.01498	.2031949	-9.92	0.000	-2.413235	-1.616725
nl	-.9771822	.1523122	-6.42	0.000	-1.275709	-.6786558
be	-1.051711	.1562457	-6.73	0.000	-1.357947	-.7454752
ca	-1.710537	.2096887	-8.16	0.000	-2.12152	-1.299555
dk	-1.303003	.1627863	-8.00	0.000	-1.622058	-.9839478
_cons	.000303	.683203	0.00	1.000	-1.33875	1.339356

Table 3.8 Stata results GLS w/o U.S.

xtgls gdp gdpchg dvlag spillover threat nato eu age be ca dk fr ge gr it lux nl no po sp uk

Cross-sectional time-series FGLS regression

Coefficients: generalized least squares
Panels: homoskedastic
Correlation: no autocorrelation

Estimated covariances = 1 Number of obs = 238
Estimated autocorrelations = 0 Number of groups = 14
Estimated coefficients = 21 Time periods = 17
Wald chi2(20) = 6102.32
Log likelihood = -19.61744 Prob > chi2 = 0.0000

gdp	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
gdpchg	-.0018064	.0075781	-0.24	0.812	-.0166593	.0130464
dvlag	.4283714	.0401591	10.67	0.000	.3496611	.5070818
spillover	.1912408	.1404686	1.36	0.173	-.0840725	.4665541
threat	.0005169	.0001564	3.31	0.001	.0002104	.0008235
nato	.1746458	.1459735	1.20	0.232	-.111457	.4607485
eu	.01026	.0877488	0.12	0.907	-.1617245	.1822444
age	-.035495	.0107726	-3.29	0.001	-.0566088	-.0143811
be	-.9586681	.1438512	-6.66	0.000	-1.240611	-.6767249
ca	-2.056039	.2285454	-9.00	0.000	-2.50398	-1.608098
dk	-1.27557	.1639541	-7.78	0.000	-1.596914	-.9542259
fr	-.4166945	.1298452	-3.21	0.001	-.6711863	-.1622027
ge	-1.051555	.1442199	-7.29	0.000	-1.334221	-.7688894
gr	.9775138	.1271897	7.69	0.000	.7282266	1.226801
it	-1.260583	.1553404	-8.11	0.000	-1.565044	-.9561213
lux	-2.004833	.1966879	-10.19	0.000	-2.390334	-1.619332
nl	-.8877787	.1429207	-6.21	0.000	-1.167898	-.6076594
no	-.7849361	.116791	-6.72	0.000	-1.013842	-.5560299
po	-.9323066	.1178595	-7.91	0.000	-1.163307	-.7013062
sp	-2.644513	.3992466	-6.62	0.000	-3.427022	-1.862004
uk	.0778951	.1260344	0.62	0.537	-.1691279	.324918
_cons	2.769224	.7792938	3.55	0.000	1.241837	4.296612

Table 3.8 Stata results XTPCSE w/ U.S.

tsset
panel variable: panelvar, 1 to 25
time variable: datevar, 1992 to 2006

. xtpcse gdp gdpchg dvlag spillover threat nato eu age no po sp uk us fr ge gr it lux nl be ca dk, correlation (ar1)

Prais-Winsten regression, correlated panels corrected standard errors (PCSEs)

Group variable: panelvar Number of obs = 375
Time variable: datevar Number of groups = 25
Panels: correlated (balanced) Obs per group: min = 15
Autocorrelation: common AR(1) avg = 15
max = 15
Estimated covariances = 325 R-squared = 0.7974
Estimated autocorrelations = 1 Wald chi2(21) = 175349.69
Estimated coefficients = 22 Prob > chi2 = 0.0000

gdp	Coef.	Panel-corrected Std. Err.	z	P>|z|	[95% Conf.	Interval]
gdpchg	-.0175778	.0106732	-1.65	0.100	-.0384969	.0033412
dvlag	.5658384	.070724	8.00	0.000	.427222	.7044548
spillover	.4012995	.1242757	3.23	0.001	.1577236	.6448753
threat	.0011699	.0027214	0.43	0.667	-.0041639	.0065037
nato	.0976916	.1300335	0.75	0.452	-.1571695	.3525526
eu	-.216649	.1850914	-1.17	0.242	-.5794215	.1461235
age	.0159535	.0048409	3.30	0.001	.0064654	.0254415
no	-.6946889	.2660855	-2.61	0.009	-1.216207	-.173171
po	-.7005131	.2971926	-2.36	0.018	-1.283	-.1180263
sp	-.4598451	.2200147	-2.09	0.037	-.8910661	-.0286242
uk	-.4136947	.2677318	-1.55	0.122	-.9384393	.1110499
us	.1075268	.3143778	0.34	0.732	-.5086425	.723696
fr	-.4029358	.2725771	-1.48	0.139	-.9371771	.1313054
ge	-.8494083	.2627765	-3.23	0.001	-1.364441	-.3343759
gr	.1529496	.2255798	0.68	0.498	-.2891786	.5950779
it	-.7530743	.2886496	-2.61	0.009	-1.318817	-.1873316
lux	-1.248214	.3295657	-3.79	0.000	-1.894151	-.6022775
nl	-.8367556	.2877489	-2.91	0.004	-1.400733	-.2727781
be	-.9870346	.3050849	-3.24	0.001	-1.58499	-.3890792
ca	-.9627451	.3319237	-2.90	0.004	-1.613304	-.3121865
dk	-.8705843	.2766293	-3.15	0.002	-1.412768	-.328401
_cons	-.0119394	.2410164	-0.05	0.960	-.4843228	.4604441
rho	.0751813					

Table 3.8 Stata results XTPCSE w/o U.S.

```
xtpcse gdp gdpchg dvlag spillover threat nato  eu  age no po sp uk us fr ge gr it
lux nl be ca dk, correlat
> ion (ar1)

Prais-Winsten regression, correlated panels corrected standard errors (PCSEs)

Group variable:   panelvar                 Number of obs      =      238
Time variable:    datevar                  Number of groups   =       14
Panels:           correlated (balanced)    Obs per group: min =       17
Autocorrelation:  common AR(1)                            avg =       17
                                                          max =       17
Estimated covariances      =       105     R-squared          =   0.9407
Estimated autocorrelations =         1     Wald chi2(20)      = 27939.63
Estimated coefficients     =        21     Prob > chi2        =   0.0000

------------------------------------------------------------------------------
             |           Panel-corrected
         gdp |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      gdpchg |  -.0047352   .0076985    -0.62   0.538    -.0198239    .0103535
       dvlag |   .3206341   .0649294     4.94   0.000     .1933748    .4478934
   spillover |   .1513527   .1545648     0.98   0.327    -.1515887     .454294
      threat |   .0005486   .0001429     3.84   0.000     .0002686    .0008286
        nato |   .2747567   .1649115     1.67   0.096    -.0484639    .5979773
          eu |   .0366324   .1472883     0.25   0.804    -.2520474    .3253123
         age |  -.0424247   .0117004    -3.63   0.000    -.0653571   -.0194923
          no |  -.9462494   .2233305    -4.24   0.000    -1.383969   -.5085297
          po |  -1.042219   .1792284    -5.82   0.000      -1.3935   -.6909378
          sp |  -3.121424   .4559724    -6.85   0.000    -4.015113   -2.227734
          uk |   .0585267   .2303056     0.25   0.799    -.3928639    .5099174
          us |  (dropped)
          fr |  -.5294301   .2356842    -2.25   0.025    -.9913627   -.0674974
          ge |  -1.281369   .2235243    -5.73   0.000    -1.719468   -.8432691
          gr |   1.104153   .2458061     4.49   0.000      .622382    1.585924
          it |  -1.519294   .2891563    -5.25   0.000     -2.08603   -.9525575
         lux |  -2.411492   .3338101    -7.22   0.000    -3.065748   -1.757237
          nl |   -1.08243   .2460438    -4.40   0.000    -1.564667   -.6001934
          be |  -1.188571   .2624857    -4.53   0.000    -1.703033   -.6741081
          ca |  -2.371706   .2979394    -7.96   0.000    -2.955656   -1.787755
          dk |    -1.5488   .2811751    -5.51   0.000    -2.099893   -.9977071
       _cons |   3.532107     .88089     4.01   0.000     1.805595     5.25862
-------------+----------------------------------------------------------------
         rho |   .2747103
```

Table 3.8 & 3.9 Stata results XTFEVD w/ U.S.

```
. xtfevd gdp gdpchg dvlag spillover threat nato  eu gdpcat popcat areacat  age,
invariant( gdpcat popcat area
> cat)

panel fixed effects regression with vector decomposition

degrees of freedom fevd    =      230          number of obs      =      255
mean squared error         =  .069834          F( 12, 230)        = 621.4715
root mean squared error    = .2642612          Prob > F           = 3.0e-164
Residual Sum of Squares    = 17.80767          R-squared          = .9674506
Total Sum of Squares       =  547.097          adj. R-squared     = .9640542
Estimation Sum of Squares  = 529.2894

------------------------------------------------------------------------------
             |              fevd
         gdp |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      gdpchg |   .0046685   .0074177     0.63   0.530    -.0099469    .0192838
       dvlag |   .4636959   .0381463    12.16   0.000     .3885351    .5388568
   spillover |   .5470071   .0847777     6.45   0.000     .3799669    .7140474
      threat |  -.0018151   .0005067    -3.58   0.000    -.0028133   -.0008168
        nato |     .27665   .1399836     1.98   0.049     .0008358    .5524642
          eu |  -.0085127   .0676659    -0.13   0.900     -.141837    .1248116
         age |   .0053325    .002772     1.92   0.056    -.0001292    .0107943
      gdpcat |   .0088947   .0273656     0.33   0.745    -.0450246     .062814
      popcat |   .1222228   .0281757     4.34   0.000     .0667073    .1777384
     areacat |   .0879844   .0232134     3.79   0.000     .0422463    .1337226
         eta |          1   .0723358    13.82   0.000     .8574744    1.142526
       _cons |  -1.804261   .3987281    -4.53   0.000    -2.589888   -1.018635
```

Table 3.8 & 3.9 Stata results XTFEVD w/o U.S.

. xtfevd gdp gdpchg dvlag spillover threat nato eu gdpcat popcat areacat age, invariant(gdpcat popcat area
> cat)

panel fixed effects regression with vector decomposition

```
degrees of freedom fevd    =      214          number of obs      =      238
mean squared error         =  .065317          F( 12, 214)        = 528.3797
root mean squared error    = .2555718          Prob > F           = 1.9e-148
Residual Sum of Squares    = 15.54544          R-squared          = .9644883
Total Sum of Squares       =  437.755          adj. R-squared     = .9606716
Estimation Sum of Squares  = 422.2095

------------------------------------------------------------------------------
             |               fevd
         gdp |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      gdpchg |  -.0004049   .0075429    -0.05   0.957    -.0152728    .0144629
       dvlag |   .4087938   .0401469    10.18   0.000     .3296598    .4879278
   spillover |   .2242732   .0830364     2.70   0.007     .0605992    .3879473
      threat |   .0004651   .0000774     6.01   0.000     .0003124    .0006177
        nato |   .1693319   .1380654     1.23   0.221    -.1028104    .4414741
          eu |  -.0105843   .0697581    -0.15   0.880    -.1480853    .1269166
         age |  -.0344843   .0035722    -9.65   0.000    -.0415254   -.0274432
      gdpcat |  -.0736284   .0266662    -2.76   0.006    -.1261904   -.0210663
      popcat |   .2125256   .0315133     6.74   0.000     .1504093    .2746418
     areacat |  -.0286654   .0254549    -1.13   0.261    -.0788398     .021509
         eta |          1   .0700012    14.29   0.000     .8620199    1.13798
       _cons |    1.91371   .3892288     4.92   0.000     1.146496    2.680923
```

APPENDIX B
CHAPTER 4: POST-COLD WAR STATA RESULTS

MODEL 1 – spillover

reg gdp gdpchg dvlag spillover no pl po rom svk slov sp tu uk us fr ge gr hu it lat lith lux nl be bul ca cz dk es

```
      Source |       SS       df       MS              Number of obs =     375
-------------+------------------------------           F( 27,   347) =   64.27
       Model |  311.758117    27  11.5465969           Prob > F      =  0.0000
    Residual |  62.3430629   347  .179663006           R-squared     =  0.8334
-------------+------------------------------           Adj R-squared =  0.8204
       Total |   374.10118   374  1.00027054           Root MSE      =  .42387
------------------------------------------------------------------------------
         gdp |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      gdpchg |  -.0198705   .0055601    -3.57   0.000    -.0308063   -.0089348
       dvlag |    .497449   .0406423    12.24   0.000     .4175127    .5773853
   spillover |   .3838867   .0888531     4.32   0.000     .2091283    .5586452
          no |  -1.079839   .1759682    -6.14   0.000    -1.425937   -.7337406
          pl |  -1.024855   .1785152    -5.74   0.000    -1.375963   -.6737469
          po |   -1.12205   .1772215    -6.33   0.000    -1.470613   -.7734862
         rom |  -.9350599   .1707777    -5.48   0.000     -1.27095   -.5991701
         svk |  -1.015629   .1777965    -5.71   0.000    -1.365323   -.6659348
        slov |  -1.315152   .1875215    -7.01   0.000    -1.683974   -.9463301
          sp |  -1.460218   .1964375    -7.43   0.000    -1.846576    -1.07386
          tu |  (dropped)
          uk |  -.7761336   .1644881    -4.72   0.000    -1.099653   -.4526145
          us |  -.2190105   .1555814    -1.41   0.160    -.5250118    .0869907
          fr |  -.7643297   .1662094    -4.60   0.000    -1.091234    -.437425
          ge |  -1.375251   .1899007    -7.24   0.000    -1.748752   -1.001749
          gr |  -.1616285   .1550055    -1.04   0.298     -.466497    .1432399
          hu |  -1.367186   .1902948    -7.18   0.000    -1.741462   -.9929092
          it |  -1.176751   .1821468    -6.46   0.000    -1.535001   -.8185001
         lat |  -.9524663   .1748629    -5.45   0.000    -1.296391   -.6085418
        lith |  -1.164229   .1778431    -6.55   0.000    -1.514015   -.8144429
         lux |  -1.742115   .2132315    -8.17   0.000    -2.161504   -1.322726
          nl |  -1.265306   .1849564    -6.84   0.000    -1.629082   -.9015288
          be |  -1.441851   .1936724    -7.44   0.000     -1.82277   -1.060931
         bul |  -.7164231   .1589021    -4.51   0.000    -1.028956   -.4038906
          ca |  -1.447492   .1955633    -7.40   0.000    -1.832131   -1.062854
          cz |  -1.000863   .1740136    -5.75   0.000    -1.343117   -.6586094
          dk |  -1.294947   .1867873    -6.93   0.000    -1.662325   -.9275698
          es |  -.9545969   .1775013    -5.38   0.000    -1.303711   -.6054832
       _cons |    1.30757   .2178859     6.00   0.000      .879027    1.736113
```

MODEL 2 - dspll

reg gdp gdpchg dvlag dspll no pl po rom svk slov sp uk us fr ge gr hu it lat lith lux nl be bul ca cz dk es

Source	SS	df	MS		
				Number of obs =	375
				F(27, 347) =	60.33
Model	308.405308	27	11.4224188	Prob > F =	0.0000
Residual	65.695872	347	.189325279	R-squared =	0.8244
				Adj R-squared =	0.8107
Total	374.10118	374	1.00027054	Root MSE =	.43512

gdp	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
gdpchg	-.0288477	.0054421	-5.30	0.000	-.0395513	-.0181441
dvlag	.5826751	.0366366	15.90	0.000	.5106174	.6547328
dspll	.0026373	.0392709	0.07	0.946	-.0746017	.0798763
no	-.8737609	.1738779	-5.03	0.000	-1.215748	-.5317736
pl	-.7851925	.1814705	-4.33	0.000	-1.142113	-.428272
po	-.9139858	.1750773	-5.22	0.000	-1.258332	-.5696396
rom	-.7642541	.1859935	-4.11	0.000	-1.130071	-.3984376
svk	-.7880001	.1910686	-4.12	0.000	-1.163798	-.4122017
slov	-1.050457	.1984328	-5.29	0.000	-1.44074	-.660175
sp	-1.167466	.1892969	-6.17	0.000	-1.53978	-.7951529
uk	-.6460538	.1660031	-3.89	0.000	-.9725527	-.3195548
us	-.1802979	.1594468	-1.13	0.259	-.4939017	.1333058
fr	-.5996431	.1661072	-3.61	0.000	-.9263467	-.2729396
ge	-1.117882	.1851006	-6.04	0.000	-1.481943	-.753822
gr	-.1257554	.1588946	-0.79	0.429	-.4382731	.1867623
hu	-1.085735	.1903811	-5.70	0.000	-1.460181	-.7112883
it	-.9500048	.1790494	-5.31	0.000	-1.302163	-.5978462
lat	-.7576423	.1889782	-4.01	0.000	-1.129329	-.3859554
lith	-.9523111	.1911762	-4.98	0.000	-1.328321	-.5763013
lux	-1.374567	.2007762	-6.85	0.000	-1.769458	-.9796755
nl	-1.020942	.1807698	-5.65	0.000	-1.376484	-.6653993
be	-1.163458	.1874887	-6.21	0.000	-1.532215	-.7947005
bul	-.6377604	.1766686	-3.61	0.000	-.9852365	-.2902842
ca	-1.153842	.1882602	-6.13	0.000	-1.524116	-.7835672
cz	-.797739	.1784952	-4.47	0.000	-1.148808	-.4466703
dk	-1.063259	.1837392	-5.79	0.000	-1.424641	-.7018762
es	-.7406936	.1914851	-3.87	0.000	-1.117311	-.364076
_cons	1.781272	. 2145953	8.30	0.000	1.359201	2.203343

MODEL 3 - usspll

reg gdp gdpchg dvlag usspill no pl po rom svk slov sp uk us fr ge gr hu it lat lith lux nl be bul ca cz dk es

```
      Source |       SS       df       MS              Number of obs =     375
-------------+------------------------------           F( 27,   347) =   60.36
       Model |  308.43406    27  11.4234837           Prob > F      =  0.0000
    Residual |  65.6671204   347  .189242422           R-squared     =  0.8245
-------------+------------------------------           Adj R-squared =  0.8108
       Total |  374.10118   374  1.00027054           Root MSE      =  .43502

------------------------------------------------------------------------------
         gdp |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      gdpchg |  -.0282678    .005448    -5.19   0.000    -.0389831   -.0175525
       dvlag |   .5809828    .036689    15.84   0.000     .5088221    .6531435
     usspill |   -.007943   .0200822    -0.40   0.693    -.0474411     .031555
          no |  -.8763147   .1739563    -5.04   0.000    -1.218456   -.5341732
          pl |  -.8078633   .1811069    -4.46   0.000    -1.164069   -.4516578
          po |  -.9161175   .1751242    -5.23   0.000    -1.260556    -.571679
         rom |  -.7947768   .1826221    -4.35   0.000    -1.153962   -.4355913
         svk |   -.820401   .1877118    -4.37   0.000    -1.189597   -.4512049
        slov |  -1.083359   .1952618    -5.55   0.000    -1.467404   -.6993131
          sp |  -1.171495   .1895003    -6.18   0.000    -1.544208   -.7987811
          uk |  -.6475584   .1660074    -3.90   0.000    -.9740657   -.3210511
          us |  -.1808717   .1594165    -1.13   0.257    -.4944159    .1326725
          fr |  -.6006658   .1660535    -3.62   0.000    -.9272637   -.2740678
          ge |  -1.120773   .1852046    -6.05   0.000    -1.485038   -.7565079
          gr |  -.1256888   .1588547    -0.79   0.429    -.4381279    .1867504
          hu |  -1.108393   .1901765    -5.83   0.000    -1.482437   -.7343495
          it |  -.9522389   .1791017    -5.32   0.000      -1.3045   -.5999773
         lat |  -.7885724   .1856728    -4.25   0.000    -1.153758   -.4233867
        lith |  -.9836208   .1879103    -5.23   0.000    -1.353207   -.6140344
         lux |  -1.380176   .2011536    -6.86   0.000    -1.775809   -.9845418
          nl |  -1.023831   .1808774    -5.66   0.000    -1.379585   -.6680769
          be |  -1.166809   .1876353    -6.22   0.000    -1.535855   -.7977632
         bul |  -.6663258   .1729916    -3.85   0.000     -1.00657   -.3260818
          ca |  -1.157924   .1884741    -6.14   0.000     -1.52862    -.787229
          cz |  -.8188285   .1780297    -4.60   0.000    -1.168981   -.4686755
          dk |  -1.066849   .1838425    -5.80   0.000    -1.428435   -.7052636
          es |  -.7729074   .1881574    -4.11   0.000     -1.14298   -.4028348
       _cons |   1.822713   .2117928     8.61   0.000     1.406154    2.239273
```

MODEL 4 threat = dist

reg gdp gdpchg dvlag spillover dist

```
      Source |       SS       df       MS              Number of obs =     375
-------------+------------------------------           F(  4,   370) =  335.56
       Model |  293.260491     4  73.3151228           Prob > F      =  0.0000
    Residual |  80.8406892   370  .218488349           R-squared     =  0.7839
-------------+------------------------------           Adj R-squared =  0.7816
       Total |   374.10118   374  1.00027054           Root MSE      =  .46743

------------------------------------------------------------------------------
         gdp |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      gdpchg |   -.022505   .0059601    -3.78   0.000     -.034225   -.010785
       dvlag |   .8310406   .0236291    35.17   0.000     .7845764    .8775047
   spillover |  -.0122613   .0858284    -0.14   0.886    -.1810339    .1565113
        dist |   .0092182   .0144871     0.64   0.525    -.0192691    .0377056
       _cons |   .3751914   .1991771     1.88   0.060    -.0164697    .7668524
```

MODEL 4 threat = dist (LESS U.S. Data)

. reg gdp gdpchg dvlag spillover dist

```
      Source |       SS       df       MS              Number of obs =     360
-------------+------------------------------           F(  4,   355) =  287.08
       Model |  254.098184     4  63.5245461           Prob > F      =  0.0000
    Residual |  78.5550441   355  .221281814           R-squared     =  0.7639
-------------+------------------------------           Adj R-squared =  0.7612
       Total |  332.653229   359  .926610665           Root MSE      =  .47041

------------------------------------------------------------------------------
         gdp |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      gdpchg |  -.0220603    .006019    -3.67   0.000    -.0338977   -.0102228
       dvlag |   .8073426    .025562    31.58   0.000     .7570706    .8576145
   spillover |     .02989   .0886878     0.34   0.736    -.1445296    .2043096
        dist |  -.0257237   .0197908    -1.30   0.195    -.0646457    .0131982
       _cons |   .3984422   .2048132     1.95   0.053    -.0043575     .801242
```

MODEL 5 threat = prox

```
reg  gdp gdpchg dvlag   spillover prox

      Source |       SS       df       MS              Number of obs =     375
-------------+------------------------------           F(  4,   370) =  335.35
       Model |  293.221923     4  73.3054807           Prob > F      =  0.0000
    Residual |  80.8792574   370  .218592588           R-squared     =  0.7838
-------------+------------------------------           Adj R-squared =  0.7815
       Total |   374.10118   374  1.00027054           Root MSE      =  .46754

------------------------------------------------------------------------------
         gdp |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      gdpchg |  -.0224208   .0059588    -3.76   0.000    -.0341381   -.0107035
       dvlag |   .8328325    .023555    35.36   0.000     .7865141    .8791509
   spillover |  -.0144871   .0858315    -0.17   0.866    -.1832658    .1542915
        prox |  -.0288633   .0604135    -0.48   0.633    -.1476601    .0899335
       _cons |   .4206214    .202579     2.08   0.039     .0222709     .818972
```

Figure 4.1 = Russia vs. US

```
. correlate  var1 var2
(obs=15)

             |    var1     var2
-------------+------------------
        var1 |   1.0000
        var2 |   0.8666   1.0000
```

$(..8666)^2$ = .75 (coefficient of determination)

Figure 4.2 = Russia vs. non-US

```
. correlate  var1 var2
(obs=15)

             |    var1     var2
-------------+------------------
        var1 |   1.0000
        var2 |   0.3379   1.0000
```

$(.3379)^2$ = .11 (coefficient of determination)

MODEL 6 threat = Russia

reg gdp gdpchg dvlag spillover russia no pl po rom svk slov sp uk us fr ge gr hu it lat lith lux nl be bul ca cz dk es

Source	SS	df	MS		
Model	311.869441	28	11.1381943	Number of obs =	375
Residual	62.2317397	346	.179860519	F(28, 346) =	61.93
Total	374.10118	374	1.00027054	Prob > F =	0.0000
				R-squared =	0.8336
				Adj R-squared =	0.8202
				Root MSE =	.4241

gdp	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
gdpchg	-.0191203	.0056443	-3.39	0.001	-.0302218	-.0080189
dvlag	.4950928	.0407748	12.14	0.000	.4148951	.5752905
spillover	.362062	.0931296	3.89	0.000	.1788906	.5452334
russia	.0007316	.0009299	0.79	0.432	-.0010974	.0025606
no	-1.081108	.1760723	-6.14	0.000	-1.427415	-.7348017
pl	-1.02691	.1786324	-5.75	0.000	-1.378252	-.6755676
po	-1.122514	.1773199	-6.33	0.000	-1.471274	-.773753
rom	-.9349466	.1708717	-5.47	0.000	-1.271024	-.5988687
svk	-1.017566	.1779112	-5.72	0.000	-1.36749	-.6676424
slov	-1.317666	.1876518	-7.02	0.000	-1.686748	-.9485845
sp	-1.463075	.196579	-7.44	0.000	-1.849715	-1.076435
uk	-.7769003	.1645814	-4.72	0.000	-1.100606	-.4531944
us	-.219423	.1556678	-1.41	0.160	-.5255973	.0867513
fr	-.7626531	.1663144	-4.59	0.000	-1.089768	-.4355386
ge	-1.376715	.1900141	-7.25	0.000	-1.750444	-1.002987
gr	-.1597713	.1551086	-1.03	0.304	-.4648457	.1453031
hu	-1.368755	.1904098	-7.19	0.000	-1.743261	-.9942483
it	-1.177309	.1822482	-6.46	0.000	-1.535763	-.8188549
lat	-.9526247	.1749591	-5.44	0.000	-1.296742	-.6085075
lith	-1.164758	.1779421	-6.55	0.000	-1.514742	-.8147732
lux	-1.746374	.2134173	-8.18	0.000	-2.166133	-1.326615
nl	-1.266732	.185067	-6.84	0.000	-1.63073	-.9027344
be	-1.44369	.1937929	-7.45	0.000	-1.82485	-1.062529
bul	-.7140391	.1590183	-4.49	0.000	-1.026803	-.4012749
ca	-1.450288	.195703	-7.41	0.000	-1.835206	-1.065371
cz	-1.000816	.1741092	-5.75	0.000	-1.343262	-.6583708
dk	-1.298784	.1869535	-6.95	0.000	-1.666492	-.9310752
es	-.9570246	.1776256	-5.39	0.000	-1.306386	-.6076628
_cons	1.304526	.21804	5.98	0.000	.8756751	1.733376

MODEL 7 threat = threat

reg gdp gdpchg dvlag spillover threat no pl po rom svk slov sp uk us fr ge gr hu it lat lith lux nl be bul ca cz dk es

Source	SS	df	MS		
				Number of obs =	375
				F(28, 346) =	61.94
Model	311.883262	28	11.1386879	Prob > F =	0.0000
Residual	62.2179186	346	.179820574	R-squared =	0.8337
				Adj R-squared =	0.8202
Total	374.10118	374	1.00027054	Root MSE =	.42405

gdp	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
gdpchg	-.018325	.005863	-3.13	0.002	-.0298565	-.0067934
dvlag	.497315	.0406605	12.23	0.000	.4173422	.5772879
spillover	.3639055	.0920624	3.95	0.000	.1828332	.5449779
threat	.0012345	.0014798	0.83	0.405	-.001676	.004145
no	-1.081444	.1760558	-6.14	0.000	-1.427718	-.7351697
pl	-1.053401	.181842	-5.79	0.000	-1.411056	-.6957459
po	-1.08842	.1818242	-5.99	0.000	-1.44604	-.7308006
rom	-.9403642	.1709709	-5.50	0.000	-1.276637	-.6040911
svk	-1.018929	.1779184	-5.73	0.000	-1.368867	-.6689912
slov	-1.308507	.1877728	-6.97	0.000	-1.677826	-.9391869
sp	-1.431226	.199573	-7.17	0.000	-1.823755	-1.038697
uk	-.7584494	.16592	-4.57	0.000	-1.084788	-.4321107
us	-.177629	.1633628	-1.09	0.278	-.4989382	.1436802
fr	-.7443105	.168005	-4.43	0.000	-1.07475	-.4138709
ge	-1.376033	.1899862	-7.24	0.000	-1.749706	-1.00236
gr	-.1493595	.1557693	-0.96	0.338	-.4557333	.1570144
hu	-1.370803	.1904276	-7.20	0.000	-1.745344	-.9962618
it	-1.158119	.1835902	-6.31	0.000	-1.519212	-.7970256
lat	-1.007557	.1869888	-5.39	0.000	-1.375335	-.6397791
lith	-1.227361	.1933466	-6.35	0.000	-1.607644	-.8470784
lux	-1.729842	.2138317	-8.09	0.000	-2.150416	-1.309269
nl	-1.25217	.1857063	-6.74	0.000	-1.617425	-.8869145
be	-1.426049	.194681	-7.33	0.000	-1.808956	-1.043141
bul	-.710829	.1591132	-4.47	0.000	-1.02378	-.3978783
ca	-1.40435	.2023684	-6.94	0.000	-1.802377	-1.006323
cz	-1.000319	.1740911	-5.75	0.000	-1.342729	-.6579093
dk	-1.300702	.1869964	-6.96	0.000	-1.668495	-.9329091
es	-1.009403	.1893421	-5.33	0.000	-1.38181	-.636997
_cons	1.292191	.2187596	5.91	0.000	.8619248	1.722457

MODEL 8 ECONOMY SIZE (gdpcat)

```
reg  gdp gdpchg dvlag  spillover threat  gdpcat

      Source |       SS       df       MS              Number of obs =     375
-------------+------------------------------           F(  5,   369) =  269.87
       Model |  293.766976     5  58.7533952           Prob > F      =  0.0000
    Residual |  80.3342042   369   .21770787           R-squared     =  0.7853
-------------+------------------------------           Adj R-squared =  0.7824
       Total |   374.10118   374  1.00027054           Root MSE      =  .46659

------------------------------------------------------------------------------
         gdp |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      gdpchg |  -.0208468   .0060907    -3.42   0.001    -.0328236     -.00887
       dvlag |   .8297997   .0235845    35.18   0.000     .7834228    .8761765
   spillover |  -.0167056   .0870261    -0.19   0.848    -.1878349    .1544238
      threat |   .0015973   .0011083     1.44   0.150     -.000582    .0037767
      gdpcat |   .0222443   .0149852     1.48   0.139    -.0072228    .0517115
       _cons |   .2346863   .2217758     1.06   0.291    -.2014166    .6707893
```

MODEL 9 POPULATION SIZE (popcat)

reg gdp gdpchg dvlag spillover threat   popcat

```
      Source |       SS       df       MS              Number of obs =     375
-------------+------------------------------           F(  5,   369) =  273.75
       Model |  294.663106     5  58.9326212           Prob > F      =  0.0000
    Residual |  79.4380745   369  .215279335           R-squared     =  0.7877
-------------+------------------------------           Adj R-squared =  0.7848
       Total |   374.10118   374  1.00027054           Root MSE      =  .46398

------------------------------------------------------------------------------
         gdp |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      gdpchg |  -.0194498   .0060948    -3.19   0.002    -.0314346    -.007465
       dvlag |   .8131652   .0246243    33.02   0.000     .7647437    .8615867
   spillover |  -.0173543   .0864323    -0.20   0.841    -.1873158    .1526073
      threat |   .0017128   .0009979     1.72   0.087    -.0002495    .0036751
      popcat |   .0605022   .0239325     2.53   0.012     .0134411    .1075633
       _cons |   .2259203   .2054483     1.10   0.272     -.178076    .6299166
```

MODEL 10 COUNTRY SIZE (areacat)

reg gdp gdpchg dvlag spillover threat areacat

```
      Source |       SS       df       MS              Number of obs =     375
-------------+------------------------------           F(  5,   369) =  275.62
       Model |  295.088962     5  59.0177923           Prob > F      =  0.0000
    Residual |  79.0122188   369  .214125254           R-squared     =  0.7888
-------------+------------------------------           Adj R-squared =  0.7859
       Total |   374.10118   374  1.00027054           Root MSE      =  .46274

------------------------------------------------------------------------------
         gdp |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      gdpchg |  -.0198238   .0060528    -3.28   0.001    -.0317261   -.0079215
       dvlag |   .8068837   .0249585    32.33   0.000     .7578049    .8559625
   spillover |  -.0074546   .0863526    -0.09   0.931    -.1772596    .1623505
      threat |    .001613   .0009625     1.68   0.095    -.0002795    .0035056
     areacat |   .0452887   .0156129     2.90   0.004     .0145874      .07599
       _cons |  -.1767167   .2752896    -0.64   0.521      -.71805    .3646166
```

Table 4.4 Stata results OLS w/ U.S.

reg gdp gdpchg dvlag spillover threat gdpcat popcat areacat

Source	SS	df	MS		
				Number of obs =	375
				F(7, 367) =	197.22
Model	295.536079	7	42.2194398	Prob > F =	0.0000
Residual	78.5651017	367	.214073846	R-squared =	0.7900
				Adj R-squared =	0.7860
Total	374.10118	374	1.00027054	Root MSE =	.46268

gdp	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
gdpchg	-.018954	.0060864	-3.11	0.002	-.0309226	-.0069854
dvlag	.7960568	.0261881	30.40	0.000	.7445592	.8475544
spillover	-.012122	.0864112	-0.14	0.889	-.1820452	.1578013
threat	.001342	.0011028	1.22	0.224	-.0008266	.0035105
gdpcat	-.025885	.0233033	-1.11	0.267	-.0717096	.0199397
popcat	.0532949	.0379803	1.40	0.161	-.0213914	.1279812
areacat	.0400955	.0208054	1.93	0.055	-.0008173	.0810082
_cons	-.0763766	.2864787	-0.27	0.790	-.6397223	.4869691

Table 4.4 Stata results OLS w/o U.S.

reg gdp gdpchg dvlag spillover threat gdpcat popcat areacat

Source	SS	df	MS		
				Number of obs =	360
				F(7, 352) =	167.62
Model	255.886057	7	36.555151	Prob > F =	0.0000
Residual	76.7671717	352	.218088556	R-squared =	0.7692
				Adj R-squared =	0.7646
Total	332.653229	359	.926610665	Root MSE =	.467

gdp	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
gdpchg	-.0183982	.0061601	-2.99	0.003	-.0305133	-.006283
dvlag	.777837	.0278332	27.95	0.000	.7230966	.8325774
spillover	.0095036	.0887955	0.11	0.915	-.1651329	.1841401
threat	.0013587	.0011145	1.22	0.224	-.0008332	.0035506
gdpcat	-.0415082	.0246807	-1.68	0.093	-.0900483	.0070319
popcat	.074337	.0399219	1.86	0.063	-.0041784	.1528524
areacat	.0267516	.0220213	1.21	0.225	-.0165582	.0700615
_cons	.0827764	.3036977	0.27	0.785	-.5145139	.6800666

Table 4.4 Stata results XTFEVD w/ U.S.

```
. tsset
       panel variable:  panelvar, 1 to 25
        time variable:  datevar, 1992 to 2006

. xtfevd gdp gdpchg dvlag  spillover threat gdpcat  popcat areacat, invariant(
gdpcat popcat areacat)

panel fixed effects regression with vector decomposition

degrees of freedom fevd    =      343          number of obs      =      375
mean squared error         = .1600119          F( 9, 343)         = 224.4315
root mean squared error    = .4000149          Prob > F           = 2.5e-131
Residual Sum of Squares    = 60.00448          R-squared          = .8396036
Total Sum of Squares       = 374.1012          adj. R-squared     = .8251071
Estimation Sum of Squares  = 314.0967

------------------------------------------------------------------------------
             |               fevd
         gdp |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      gdpchg |  -.0117933   .0055458    -2.13   0.034    -.0227013   -.0008853
       dvlag |   .4726421   .0393232    12.02   0.000     .3952972     .549987
   spillover |   .2491403   .0821296     3.03   0.003     .0875993    .4106814
      threat |   .0011901    .000997     1.19   0.233     -.000771    .0031511
      gdpcat |  -.1065258   .0224736    -4.74   0.000    -.1507293   -.0623223
      popcat |   .1715804   .0362033     4.74   0.000     .1003719    .2427888
     areacat |   .1098355   .0199894     5.49   0.000     .0705183    .1491528
         eta |          1   .0970842    10.30   0.000     .8090447    1.190955
       _cons |  -.6668838    .265243    -2.51   0.012    -1.188591   -.1451761
```

Table 4.4 Stata results XTFEVD w/o U.S

xtfevd gdp gdpchg dvlag spillover threat gdpcat popcat areacat, invariant(gdpcat popcat areacat)

panel fixed effects regression with vector decomposition

degrees of freedom fevd	= 329	number of obs	= 360
mean squared error	= .1626071	F(9, 329)	= 192.5733
root mean squared error	= .4032457	Prob > F	= 3.3e-119
Residual Sum of Squares	= 58.53856	R-squared	= .8240253
Total Sum of Squares	= 332.6532	adj. R-squared	= .8079789
Estimation Sum of Squares	= 274.1147		

gdp	fevd Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
gdpchg	-.0115103	.0056055	-2.05	0.041	-.0225375	-.0004831
dvlag	.4542794	.0406682	11.17	0.000	.3742768	.534282
spillover	.2809692	.0845698	3.32	0.001	.1146034	.447335
threat	.0010596	.0010071	1.05	0.293	-.0009215	.0030408
gdpcat	-.1408263	.0243567	-5.78	0.000	-.1887409	-.0929118
popcat	.2198423	.0388192	5.66	0.000	.1434771	.2962075
areacat	.0681048	.0203059	3.35	0.001	.028159	.1080506
eta	1	.0987976	10.12	0.000	.8056453	1.194355
_cons	-.1835292	.275573	-0.67	0.506	-.7256365	.3585782

MODEL 11 Without DVLAG

reg gdp gdpchg spillover threat no pl po rom svk slov sp uk us fr ge gr hu it lat lith lux nl be bul ca cz dk es

```
     Source |       SS       df       MS              Number of obs =     375
-------------+------------------------------           F( 27,   347) =   41.10
      Model |  284.982928    27  10.5549233           Prob > F      =  0.0000
   Residual |  89.1182525   347  .256824935           R-squared     =  0.7618
-------------+------------------------------           Adj R-squared =  0.7432
      Total |   374.10118   374  1.00027054           Root MSE      =  .50678

------------------------------------------------------------------------------
        gdp |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     gdpchg |  -.0134967   .0069909    -1.93   0.054    -.0272465    .0002531
  spillover |   .8891512   .0973191     9.14   0.000     .6977417    1.080561
     threat |    .001306   .0017685     0.74   0.461    -.0021723    .0047843
         no |  -2.099949    .185378   -11.33   0.000    -2.464555   -1.735343
         pl |  -2.128302   .1902512   -11.19   0.000    -2.502492   -1.754111
         po |  -2.134383   .1917609   -11.13   0.000    -2.511543   -1.757223
        rom |  -1.812846   .1856906    -9.76   0.000    -2.178067   -1.447625
        svk |  -2.081554   .1855532   -11.22   0.000    -2.446504   -1.716603
       slov |  -2.597331   .1857382   -13.98   0.000    -2.962646   -2.232017
         sp |  -2.903448   .1902428   -15.26   0.000    -3.277622   -2.529273
         uk |  -1.434916   .1869477    -7.68   0.000    -1.802609   -1.067223
         us |  -.3680125   .1943442    -1.89   0.059    -.7502534    .0142284
         fr |  -1.468419    .187901    -7.81   0.000    -1.837987   -1.098851
         ge |  -2.714545   .1855978   -14.63   0.000    -3.079583   -2.349507
         gr |  -.2137838   .1860511    -1.15   0.251    -.5797136    .1521459
         hu |  -2.716199   .1857685   -14.62   0.000    -3.081573   -2.350825
         it |  -2.322539   .1876008   -12.38   0.000    -2.691517   -1.953561
        lat |  -1.996411   .2014996    -9.91   0.000    -2.392726   -1.600097
       lith |  -2.294203   .2062162   -11.13   0.000    -2.699794   -1.888612
        lux |  -3.511835    .187048   -18.78   0.000    -3.879725   -3.143944
         nl |  -2.483502   .1864932   -13.32   0.000    -2.850301   -2.116702
         be |  -2.842359   .1870284   -15.20   0.000    -3.210211   -2.474507
        bul |  -1.114438   .1860194    -5.99   0.000    -1.480305   -.7485706
         ca |  -2.857286    .195795   -14.59   0.000    -3.242381   -2.472192
         cz |  -1.963775   .1855373   -10.58   0.000    -2.328695   -1.598856
         dk |  -2.578826   .1853251   -13.92   0.000    -2.943328   -2.214325
         es |   -2.07205   .2010514   -10.31   0.000    -2.467483   -1.676618
      _cons |   2.252873   .2440035     9.23   0.000     1.772961    2.732785
```

MODEL 12 L/R Party

reg gdp gdpchg dvlag spillover threat lrparty no pl po rom svk slov sp uk us fr ge gr hu it lat lith lux nl be bul ca cz dk es

```
      Source |       SS       df       MS              Number of obs =     375
-------------+------------------------------           F( 29,   345) =   59.65
       Model |  311.893934    29  10.7549632           Prob > F      =  0.0000
    Residual |  62.2072462   345  .180310859           R-squared     =  0.8337
-------------+------------------------------           Adj R-squared =  0.8197
       Total |   374.10118   374  1.00027054           Root MSE      =  .42463

------------------------------------------------------------------------------
         gdp |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      gdpchg |  -.0182554   .0058779    -3.11   0.002    -.0298165   -.0066943
       dvlag |   .4972607   .0407165    12.21   0.000     .4171769    .5773445
   spillover |   .3663174   .0927193     3.95   0.000     .1839511    .5486837
      threat |   .0011806   .0014983     0.79   0.431    -.0017664    .0041275
     lrparty |   -.012303   .0505695    -0.24   0.808    -.1117664    .0871604
          no |  -1.081595   .1762968    -6.14   0.000    -1.428347   -.7348432
          pl |  -1.053461   .1820899    -5.79   0.000    -1.411608   -.6953153
          po |  -1.090837   .1823427    -5.98   0.000     -1.44948   -.7321939
         rom |  -.9376653   .1715628    -5.47   0.000    -1.275106   -.6002245
         svk |  -1.022418   .1787371    -5.72   0.000     -1.37397   -.6708666
        slov |  -1.305843    .188347    -6.93   0.000    -1.676296   -.9353902
          sp |  -1.434462   .2002872    -7.16   0.000      -1.8284   -1.040525
          uk |  -.7592882   .1661818    -4.57   0.000    -1.086145   -.4324313
          us |  -.1803067   .1639552    -1.10   0.272    -.5027843    .1421709
          fr |  -.7470004   .1685968    -4.43   0.000    -1.078607   -.4153935
          ge |  -1.377772   .1903793    -7.24   0.000    -1.752222   -1.003322
          gr |  -.1483798   .1560334    -0.95   0.342    -.4552763    .1585168
          hu |  -1.368533   .1909152    -7.17   0.000    -1.744037   -.9930286
          it |  -1.160668   .1841387    -6.30   0.000    -1.522844   -.7984926
         lat |   -1.01257    .188374    -5.38   0.000    -1.383076   -.6420641
        lith |  -1.224692   .1939207    -6.32   0.000    -1.606107    -.843276
         lux |  -1.738357   .2169648    -8.01   0.000    -2.165098   -1.311617
          nl |  -1.253771   .1860757    -6.74   0.000    -1.619756   -.8877853
          be |  -1.434343   .1979052    -7.25   0.000    -1.823596   -1.045091
         bul |  -.7149805   .1602411    -4.46   0.000    -1.030153   -.3998081
          ca |  -1.404147   .2026458    -6.93   0.000    -1.802724    -1.00557
          cz |   -1.00052   .1743302    -5.74   0.000    -1.343404   -.6576365
          dk |  -1.300592   .1872517    -6.95   0.000     -1.66889    -.932293
          es |  -1.010536   .1896572    -5.33   0.000    -1.383566   -.6375063
       _cons |   1.296825   .2198841     5.90   0.000     .8643425    1.729307
```

MODEL13 NATO

xtgls gdp gdpchg dvlag spillover threat nato no pl po rom svk slov sp uk us fr ge gr hu it lat lith lux nl be bul ca cz dk es

Cross-sectional time-series FGLS regression
Coefficients: generalized least squares
Panels: homoskedastic
Correlation: no autocorrelation

Estimated covariances	=	1	Number of obs	=	375
Estimated autocorrelations	=	0	Number of groups	=	25
Estimated coefficients	=	30	Time periods	=	15
			Wald chi2(29)	=	1880.17
Log likelihood	=	-195.2665	Prob > chi2	=	0.0000

gdp	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
gdpchg	-.0179674	.0058041	-3.10	0.002	-.0293431	-.0065916
dvlag	.4966336	.039145	12.69	0.000	.4199108	.5733565
spillover	.3538446	.0968653	3.65	0.000	.1639922	.5436971
threat	.0013612	.0015061	0.90	0.366	-.0015907	.0043131
nato	-.0236364	.0929156	-0.25	0.799	-.2057476	.1584747
no	-1.081746	.169101	-6.40	0.000	-1.413178	-.7503145
pl	-1.067651	.1834181	-5.82	0.000	-1.427144	-.7081583
po	-1.084864	.1751958	-6.19	0.000	-1.428242	-.7414869
rom	-.9596068	.1807977	-5.31	0.000	-1.313964	-.6052499
svk	-1.03848	.1873726	-5.54	0.000	-1.405723	-.6712359
slov	-1.327194	.1947378	-6.82	0.000	-1.708873	-.9455149
sp	-1.428786	.1919241	-7.44	0.000	-1.804951	-1.052622
uk	-.7567296	.1595049	-4.74	0.000	-1.069353	-.4441057
us	-.1734612	.1577586	-1.10	0.272	-.4826623	.1357399
fr	-.7414806	.1617472	-4.58	0.000	-1.058499	-.424462
ge	-1.376285	.1824793	-7.54	0.000	-1.733938	-1.018632
gr	-.1474165	.1498069	-0.98	0.325	-.4410327	.1461997
hu	-1.382329	.1884289	-7.34	0.000	-1.751643	-1.013015
it	-1.156123	.1765079	-6.55	0.000	-1.502072	-.8101736
lat	-1.031962	.2036163	-5.07	0.000	-1.431043	-.6328818
lith	-1.252682	.2106979	-5.95	0.000	-1.665642	-.8397216
lux	-1.729426	.2053859	-8.42	0.000	-2.131975	-1.326877
nl	-1.250974	.1784278	-7.01	0.000	-1.600686	-.9012616
be	-1.424674	.1870638	-7.62	0.000	-1.791312	-1.058035
bul	-.7283559	.167637	-4.34	0.000	-1.056918	-.3997934
ca	-1.400425	.1949807	-7.18	0.000	-1.78258	-1.01827
cz	-1.011017	.1724169	-5.86	0.000	-1.348948	-.6730862
dk	-1.302269	.1797106	-7.25	0.000	-1.654495	-.9500429
es	-1.034448	.2067963	-5.00	0.000	-1.439761	-.6291345
_cons	1.333298	.2650659	5.03	0.000	.8137785	1.852818

MODEL 14 EU

xtgls gdp gdpchg dvlag spillover threat eu no pl po rom svk slov sp uk us fr ge gr hu it lat lith lux nl be bul ca cz dk es

```
Cross-sectional time-series FGLS regression
Coefficients:  generalized least squares
Panels:        homoskedastic
Correlation:   no autocorrelation
Estimated covariances      =         1          Number of obs      =       375
Estimated autocorrelations =         0          Number of groups   =        25
Estimated coefficients     =        30          Time periods       =        15
                                                Wald chi2(29)      =   1884.70
Log likelihood             = -194.8903          Prob > chi2        =    0.0000
------------------------------------------------------------------------------
         gdp |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      gdpchg |  -.0168869    .005846    -2.89   0.004    -.0283448    -.005429
       dvlag |   .4965246   .0390239    12.72   0.000     .4200391      .57301
   spillover |   .3281909   .0967591     3.39   0.001     .1385465    .5178354
      threat |   .0018892   .0015938     1.19   0.236    -.0012345    .0050129
          eu |  -.1027237    .113577    -0.90   0.366    -.3253306    .1198832
          no |  -.9773673   .2043972    -4.78   0.000    -1.377979   -.5767561
          pl |  -1.046166   .1746624    -5.99   0.000    -1.388498   -.7038342
          po |  -.9648338   .2216048    -4.35   0.000    -1.399171   -.5304964
         rom |  -.9402542   .1640482    -5.73   0.000    -1.261783   -.6187256
         svk |  -.9983428    .172225    -5.80   0.000    -1.335898   -.6607879
        slov |  -1.282521   .1824463    -7.03   0.000    -1.640109   -.9249325
          sp |  -1.310956   .2331352    -5.62   0.000    -1.767893   -.8540198
          uk |  -.6448751    .202766    -3.18   0.001    -1.042289   -.2474611
          us |  -.0527087   .2089181    -0.25   0.801    -.4621808    .3567633
          fr |  -.6267793   .2070578    -3.03   0.002    -1.032605   -.2209534
          ge |  -1.270764   .2162819    -5.88   0.000    -1.694669   -.8468591
          gr |  -.0379316    .193694    -0.20   0.845    -.4175648    .3417016
          hu |  -1.349106   .1842852    -7.32   0.000    -1.710298   -.9879135
          it |  -1.042231   .2178281    -4.78   0.000    -1.469166   -.6152952
         lat |  -1.013173   .1795249    -5.64   0.000    -1.365035   -.6613107
        lith |   -1.23732   .1858444    -6.66   0.000    -1.601569   -.8730718
         lux |  -1.618618   .2392055    -6.77   0.000    -2.087452   -1.149784
          nl |  -1.139757   .2172521    -5.25   0.000    -1.565564    -.713951
          be |  -1.312026   .2253598    -5.82   0.000    -1.753723   -.8703295
         bul |   -.704327   .1528397    -4.61   0.000    -1.003887   -.4047666
          ca |  -1.276537   .2401549    -5.32   0.000    -1.747232   -.8058415
          cz |  -.9761696   .1691626    -5.77   0.000    -1.307722    -.644617
          dk |  -1.200652    .210785    -5.70   0.000    -1.613783   -.7875207
          es |  -1.016734   .1818563    -5.59   0.000    -1.373166   -.6603024
       _cons |   1.338029   .2159339     6.20   0.000     .9148067    1.761252
```

MODEL 15 EU+NATO

xtgls gdp gdpchg dvlag spillover threat nato eu no pl po rom svk slov sp uk us fr ge gr hu it lat lith lux nl be bul ca cz dk es

```
Cross-sectional time-series FGLS regression
Coefficients:  generalized least squares
Panels:        homoskedastic
Correlation:   no autocorrelation
Estimated covariances      =         1          Number of obs      =       375
Estimated autocorrelations =         0          Number of groups   =        25
Estimated coefficients     =        31          Time periods       =        15
                                                Wald chi2(30)      =   1885.32
Log likelihood             = -194.8387          Prob > chi2        =    0.0000
------------------------------------------------------------------------------
         gdp |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      gdpchg |  -.0170804   .0058761    -2.91   0.004    -.0285974   -.0055635
       dvlag |   .4973772   .0391086    12.72   0.000     .4207256    .5740287
   spillover |   .3348121   .0989159     3.38   0.001     .1409405    .5286838
      threat |   .0018566   .0015968     1.16   0.245     -.001273    .0049862
        nato |     .03638   .1132186     0.32   0.748    -.1855244    .2582843
          eu |  -.1282187   .1385337    -0.93   0.355    -.3997398    .1433023
```

tab2 nato eu

```
-> tabulation of nato by eu

           |          EU
      NATO |         0          1 |     Total
-----------+----------------------+----------
         0 |       105          0 |       105
         1 |        36        234 |       270
-----------+----------------------+----------
     Total |       141        234 |       375
```

MODEL 15 LINCOM: NEW versus OLD

xtgls gdp gdpchg dvlag spillover threat nato eu no pl po rom svk slov sp uk us fr ge gr hu it lat lith lux nl be bul ca cz dk es

Cross-sectional time-series FGLS regression
Coefficients: generalized least squares
Panels: homoskedastic
Correlation: no autocorrelation
Estimated covariances = 1 Number of obs = 375
Estimated autocorrelations = 0 Number of groups = 25
Estimated coefficients = 31 Time periods = 15
Wald chi2(30) = 1885.32
Log likelihood = -194.8387 Prob > chi2 = 0.0000

gdp	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
gdpchg	-.0170804	.0058761	-2.91	0.004	-.0285974	-.0055635
dvlag	.4973772	.0391086	12.72	0.000	.4207256	.5740287
spillover	.3348121	.0989159	3.38	0.001	.1409405	.5286838
threat	.0018566	.0015968	1.16	0.245	-.001273	.0049862
nato	.03638	.1132186	0.32	0.748	-.1855244	.2582843
eu	-.1282187	.1385337	-0.93	0.355	-.3997398	.1433023
no	-.9510713	.2201451	-4.32	0.000	-1.382548	-.5195948
pl	-1.022437	.18961	-5.39	0.000	-1.394066	-.6508085
po	-.9396342	.2350437	-4.00	0.000	-1.400311	-.4789571
rom	-.9106096	.1881909	-4.84	0.000	-1.279457	-.5417622
svk	-.9631422	.2040935	-4.72	0.000	-1.363158	-.5631263
slov	-1.247308	.2128055	-5.86	0.000	-1.6644	-.8302174
sp	-1.284861	.2468445	-5.21	0.000	-1.768668	-.801055
uk	-.6193341	.2177633	-2.84	0.004	-1.046142	-.1925258
us	-.0281196	.2224651	-0.13	0.899	-.4641432	.4079041
fr	-.6019648	.2209636	-2.72	0.006	-1.035046	-.1688841
ge	-1.244249	.231461	-5.38	0.000	-1.697904	-.7905937
gr	-.0132668	.2083245	-0.06	0.949	-.4215753	.3950417
hu	-1.325981	.1978157	-6.70	0.000	-1.713692	-.9382693
it	-1.016541	.2320087	-4.38	0.000	-1.471269	-.561812
lat	-.9770032	.2118753	-4.61	0.000	-1.392271	-.5617352
lith	-1.20082	.2177895	-5.51	0.000	-1.627679	-.7739599
lux	-1.591652	.2534676	-6.28	0.000	-2.08844	-1.094865
nl	-1.113699	.2318669	-4.80	0.000	-1.568149	-.6592479
be	-1.285843	.2396097	-5.37	0.000	-1.75547	-.816217
bul	-.6757368	.1768341	-3.82	0.000	-1.022325	-.3291482
ca	-1.250856	.2530732	-4.94	0.000	-1.74687	-.7548412
cz	-.9537103	.1830124	-5.21	0.000	-1.312408	-.5950125
dk	-1.173408	.2271711	-5.17	0.000	-1.618655	-.7281606
es	-.9800067	.2147723	-4.56	0.000	-1.400953	-.5590608
_cons	1.286136	.2696226	4.77	0.000	.7576853	1.814586

LINCOM comparison: NEW versus OLD

lincom ((no+po+sp+ gr +lux+nl +be +ca +dk)/9)-((pl+ rom + svk + slov + hu + lat + lith + bul + cz + es)/10)

(1) .1111111 no - .1 pl + .1111111 po - .1 rom - .1 svk - .1 slov + .1111111 sp + .1111111 gr - .1 hu - .1 lat - .1 lith + .1111111 lux + .1111111 nl + .1111111 be - .1 bul + .1111111 ca - .1 cz + .1111111 dk - .1 es = 0

gdp	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
(1)	-.0316729	.1103334	-0.29	0.774	-.2479224	.1845767

POPCAT 1 countries only

lincom ((no+lux+dk)/3)-((svk + slov + lat + lith + es)/5)

(1) .3333333 no - .2 svk - .2 slov - .2 lat - .2 lith + .3333333 lux + .3333333 dk - .2 es = 0

gdp	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
(1)	-.1562944	.1277797	-1.22	0.221	-.406738	.0941493

POPCAT 2 countries only

lincom ((po+nl +gr+be)/4)-((hu + bul + cz)/3)

(1) .25 po + .25 gr - .3333333 hu + .25 nl + .25 be - .3333333 bul - .3333333 cz = 0

gdp	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
(1)	.156214	.1154094	1.35	0.176	-.0699843	.3824123

POPCAT 3 countries only

lincom ((sp+ca)/2)-((pl+ rom)/2)

```
 lincom  ((sp+ca)/2)-((pl+  rom )/2)

 ( 1) - .5 pl - .5 rom + .5 sp + .5 ca = 0

------------------------------------------------------------------------------
         gdp |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |  -.2890208   .1564117    -1.85   0.065    -.5955822    .0175405
------------------------------------------------------------------------------
```

LINCOM comparison: NEW versus OLD (w/o Greece)

lincom ((no+po+sp+lux+nl +be +ca +dk)/8)-((pl+ rom + svk + slov + hu + lat + lith + bul + cz + es)/10)

(1) .125 no - .1 pl + .125 po - .1 rom - .1 svk - .1 slov + .125 sp - .1 hu - .1 lat - .1 lith + .125 lux + .125 nl + .125 be - .1 bul + .125 ca - .1 cz + .125 dk - .1 es = 0

```
------------------------------------------------------------------------------
         gdp |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |  -.1632441   .1126497    -1.45   0.147    -.3840335    .0575453
------------------------------------------------------------------------------
```

POPCAT 2 countries w/o Greece

lincom ((po+nl+be)/3)-((hu + bul + cz)/3)

(1) .3333333 po - .3333333 hu + .3333333 nl + .3333333 be - .3333333 bul - .3333333 cz = 0

```
------------------------------------------------------------------------------
         gdp |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |  -.1183174   .1217703    -0.97   0.331    -.3569829     .120348
------------------------------------------------------------------------------
```

MODEL 16 AGE IN YEARS & Table 4.8 Stata results GLS w/ U.S.

xtgls gdp gdpchg dvlag spillover threat nato eu age no pl po rom svk slov sp uk us fr ge gr hu it lat lith lux nl be bul ca cz dk es

Cross-sectional time-series FGLS regression

Coefficients: generalized least squares Panels: homoskedastic

Correlation: no autocorrelation

Estimated covariances = 1 Number of obs = 375

Estimated autocorrelations = 0 Number of groups = 25

Estimated coefficients = 32 Time periods = 15

Wald chi2(31) = 1895.55

Log likelihood = -193.992 Prob > chi2 = 0.0000

gdp	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
gdpchg	-.0189958	.0060444	-3.14	0.002	-.0308426	-.0071491
dvlag	.4956818	.0390421	12.70	0.000	.4191606	.572203
spillover	.1621329	.1652538	0.98	0.327	-.1617586	.4860244
threat	.0025431	.0016781	1.52	0.130	-.0007458	.0058321
nato	.0065249	.1152643	0.06	0.955	-.219389	.2324387
eu	-.1436915	.1387306	-1.04	0.300	-.4155984	.1282155
age	-.0145713	.0111847	-1.30	0.193	-.0364929	.0073504
no	-.8772373	.2268424	-3.87	0.000	-1.32184	-.4326343
pl	-1.674812	.5352991	-3.13	0.002	-2.723979	-.6256451
po	-.8465051	.2451666	-3.45	0.001	-1.327023	-.3659874
rom	-1.606513	.5662071	-2.84	0.005	-2.716259	-.4967678
svk	-1.645922	.5622633	-2.93	0.003	-2.747938	-.5439061
slov	-1.925491	.5622008	-3.42	0.001	-3.027385	-.8235982
sp	-1.671696	.3857778	-4.33	0.000	-2.427806	-.9155849
uk	-.5430766	.2250188	-2.41	0.016	-.9841054	-.1020479
us	.0566624	.2313068	0.24	0.806	-.3966906	.5100154
fr	-.5091478	.2316912	-2.20	0.028	-.9632543	-.0550414
ge	-1.258362	.2311929	-5.44	0.000	-1.711492	-.8052323
gr	.0227449	.2096846	0.11	0.914	-.3882294	.4337192
hu	-1.96534	.528965	-3.72	0.000	-3.002092	-.9285876
it	-.9322003	.2403676	-3.88	0.000	-1.403312	-.4610885
lat	-1.69547	.5906147	-2.87	0.004	-2.853053	-.5378865
lith	-1.92229	.5948982	-3.23	0.001	-3.088269	-.7563111
lux	-1.497911	.2629332	-5.70	0.000	-2.01325	-.9825713
nl	-1.030511	.2399944	-4.29	0.000	-1.500892	-.5601309
be	-1.200139	.2479554	-4.84	0.000	-1.686123	-.7141551
bul	-1.369384	.5609066	-2.44	0.015	-2.468741	-.2700272
ca	-1.147094	.2647659	-4.33	0.000	-1.666026	-.6281628
cz	-1.595614	.5254642	-3.04	0.002	-2.625504	-.5657228
dk	-1.112989	.2313547	-4.81	0.000	-1.566436	-.6595418
es	-1.698036	.5913427	-2.87	0.004	-2.857047	-.539026
_cons	2.348147	.8584273	2.74	0.006	.6656603	4.030634

Table 4.8 Stata results GLS w/o U.S.

xtgls gdp gdpchg dvlag spillover threat nato eu age no pl po rom svk slov sp uk fr ge gr hu it lat lith lux nl be bul ca cz dk es

Cross-sectional time-series FGLS regression

Coefficients: generalized least squares

Panels: homoskedastic

Correlation: no autocorrelation

Estimated covariances = 1 Number of obs = 360

Estimated autocorrelations = 0 Number of groups = 24

Estimated coefficients = 31 Time periods = 15

Wald chi2(30) = 1628.49

Log likelihood = -188.9725 Prob > chi2 = 0.0000

gdp	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
gdpchg	-.0188284	.0061037	-3.08	0.002	-.0307915	-.0068654
dvlag	.476803	.0403486	11.82	0.000	.3977212	.5558848
spillover	.1975336	.1678027	1.18	0.239	-.1313536	.5264208
threat	.0023181	.0016959	1.37	0.172	-.0010058	.005642
nato	-.0072742	.1189707	-0.06	0.951	-.2404524	.225904
eu	-.134133	.1399281	-0.96	0.338	-.4083871	.1401211
age	-.014569	.011395	-1.28	0.201	-.0369029	.0077648
no	-.9119644	.232982	-3.91	0.000	-1.368601	-.4553281
pl	-1.713917	.5434613	-3.15	0.002	-2.779081	-.6487525
po	-.8887029	.2521104	-3.53	0.000	-1.38283	-.3945756
rom	-1.63876	.5748571	-2.85	0.004	-2.765459	-.5120608
svk	-1.688517	.5708711	-2.96	0.003	-2.807404	-.5696301
slov	-1.978474	.5707942	-3.47	0.001	-3.09721	-.8597377
sp	-1.744151	.3922822	-4.45	0.000	-2.51301	-.975292
uk	-.5676661	.2307791	-2.46	0.014	-1.019985	-.1153474
fr	-.537066	.2381522	-2.26	0.024	-1.003836	-.0702963
ge	-1.334456	.2353008	-5.67	0.000	-1.795637	-.8732749
gr	.0074775	.2114677	0.04	0.972	-.4069916	.4219466
hu	-2.019223	.537202	-3.76	0.000	-3.072119	-.9663261
it	-.9761013	.2471731	-3.95	0.000	-1.460552	-.4916509
lat	-1.725046	.5990742	-2.88	0.004	-2.89921	-.5508819
lith	-1.953486	.6032821	-3.24	0.001	-3.135897	-.771075
lux	-1.565368	.2712283	-5.77	0.000	-2.096966	-1.033771
nl	-1.076146	.24687	-4.36	0.000	-1.560003	-.5922899
be	-1.253402	.2552578	-4.91	0.000	-1.753698	-.7531054
bul	-1.385385	.5699487	-2.43	0.015	-2.502463	-.2683056
ca	-1.20708	.2727979	-4.42	0.000	-1.741754	-.6724056
cz	-1.635264	.5338788	-3.06	0.002	-2.681647	-.588881
dk	-1.156069	.2373883	-4.87	0.000	-1.621342	-.6907967
es	-1.730626	.5997444	-2.89	0.004	-2.906103	-.5551486
_cons	2.361031	.8689907	2.72	0.007	.6578403	4.064221

Table 4.8 Stata results XTPCSE w/ U.S.

```
tsset
       panel variable:  panelvar, 1 to 25
        time variable:  datevar, 1992 to 2006

xtpcse gdp gdpchg dvlag  spillover threat   nato eu   age no pl po rom svk slov sp
uk us fr ge gr hu it lat lith lux nl be bul ca cz dk es, correlation (ar1)

Prais-Winsten regression, correlated panels corrected standard errors (PCSEs)

Group variable:   panelvar                Number of obs      =       375
Time variable:    datevar                 Number of groups   =        25
Panels:           correlated (balanced)   Obs per group: min =        15
Autocorrelation:  common AR(1)                           avg =        15
                                                         max =        15
Estimated covariances      =       325    R-squared          =    0.8110
Estimated autocorrelations =         1    Wald chi2(21)      =     63.42
Estimated coefficients     =        32    Prob > chi2        =    0.0000

------------------------------------------------------------------------------
             |           Panel-corrected
         gdp |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      gdpchg |  -.0190112    .011019    -1.73   0.084     -.040608    .0025856
       dvlag |   .4482688   .0897558     4.99   0.000     .2723506     .624187
   spillover |   .2057172   .2125802     0.97   0.333    -.2109323    .6223667
      threat |   .0022855   .0023621     0.97   0.333     -.002344    .0069151
        nato |  -.0054104   .1266312    -0.04   0.966    -.2536031    .2427822
          eu |  -.1287166   .1829325    -0.70   0.482    -.4872577    .2298246
         age |  -.0152348   .0146458    -1.04   0.298    -.0439399    .0134704
          no |  -.9818587   .3083902    -3.18   0.001    -1.586292    -.377425
          pl |  -1.804734   .7606374    -2.37   0.018    -3.295556   -.3139121
          po |  -.9618943   .3255393    -2.95   0.003     -1.59994   -.3238489
         rom |  -1.716817   .8049317    -2.13   0.033    -3.294454   -.1391799
         svk |  -1.778566   .8028759    -2.22   0.027    -3.352174   -.2049583
        slov |  -2.083137   .8243869    -2.53   0.012    -3.698906   -.4673684
          sp |  -1.847484   .6122622    -3.02   0.003    -3.047496   -.6474725
          uk |  -.6193672   .2932126    -2.11   0.035    -1.194053   -.0446811
          us |     .02615   .3255473     0.08   0.936    -.6119111    .6642111
          fr |  -.5895429   .2949208    -2.00   0.046    -1.167577   -.0115088
          ge |  -1.397021   .3573727    -3.91   0.000    -2.097459   -.6965835
          gr |   -.000098   .2216405    -0.00   1.000    -.4345054    .4343094
          hu |  -2.124725    .778683    -2.73   0.006    -3.650915    -.598534
          it |  -1.055846   .3335802    -3.17   0.002    -1.709651   -.4020408
         lat |  -1.817997   .8646302    -2.10   0.035    -3.512641   -.1233526
```

lith	-2.059488	.8800049	-2.34	0.019	-3.784266	-.33471
lux	-1.677842	.4003449	-4.19	0.000	-2.462503	-.8931803
nl	-1.156724	.3360914	-3.44	0.001	-1.815451	-.4979968
be	-1.345369	.3574598	-3.76	0.000	-2.045977	-.6447603
bul	-1.4386	.7651054	-1.88	0.060	-2.938179	.0609789
ca	-1.300775	.38509	-3.38	0.001	-2.055537	-.5460122
cz	-1.714538	.7480283	-2.29	0.022	-3.180646	-.2484291
dk	-1.241708	.3332792	-3.73	0.000	-1.894923	-.5884924
es	-1.829417	.8820231	-2.07	0.038	-3.558151	-.100684
_cons	2.504789	1.267906	1.98	0.048	.0197393	4.989838
rho	.0869275 strength of serial correlation					

Table 4.8 Stata results XTPCSE w/o U.S.

tsset
panel variable: panelvar, 1 to 25
time variable: datevar, 1992 to 2006

xtpcse gdp gdpchg dvlag spillover threat nato eu age no pl po rom svk slov sp uk fr ge gr hu it lat lith lux nl be bul ca cz dk es, correlation (ar1)

Prais-Winsten regression, correlated panels corrected standard errors (PCSEs)

Group variable: panelvar Number of obs = 360
Time variable: datevar Number of groups = 24
Panels: correlated (balanced) Obs per group: min = 15
Autocorrelation: common AR(1) avg = 15
max = 15
Estimated covariances = 300 R-squared = 0.7955
Estimated autocorrelations = 1 Wald chi2(21) = 86.53
Estimated coefficients = 31 Prob > chi2 = 0.0000

gdp	Coef.	Panel-corrected Std. Err.	z	P>|z|	[95% Conf.	Interval]
gdpchg	-.0188115	.0110553	-1.70	0.089	-.0404795	.0028566
dvlag	.4328409	.0922052	4.69	0.000	.2521221	.6135598
spillover	.2386118	.2118395	1.13	0.260	-.1765861	.6538096
threat	.0020792	.0023501	0.88	0.376	-.0025269	.0066853
nato	-.0191115	.129324	-0.15	0.883	-.272582	.2343589
eu	-.1206478	.1828866	-0.66	0.509	-.479099	.2378033
age	-.0149687	.015023	-1.00	0.319	-.0444133	.0144759
no	-1.00877	.3141867	-3.21	0.001	-1.624565	-.3929755
pl	-1.824889	.7733034	-2.36	0.018	-3.340536	-.3092422
po	-.9955098	.3321212	-3.00	0.003	-1.646455	-.3445642
rom	-1.731344	.8172211	-2.12	0.034	-3.333068	-.1296203
svk	-1.80183	.8161867	-2.21	0.027	-3.401526	-.202133
slov	-2.114877	.8377446	-2.52	0.012	-3.756827	-.472928
sp	-1.900315	.6255594	-3.04	0.002	-3.126389	-.6742407
uk	-.6381274	.2983796	-2.14	0.032	-1.222941	-.0533142
fr	-.6114154	.3013609	-2.03	0.042	-1.202072	-.0207588
ge	-1.462312	.3688708	-3.96	0.000	-2.185285	-.7393382
gr	-.0132729	.2218274	-0.06	0.952	-.4480467	.4215009
hu	-2.157497	.7921101	-2.72	0.006	-3.710004	-.6049893
it	-1.09054	.3402902	-3.20	0.001	-1.757497	-.4235837
lat	-1.828873	.875895	-2.09	0.037	-3.545596	-.1121506
lith	-2.070587	.8896595	-2.33	0.020	-3.814287	-.3268863

lux	-1.732094	.409774	-4.23	0.000	-2.535236	-.9289519
nl	-1.193011	.3432076	-3.48	0.001	-1.865686	-.5203365
be	-1.387908	.3652776	-3.80	0.000	-2.103839	-.6719768
bul	-1.439593	.7787308	-1.85	0.065	-2.965877	.0866913
ca	-1.349483	.3938397	-3.43	0.001	-2.121394	-.5775712
cz	-1.736146	.7617817	-2.28	0.023	-3.229211	-.2430812
dk	-1.275183	.3392772	-3.76	0.000	-1.940154	-.6102124
es	-1.842626	.8916041	-2.07	0.039	-3.590138	-.095114
_cons	2.494984	1.276844	1.95	0.051	-.0075839	4.997551
rho	.079432					

Table 4.8 & 4.9 Stata results XTFEVD w/ U.S.

tsset
panel variable: panelvar, 1 to 25
time variable: datevar, 1992 to 2006

xtfevd gdp gdpchg dvlag spillover threat gdpcat popcat areacat nato eu age, invariant(gdpcat popcat areacat)

panel fixed effects regression with vector decomposition

degrees of freedom fevd	= 340	number of obs	= 375
mean squared error	= .1587582	F(12, 340)	= 163.3171
root mean squared error	= .3984448	Prob > F	= 2.1e-128
Residual Sum of Squares	= 59.53434	R-squared	= .8408603
Total Sum of Squares	= 374.1012	adj. R-squared	= .8249464
Estimation Sum of Squares	= 314.5668		

gdp	fevd Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
gdpchg	-.0134591	.0057177	-2.35	0.019	-.0247057	-.0022125
dvlag	.4729035	.0391876	12.07	0.000	.3958229	.5499842
spillover	.0588271	.0805428	0.73	0.466	-.0995977	.217252
threat	.0022312	.0010347	2.16	0.032	.0001959	.0042664
nato	.0555316	.0952594	0.58	0.560	-.1318403	.2429035
eu	-.1409641	.0945565	-1.49	0.137	-.3269535	.0450253
age	-.0156796	.0026183	-5.99	0.000	-.0208297	-.0105295
gdpcat	.1159914	.0334975	3.46	0.001	.0501029	.1818799
popcat	.0781129	.0382092	2.04	0.042	.0029568	.153269
areacat	.0505993	.0197962	2.56	0.011	.0116608	.0895377
eta	1	.0999588	10.00	0.000	.8033844	1.196616
_cons	.1328642	.2735803	0.49	0.628	-.4052589	.6709874

correlate gdpcat nato eu age
(obs=375)

	gdpcat	nato	eu	age
gdpcat	1.0000			
nato	0.6720	1.0000		
eu	0.6291	0.8034	1.0000	
age	0.6967	0.7531	0.7603	1.0000

Table 4.8 & 4.9 Stata results XTFEVD w/o U.S.

xtfevd gdp gdpchg dvlag spillover threat gdpcat popcat areacat nato eu age, invariant(gdpcat popcat areacat)

panel fixed effects regression with vector decomposition

degrees of freedom fevd	= 326	number of obs	= 360
mean squared error	= .1613147	F(12, 326)	= 140.1255
root mean squared error	= .40164	Prob > F	= 2.2e-116
Residual Sum of Squares	= 58.07329	R-squared	= .8254239
Total Sum of Squares	= 332.6532	adj. R-squared	= .8077521
Estimation Sum of Squares	= 274.5799		

gdp	fevd Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
gdpchg	-.0133198	.0057748	-2.31	0.022	-.0246803	-.0019593
dvlag	.4550958	.0405183	11.23	0.000	.3753855	.534806
spillover	.0872102	.0830753	1.05	0.295	-.0762211	.2506416
threat	.0020495	.0010478	1.96	0.051	-.0000117	.0041107
nato	.0355011	.0975553	0.36	0.716	-.1564163	.2274185
eu	-.1276473	.0961315	-1.33	0.185	-.3167637	.0614691
age	-.016304	.0027485	-5.93	0.000	-.0217111	-.010897
gdpcat	.0980825	.0362524	2.71	0.007	.0267642	.1694007
popcat	.1103668	.0402693	2.74	0.006	.0311463	.1895874
areacat	.0171642	.0205928	0.83	0.405	-.0233475	.0576758
eta	1	.1031767	9.69	0.000	.7970238	1.202976
_cons	.5159261	.288577	1.79	0.075	-.0517821	1.083634

APPENDIX C
CHAPTER 6: STANDARDIZED OPEN-ENDED INTERVIEWS

1. What is your NAME, RANK, BRANCH, CURRENT JOB?

2. Where do you live? How long have you been in the military?

3. Describe any experience you have had working in NATO? How do you feel about being a member of NATO?

4. Did you ever work with allies under the Warsaw Pact? If so, could you describe the differences in the way the alliances operate between NATO and Warsaw Pact?

5. How does your military budget process work in your country?
What types of justification are used? Are NATO requirements ever mentioned, if so how? Are EU requirements ever mentioned, if so how? What are some of the main arguments used vs increasing spending?

6. How does your country decide on whether to support NATO missions? How does your country decide on what troops to send?
What types of justification are used? What are some of the main arguments against sending troops?

7. What has NATO done for your country? What are the costs of NATO membership for your country?

8. What does your country contribute to NATO? What are your unique contributions?

9. How has your military changed since entering NATO?

10. Let me review the key points that I have written. Did I miss anything? Would you like to be cited in my research?

11. Who should I speak to in your military and government to get a better understanding of your country and NATO?