ALLIANCE TRANSFORMATION AND THE CONCEPT OF COMPLEMENTARITIES: THE CASE OF POST-COLD WAR NATO

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In 1990, several months after the fall of the Berlin Wall and the collapse of communism, the University of Chicago Professor John J. Mearsheimer predicted that “the next decades in a Europe without superpowers would probably not be as violent as the first 45 years of this century, but would probably be substantially more prone to violence than the past 45 years.”¹ Based on the same realist logic, Kenneth Waltz, another leading international relations scholar, indicated in 1993 that “NATO’s days are not numbered, but its years are... Once the new Germany finds its feet, it will no more want to be constrained by the United States acting through NATO than by any other state.”²

Sixteen years later, however, the world seems much different from what the neo-realisists expected at the end of the Cold War. Except the violent breakup of Yugoslavia, post-Cold War Europe did not experience any major conflict. At the same time, however, the North Atlantic Community experienced violence, but much different than the one that Mearsheimer predicted.

As far as the North Atlantic Treaty Organization (NATO) is concerned, it did undergo tremendous transformation -- from 1997 to 2004 the number of NATO allies increased from sixteen to twenty-six with ten new members from Central and Eastern Europe; it fully incorporated unified Germany and the organization became involved in

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out-of-area operations. This trend of transformation is continuing, with three countries from Southeastern Europe expecting an invitation to join the organization.

By focusing on NATO’s transformation, this paper addresses the question of how alliances function in the post-Cold war world. More specifically, it researches what kind of outcomes alliances produce for the individual members and for the organization as a whole. In order to answer the question, I focus on the club goods theory and explain the concept of complementarities. Finally, I suggest that approaching alliances from the club goods theory and through the concept of complementarities can offer a novel insight into understanding NATO’s out-of-the-areas operations, and also suggest some of the components of a broader response strategy to terrorism.

This paper is based on a chapter of my dissertation that applies NATO’s transformation to the theory of clubs and modifies the logic of club goods theory through the theoretical concept of complementarities. However, before elaborating on the concept of complementarities, it is necessary to discuss shortly the theoretical background behind collective and club goods.

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3 NATO’s eastward expansion took place in two rounds. In 1999 the Visegrad countries (Czech Republic, Hungary, and Poland) joined NATO and in 2004 seven other Central and East European countries became members -- Bulgaria, Estonia, Latvia, Lithuania, Romania, Slovakia, and Slovenia.

4 Currently Albania, Croatia and Macedonia are preparing for membership.
THE COLLECTIVE GOODS THEORY

Mancur Olson indicates that “one purpose that is nonetheless characteristic of most of the organizations, and surely of practically all organizations with an important economic aspect, is furtherance of the interests of their members.”\(^5\) Olson assumes rationality as underlying driving forces of organizational behavior. He argues that each group, no matter whether it is large or small, “works for some collective benefit that by its very nature will benefit all of the members of the group in question. Though all of the members of the group have a common interest in obtaining this collective benefit, they have no common interest in paying the cost of providing that collective good.”\(^6\) This analysis of the collective benefit is related to the debate between public goods, as opposed to private goods.\(^7\)

Mancur Olson’s approach laid the foundation for a new theoretical interpretation of international cooperation that focuses on international goods and distinguishes between two core characteristics that each good has – non-rivalry and non-excludability. Goods are non-rival (also called indivisible) when their unit can be consumed by someone “without detracting, in the slightest from the consumption opportunities still available to others from the same unit.”\(^8\) Examples for such goods are sunsets as unobstructed views, as well as pollution-control devices and weather-monitoring stations. Those goods whose benefits can be withheld costlessly by the owner or provider display excludable benefits. Alternatively, benefits that are available to all once the good is provided are termed non-

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\(^6\) Mancur Olson (1965), p. 21.


\(^8\) Cornes and Sandler (1986), p. 6.
excludable. Usually most of the goods are excludable, such as oil, clothes, food, etc; examples for non-excludable goods being firework displays, pollution-control devices, street lighting.\(^9\) No matter whether a whole city or only a single person enjoys the street lighting or the firework displays on July 4 that would not change the amount of good available. The analytical distinction between excludability and rivalry is important because it allows us to classify the goods into pure private, pure public and such with mixed characteristics.

Private goods are those that exhibit both rivalry and excludability, such as territory, natural resources, etc. Alternatively, public goods exhibit neither rivalry, nor excludability, such as the access to radio waves, oxygen, public parks, etc.\(^{10}\) Nonetheless, there are goods with mixed characteristics depending on whether they are excludable and whether they exhibit rivalry.\(^{11}\) The impure public goods are between the two extremes of purely private and purely public goods with partially rival and/or partially excludable benefits. Some of the impure public goods are often referred to in the literature as club goods.\(^{12}\)

In their 1966 book “An Economic Theory of Alliances” Olson and Zeckhauser assumed that in the case of alliances characterized by deterrence, collective defense is a pure public good. Furthermore, they argue that there is an asymmetry in the distribution of benefits among the different countries since larger actors placed a greater value on collective defense because they had more to lose when it fails.\(^{13}\) Under such

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\(^{11}\) Barry Hughes calls these goods “coordination goods” (exhibiting excludability and non-rivalry) and “common property resources” (exhibiting rivalry and non-excludability).
\(^{12}\) Cornes and Sandler (1986), as well as Sandler and Hartley (1999).
\(^{13}\) Olson and Zeckhauser (1966), and Peter Forster and Stephen Cimbala (2005), p. 10.
circumstances there is a pretty strong incentive for smaller countries to contribute as little as possible to collective defense, which is also known in the literature as “exploitation of the large by the small” and “free rider problem.” Specifically, a free rider is anyone who contributes less than the marginal value they derived from the consumption of a non-excludable public good.\footnote{Olson, Mancur and Richard Zeckhauser, Economic Theories of Alliances,” RAND Corporation, Santa Monica, CA, 1966, p. 11.}

Generally, Olson and Zeckhauser’s model has three important contributions. First, it concludes that alliances provide mostly public as opposed to private goods. Second, the alliance output will always be suboptimal as far as its members place a positive value on additional units of defense. It is structurally determined that the individual members in an alliance will have an incentive to keep providing additional alliance forces until the optimal level is reached only if there is an arrangement by which the alliance members share marginal costs in the same proportions in which they share additional benefits. When such a marginal cost sharing arrangement is reached, there needs to be no tendency toward disproportionality in sharing the burdens. A follow-up conclusion is that typically, once an alliance treaty has been signed, a member nation is legally bound to remain a member for the duration of the treaty. Usually such a treaty does not elaborate much on the procedure of how the burden should be shared within the alliance. This procedure works to the disadvantage of the larger countries. Often the smaller nations benefit from signing the treaty due to the asymmetric (or disproportional) distribution of the benefits and, once the treaty is signed, the larger powers are deprived of the bargaining power that they will punish the recalcitrant smaller powers. Sometimes when the alliance framework is negotiated, the exclusion may not be feasible. Historically,
when the allied framework is negotiated, the exclusion may not be feasible because of various reasons. For example, many of the alliances are implicit in already existing danger or some of the allies may have a goal common to some other states outside of the allied framework.\textsuperscript{15} However, alliances are not burden free for small states. Oftentimes, when the great powers act the small states have much less chance to defect. In fact, there might be a potent incentive to cooperate in other areas that the small states may not have previously considered, such as the new NATO allies in the war in Iraq. It is incorrect to associate the various incentives of the small states to cooperate with great powers only with the rationale of bandwagoning, i.e. where states “tend to ally with the strongest or most threatening state.”\textsuperscript{16}

Third, the military forces in the alliance provide not only collective, but also purely national, non-collective benefits to the nations that maintain them. This situation creates a feeling of uncertainty among the other allies and makes them enlarge their military forces because of conceivable future conflicts. Such a situation results in greater ratio of private to collective benefits, decreases the degree of suboptimality and ultimately increases effectiveness of the alliance.\textsuperscript{17}

There is no doubt that collective goods theory has an important contribution to understanding the economic foundation of alliances but there are several weaknesses of the model when applied to contemporary cases. First, Olson and Zeckhauser introduced for the first time the relationship between the defense expenditure and defense capability. Although an important one, defense expenditure is definitely not the only variable that

\textsuperscript{15} Olson and Zeckhauser (1966), p. 20.
\textsuperscript{16} See Stephan Walt (1987); also Christensen and Snyder, “Chain Gangs and Passed Bucks: Predicting Alliance Patterns in Multipolarity,” International Organization, Vol. 44 No.2 (Spring, 1990), pp. 137-68.
\textsuperscript{17} Olson and Zeckhauser (1966), p. 19.
influences defense capabilities. In order to present a full picture of the alliance internal dynamic, it is necessary to focus on other components of military power, namely manpower, army, navy and air force. Also, the collective goods model automatically assumes that defense capability is equivalent to deterrence. This is understandable given the fact that the theory was developed in the 1960s during the peak of the Cold War, but is not applicable to the post-Cold War security realities where the concept of defense does not equate to the concept of deterrence. Second, the collective good model does not explore the possibility that security has elements of a private good and, therefore, does not elaborate on whether and under what conditions there is an optimal ratio of private to collective benefits. The analytical approach that collective goods theory undertakes in addressing the possibility for an optimal distribution of benefits lead to different, often contradictory, conclusions. Therefore, in order to better understand the effect of public goods as opposed to private goods, it is necessary to study the club goods theory.

THE CLUB GOODS MODEL

Before presenting this model, it is necessary define clubs. For Richard Cornes and Todd Sandler a club is “a voluntary group deriving mutual benefit from sharing one or more of the following: production costs, the members’ characteristics or a good characterized by excludable benefits.”\(^{18}\) Although the main focus is on the “excludability” feature, in addition to excludability, there are several different aspects of club goods that need to be taken into account – voluntarism, sharing a certain type of good and discrimination between members and non-members.

Clubs must be voluntary, i.e. members choose to join and, since they are rational actors, they anticipate a benefit from this particular membership. Thus, the utility jointly derived from membership and the consumption of other goods for each of the members must exceed the utility associated with non-membership status.\textsuperscript{19} In other words, in the case of NATO the members (both old and new) expect to have benefits of membership that outweigh the costs associated with it. However, that does not mean that all the states have the same utility functions.

Clubs incorporate the idea of sharing. They may share the use of impure public goods or the enjoyment of the desirable attributes of the members. Whether sharing golf course and access to the club house or collective defense, club members inevitably need to share some sort of club facilities or goods. As a result, sharing often leads to a partial rivalry between members involving club benefits, thus, causing detraction in the quality of the services already received.\textsuperscript{20} Consider for example bringing a friend or family member on a nice weekend to play golf on a private course where you are a member. In this case you and your friend or family member need to share it with the other players who enjoy the benefit of membership. In the same way, they have to share the course not only with you but also with your friend or family member at the same time. Although the competition over natural resources and oil fields are classical examples of rivalry, the case of alliances actually indicates quite the opposite trend – rivalry to share as little burden as possible, as indicated in Olson and Zeckhauser’s work on “\textit{The Economic Theory of Alliances}.”

\textsuperscript{19} Cornes and Sandler (1986), p. 159.
\textsuperscript{20} Cornes and Sandler (1986), p. 159.
Furthermore, as membership expands, both costs and benefits arise. Costs involve increased congestion due to a higher number of members, while benefits result from cost reductions due to the economies of scale that reduce the expenses associated with the club good. By adding a cost offset to the benefits derived from expanding the club size, crowding ultimately leads to finite memberships. In other words, every club has a certain capacity until it becomes congested, a situation where the costs surpass the benefits. This is particularly relevant in the case of NATO, where the ten new members add marginal contribution to the overall alliance resources. Therefore, club goods framework raises several logical questions: (a) how many members constitute the optimal size of the club; (b) is NATO already congested and if not, than what is the congestion point; (c) what is the current ratio between the costs and the benefits of adding new members (specifically adding these particular member states) and what is the most optimal equilibrium? Unlike the collective goods model, the club goods approach offers a much more thorough theoretical perspective and a more powerful explanatory model. Usually club members share partially rival public goods that are also excludable such as recreational facilities, tennis clubs, swimming pools, and highways (in contrast to what Mancur Olson calls inclusive groups). International security is a good example of an excludable good characterized with rivalry. As John Mearsheimer indicated, “the sad fact is that international politics has always been a ruthless and dangerous business… The overriding goal of each state is to maximize its share of world power, which means gaining power at the expense of other states.”

Club goods have an exclusion mechanism whereby users’ rates of utilization can be monitored and nonmembers and/or non-payers can be barred. Without such an exclusion

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mechanism there would be no incentives for members to join and pay dues. The operation of an exclusion mechanism must be at a reasonable cost, in a way that the costs should be lower than the benefits gained from allocating the shared goods.\textsuperscript{22} At this point of analysis, it is necessary to distinguish between two different types of costs and benefits: (a) costs and benefits related to the individual members and; (b) costs and benefits related to the club as a whole.

When analyzing the clubs, it is necessary to distinguish between members with user privileges and non-members. In the case of NATO, after the alliance launched its Partnership for Peace program (PfP) in 1994, most of the countries from Eastern Europe and the former Soviet Union joined the program but did not enjoy the privilege of common defense under Article Five or participation in any substantial decision making process. Moreover, the provision of the amount of the shared good must be determined, i.e. common defense. In this case, the territorial outreach of the collective defense provided by the alliance is limited within the “territory of any of the Parties in Europe or North America” as defined in Article 6 of the North Atlantic treaty. Also, the operational limits of the collective defense have been elaborated on in Article Five “if an attack occurs, each of [the allies] … will assist the Party or Parties [with]… such action as it deems necessary.”\textsuperscript{23}

Membership Size and Types of Clubs

One of the major issues in club theory research refers to the optimal number of clubs and their members when the club supplies the same type of goods, i.e. in the case of

NATO collective defense. However, the optimality of the membership size is a function of the type of clubs. Richard Cornes and Tood Sandler discuss two types of clubs – homogenous and heterogeneous. A homogenous club includes members whose tastes and endowments are identical. If either tastes or endowments differ, then the club is called heterogeneous or mixed. The bulk of clubs in the literature are called homogenous.

How does this hypothesis about homogenous clubs apply to international politics? First, it is necessary to take into account that there is an assumption of homogeneity among the members of a club, i.e. that they are relatively similar in terms of size or income levels, a feature that the international system does not pertain because states have different capabilities. Kenneth Waltz indicated that “international structures vary only through a change of organizing principle or, failing that, through variations in the capabilities of units,” i.e. states.

Second, even if we assume for the purposes of this theoretical framework that states do not vary significantly in their capabilities and that international system is homogenous, then Cornes and Sandler’s conclusion is consistent with the Waltzian interpretation of international system – the presence of multiple clubs or poles in the international system guarantees stability since some of the players can switch allies. Although true for 18th and 19th century Europe, it is not true for the Cold War, where stability of the system was achieved without switching allies. Does that mean that the two clubs had been at optimal size for such a long time? The evidence from James Golden’s analysis indicates that in this case there was a significant difference of

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capabilities between the different allies and although empirical evidence has not been provided for the other major club – the Warsaw Treaty Organization, the same could be assumed, too.²⁶ Since this trend continues in the post-Cold War NATO, it is necessary to focus on the theoretical implication of the heterogeneous clubs.

The allocation of the club theory model to the case of NATO requires adjustment, parsimony and precision of the applied theoretical models. The advantages of parsimony are more than obvious – it enables us to analyze thoroughly and make clear logical conclusions that make a theoretical contribution to understanding international relations in general and alliance theory in particular. Clearly the case study on NATO borrows from the heterogeneous and inter-temporal club analysis. However, both models require an excessive number of variables and optimality conditions that ultimately dilute the parsimonious nature of the theoretical contributions. That is why the case study will be adjusted to the criteria for a single case study.²⁷

Finally, precision requires looking into specific variables and causal relationships that can explain the optimal or sub-optimal outcomes of the club expansion and transformation. Although the numerous theoretical models of the club goods theory provide a significant insight into analyzing alliances, the least common denominator that holds these models together and makes short, precise and thorough analysis with significant theoretical contribution is in fact missing. The concept of complementarities explains the relationship between resources and capabilities and how they shift and re-allocate depending on the alliance dynamic and fills in this theoretical gap by helping us

²⁷ Alexander George argues that a single case study, if it is strategically selected and properly carried out, is able to provide “a rigorous decisive form of hypothesis-testing,” just like any comparative or formal method. See Alexander George “Case Study and Theory Development: The Method of Structured, Focused Comparison,” National Science Foundation, 1979. p. 53.
to better understand the alliance dynamics. Therefore, this research will approach NATO as a heterogeneous club that comprises of several relatively homogenous entities (or sub-clubs) that allocate their resources and capabilities in a certain way over a certain period of time. The allocation of resources and development of capabilities, on the other hand, is rational and based on a careful cost-benefits analysis made by the members of these homogenous sub-clubs.

**THE COMPLEMENTARITIES APPROACH**

*The Roots of the Concept*

The concept of complementarities is developed in the economic literature where two goods are considered to be complementary if “the presence (or efficiency) of one increases the returns from (or efficiency) of the other.”\(^{28}\) Complements are those items that are normally consumed along with the product in question. If the demand for the product rises, then the demand for the complementary good rises, too. Thus, if we assume that people consume non-alcoholic beverages (such as coke, Pepsi, etc) with pizza, then when the price of pizza falls, the demand for non-alcoholic beverages increases. As a result, the demand for a good varies inversely with the price of the complements.\(^{29}\) Also, from multigood monopoly theory we know if two goods are complementary then lowering the price of one good stimulates the demand for the other.\(^{30}\) Furthermore, the relationship between two goods such as pizza and non-alcoholic beverages depends also on the elasticity of the goods, which is also known in the literatures as sensitivity of demand to income or income-elasticity of demand.

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\(^{28}\) Hall and Soskice (2001), p. 17.
Political scientists apply complementarities to the institutions of the political economy in order to reinforce the differences between the liberal and coordinated market economies. However, complementarities may also exist among the operations of a firm; an example of which will be the marketing arrangements that offer customized products and may offer higher returns when coupled with the use of flexible machine tools on the shop floor.  

While the firms are the core unit of analysis in microeconomic theory, the majority of security studies researchers agree on the state being the major unit of analysis. In the realm of international politics, states play the same role as firms in the analysis of microeconomic theory. Therefore, complementarities will be applied to the states with the same logic that they are applied to firms in microeconomics.

Translated to an alliance dynamic, the concept of complementarities has direct implications in analyzing the management of relations within alliances, the distributions of resources and sharing of capabilities that the allies have been able to develop. Furthermore, complementarities can help us understand not only why new states join alliances, but also how they undergo transformation, adapt their military structures to the new security environment and share the burden and the cost of alliance commitments.

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31 See Hall and Soskice, Milgrom and Roberts (1990; 1995).
32 Both realists and institutionalists agree on the states being the key unit of analysis. Nonetheless, institutionalist research focuses on the effect of international institutions. In this analytical framework, the effect of complementarities has implications on the relations between states, as well as between institutions. For the purpose of this research, I will focus only on the complementarities between states, while the institutional complementarities will be researched separately.
The assumption that collective defense is a club good, necessitates an approach that addresses the mechanisms through which this club operates and the outcomes that it produces. Despite the fact that NATO is seen as a heterogeneous club, there are commonalities among the different allies that tie them together as a club in the same way as there are differences among the clubs members, the new members and the non-members. Complementarities is a concept that can explain how allies manage resources within the club in a way that is consistent with the club’s strategy, what holds the alliance together and what keeps it an efficient component of international security. The function of this concept is twofold. On the one hand, it offers a novel insight into the functioning of alliances as clubs in the realm of international security. At the same time, the complementarities concept fills in an analytical gap by offering a novel insight into major issues such as cost-sharing and burden-sharing that are not thoroughly addressed in the literature.

The remaining part of this paper will seek evidence for the concept of complementarities by testing the evidence for relationship between the different military resources and troops abroad of the current NATO members (old and new) and the countries in the North Atlantic Area that are not a part of the alliance. In this particular study, the dependent variable number of troops sent primarily to peacekeeping operations abroad is an illustration of the alliance capabilities among the different groups of allied nations.

The overall framework of complementarities assumes that the increase of military resources decreases the price of collective defense and, therefore, enhances the various allied capabilities of each state and the alliance as a whole. The conventional logic
suggests that the relationship between military resources and peacekeeping operations should be positive, i.e. that the increase of resources affects directly the capabilities that allies develop. However, a careful analysis of the new allies supposes a different outcome. Most of the former communist countries the joined NATO in 1999 and 2004 had an outdated and inefficient system of resource management. As a result, their resource base that had to be reduced or re-allocated in order for them to manage their scarce defense resources in a more efficient use and optimal manner. Although the model assumes that there is a relationship between military resources and troops for peacekeeping operations overseas, the direction and scope of the relationship may vary among the different groups of allies due to the gap in their military resources.

**Approaches to Defining Resources and Transformational Capabilities**

Power calculus in terms of military and economic power is a key assumption in this model. However, the operationalization of military power seems to be the biggest challenge. There are two alternative approaches: (a) analyzing the military power of each NATO member state relative to all others allies and; (b) measuring power as a category in which the variables are presented as coefficients adjusted to the population size and, therefore, reflect the values of resource base per population unit.

Given the multi-layered dynamic of alliances, each of these approaches has its strengths and weaknesses. An analysis of collective defense approached solely by dividing the entire resource base and allied capabilities by the population size is not particularly helpful because it would mean that each member contributes to and benefits from this club exactly at a proportion to its population size, which in the history of
alliances has never been the case. Furthermore, NATO is a “voluntary alliance of sovereign states with partly divergent national military purposes” in which the alliance partners may sometimes have differing views on how best to achieve military purposes upon which common agreement is reached.” Operationalizing resources and capabilities is also a methodological problem that reflects a long-standing debate between two different approaches in the literature. The first one is concerned with the issue of “fair shares” and the importance of equality in the financial sacrifice and effort. It starts with the notion that all the allies should spend “proportionately as much on their defense as the Americans do” and if the Europeans are not willing to do so, the United States should reduce the expenditure for the defense of Europe.” Alternatively, the second approach is driven by the practical problem of eliciting effective military contributions and maintaining alliance unity. It does not focus on the numerical expenditure goals and as it does on the variability in the qualitative difference of each country’s defense spending. It also encourages specialization (including joint procurement) since the emphasis is on the provision of military inputs rather than equalization of costs. While the former approach advocates NATO’s unity and cohesion in the alliance’s functioning, the latter assumes differences of opinion within and among the different allies as sovereign states.

Each of these approaches has its strengths and both of them seem to obliterate some important details of the relationship. However, for the purpose of this analysis, the

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34 Cooper and Zycher call it a “fundamentalist approach.”
36 Cooper and Zycher refer to this approach as “Atlanticist.”
operationalization of these variables will be consistent with the second approach discussed by Charles Cooper and Benjamin Zycher. More specifically, the resource and peacekeeping variables will be quantified as indicators divided by the size of the population of each of the alliance members. Thus, I will be able to discuss the variation in the available resources of each member across the international system separately in the dissertation. The distribution of power as a separate variable shaping alliance dynamics will be held constant in the model of complementarities. The purpose is to simplify the model to an extent that it is analyzable and generalizeable.

As previously discussed, the analysis of complementarities assumes that the states as club members are the sole units of analysis and that NATO will be approached as a heterogeneous club. It is also necessary to distinguish between two different levels of heterogeneity – (a) one that is based on the difference of available resources and allied capabilities within each of the states and; (b) one that is based on the difference in their size, mostly in terms of population. In the case of Hungary and Greece, for example, they are relatively homogenous in terms of their size, each of which has population of about 10-11 million people. However, in terms of defense spending and overall military power they are quite different. Alternatively, if we look at the cases of Poland and Slovakia they have quite a different size – Poland with its 37 million people is about seven times bigger than Slovakia. However, in terms of defense spending, structure of armed forces and types of military reforms in both countries, Poland and Slovakia are quite similar.

Also, studying complementarities while holding constant the size of the club members is important from the perspective of parsimony of the model. First, it is

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38 Cooper and Zycher (1986), p. 10
unreasonable to expect that each member will contribute the same amount to the alliance goals even if the members are of similar size because there are other factors that affect optimality, such as geography and specialization. Geography might influence optimality in terms of strategic position that might increase the value of a particular ally. Geography may also be directly linked to the specialization variable since land-locked countries like Czech Republic, Hungary, Luxembourg and Slovakia do not have the resource base to develop a navy and need to specialize in other power resources. Second, unlike the collective goods model, the logic of club goods theory does not focus on the size factor and does not assume the “exploitation of the big by the small” hypothesis. The operationalization of the variables based on an approach that eliminates the size factor is congruent with the core premises of the club goods theory.

Measuring Resources

The research of the political and military dimension of security supposes operationalization of the resources in terms of “two kinds of power: latent power and military power” as suggested by John Mearsheimer.\textsuperscript{39} Although closely related, these two forms of power “are derived from different kinds of assets. Latent power refers to the socio-economic ingredients; that go into building military power, it is largely based on state’s wealth and the overall size of its population.”\textsuperscript{40} While the potential or economic power is based on the “the size of its population and the level of its wealth,” the military power “is embedded in its army and the air and naval forces that directly

\textsuperscript{40} John Mearsheimer (2001), p. 55.
However, Mearsheimer does not give the same weight to each of these ingredients when measuring power and argues that “land power dominates independent sea power and strategic airpower.” Although I assume his broader definition of power, there are two important points of departure. First, he argues that “power is based on the particular material capabilities that a state possesses,” and does not elaborate on the distinction between the resource base and the actual capabilities operationalized through tactics and strategies. In part, it understandable because Mearsheimer’s work does not focus on the functioning of alliances and, therefore, he does not study in details the relationship between resources and capabilities. In my model, I introduce alliances as a factor that makes this analytical distinction possible and assume that the operationalization of the concept of power refers to military resources, not to capabilities.

Mearsheimer’s definition does not elaborate on the optimal number of variables that present a thorough picture of the available resources. The model that I introduce, seeks to present a picture that finds the balance between a detailed analysis of the maximal number of variables and parsimonious approach that allows clear analytical conclusions. I break up the resources into three major sets of variables measured per capita – (a) military equipment; (b) military personnel, which includes army, navy, air force and conscripts but excludes reserves and paramilitary; and (c) actual spending on defense in US dollars. The military equipment is operationalized as three separate variables -- land, navy and air force equipment. There are several different ways to quantify defense

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43 The army equipment is quantified as the average value of the MBTs, AIFVs, APCs and artillery. The navy variable includes principal surface combatants, frigates, submarines, patrol and coastal equipment, and mine countermeasures and warfare. Finally, the air forces variable is measured in terms of combatant aircraft. For further reference see Appendix on data collection and methods.
spending – as a percentage of GDP, in terms of actual spending and as a difference in the spending from the previous year. While the percentage of GDP gives a clear picture of the share of the domestic product that country is ready to allocate for defense, it does not give a thorough picture on the dynamics of defense spending. For example, a country may increase its percentage of defense spending, but if its economy does not perform well and has very low or even negative growth then the increased share of the GDP gives a skewed picture about the available resources. That is why the actual defense spending per capita in terms of purchasing power parities (PPP) seems to be the most accurate measure.

*Measuring allied capabilities*

While resources comprise one side of the equation in this model, capabilities comprise the other one. The definitions and operationalization of the concept varies significantly. For example, during the Cold War the understanding of capabilities was focused on the deployment of military equipment and the intellectual efforts were primarily concentrated in assessing variables such as the division-equivalent firepower provided by a unit, a group of units, or all units in a nation’s force structure.\(^{44}\) There is no doubt that studying capabilities from the perspective of the post-Cold War world is much different. The confusion also comes from the lack of universally agreed definition and a large variety of meanings that the allied documents embed in this concept.

Certainly, the meaning of capabilities in international security conveys an estimation of the allied ability and willingness to adapt to the new strategic environment. Secondly, the meaning of capabilities also implies actions necessary to respond to the

\(^{44}\) For further information see Cooper and Zycher, pp. 20 - 31.
transformation of the alliance by contributing to its goals and missions. Sometimes allies are barely able to agree on common objectives, such as the case of the Baghdad Pact, and as a result, their fate is to fall apart.\textsuperscript{45} In other cases, the allies agree on common objectives that sustain a substantial period of time, such as the case of the NATO and the Warsaw Pact during the Cold War. NATO’s strategy of deterrence was quite similar to the strategy of its major opposing allies and differed significantly from its own strategy and goals during the period following the end of the Cold War.

As Todd Sandler indicated in the “Political Economy of NATO” since the 1994 Brussels summit, the transforming NATO has focused on “the appropriate strategic environment to compute costs of membership includes peacekeeping, crisis management and non-proliferation.”\textsuperscript{46} More specifically, as the Brussels summit declaration indicated, the alliance “increasingly will be called upon to undertake missions in addition to the traditional and fundamental task of collective defense of its members.”\textsuperscript{47} The alliance set itself the goal to adapt its political and military structures “to reflect both the full spectrum of its roles and the development of the emerging European Security and Defense Identity,” to endorse the concept of Combined Joint Task Forces (CJTF), and to intensify efforts “against the proliferation of weapons of mass destruction and their means of delivery.”\textsuperscript{48} Under the current strategic doctrine, force mobility and interoperability are essential factors if the new allies are to contribute to NATO defense burdens.\textsuperscript{49}

\textsuperscript{45} Stephen Walt (1990), p. 58.
\textsuperscript{46} Sandler and Hartley (1999), p. 67.
\textsuperscript{48} The Brussels Summit Declaration, 1994.
\textsuperscript{49} Sandler and Hartley (1999), p. 67.
On a theoretical level, international relations literature lacks universally agreed and generizable definition of capabilities that is applicable to alliance theory. In order to distinguish among the different meanings of capabilities, I will refer to the dependent variables in my model as “transformational modes of alliance capabilities” (TMAC). Certainly, TMAC implies capabilities of the allies applied to the specificity of NATO’s contemporary strategic environment. TMAC is a framework that supposes the exercise of military power through various alliance activities. In other words, the Brussels declaration of 1994 lays out several different modes of activities that involve: (a) decision-making process linked to organizational presence (i.e. alliance or club) and; (b) development of a certain set of capabilities based on an agreed alliance military doctrine and (c) clearly definable missions. Furthermore, the concept of transformation implies modes of alliance activities that are aimed at changing and adjusting the existent capabilities, as well as building new ones. The meaning of transformation also implies that this is not a one-shot activity, but rather a continuous and cumulative process that involves various stages of transformation. Lastly, for the purpose of this analysis, I will apply the meaning of transformational modes of alliance capabilities (TMAC) and transformational or allied capabilities as mutually interchangeable.

The development of TMAC serves also as a benchmark condition for the admission of new members to the alliance. Todd Sandler and Keith Hartley identified the transformational capabilities required for membership as examples of entry costs, i.e. costs associated with development of interoperability, such as transponders that identify tanks as friendly, training new commanders and troops in English and French, or the capacity to commit troops to out-of-the-area missions in Bosnia or Afghanistan.
The terrorist attacks on September 11, 2001 or the bombings in London and Madrid later did not result in any change in the alliance’s goals and the types of capabilities that it needs to develop. In fact, they strengthened the demand for “balanced and effective capabilities within the Alliance so that NATO can better carry out the full range of its missions and respond collectively to those challenges, including the threat posed by terrorism and by the proliferation of weapons of mass destruction and their means of delivery.”50 Therefore, under NATO’s post Cold War strategic doctrine the concept of complementarities can be expressed through a relationship between the five resource base variables and the TMACs, where the three types of alliance missions (peacekeeping, crisis management and non-proliferation) are intervening variables, while interoperability affects the use of available resources in specific missions and development of much needed allied capabilities. This relationship can be presented graphically in the chart below:

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The transformational capabilities of the individual states should be analyzed from NATO’s perspective to coordinate efforts, as well as to increase the deployability and usability of its forces. The aim is to ensure that the alliance can fulfill its present and future operational commitments and fight new threats such as terrorism and the spread of weapons of mass destruction (WMDs).\footnote{For further information see the NATO Handbook: \url{http://www.nato.int/issues/capabilities/index.html}, accessed on March 12, 2006.}

The details of the relationship between the three different types of alliance missions and their effect on the transformational modes of alliance capabilities will be discussed in a separate chapter of the dissertation. Nonetheless, the three types of missions affect the mode of alliance capabilities differently. For example, of crisis management and peacekeeping are very similar and essentially the same types of capabilities on decision-making and implementation levels. Interoperability, on the other hand is a separate variable that affects the use and development of resources, as well the definition and implementation of the missions and the development of the allied capabilities.
In the model presented in this paper, however, I will focus solely on troops abroad as one of the key variables measuring allied capabilities. The implications of the broader model will be discussed in a separate chapter of the dissertation primarily because it very difficult to quantify and measure them in a single causal model.

During the 1990s NATO initiated the combined joint task forces (CJTF) and in 2002 the alliance reviewed its defense and operations planning process and launched a package of projects aimed at improving the response to international crises, nonproliferation and interoperability among the allies known as the Prague Capabilities Commitment (PCC). In order to streamline its command structure, the alliance created the NATO Response Force (NRF), and currently is working on an Alliance Ground Surveillance system consisting of defense against WMDs and theater missile defense. These capabilities are particularly important for the new NATO operations such as those in Afghanistan and Iraq. The new missions require forces that “reach further, faster, can stay in the field longer but can still undertake the most demanding operations.”

Therefore, in this model I operationalize transformational capabilities in terms of forces abroad focusing primarily on UN and peacekeeping forces, but also forces that have participated in various operations in Iraq during 2003 and 2004.

This variable captures several different tiers of indicators. First, the number of troops that participate in operations abroad reflects the actual ability to send a certain number of trained troops for missions overseas. Second, it also reflects the willingness of the political elites in each of the countries to contribute to the alliance efforts. Therefore, the model assumes that they contribute up to their actual capacity to do so. Even if they

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would like to participate with a higher number of troops, for various reasons, they are not able to do it due to the limited military resources that they have available. For example Canada, Norway or Denmark may be willing to contribute more to NATO or UN-led operations but due to budget constraints they obviously cannot surpass their resource base cap. Alternatively, other countries like Germany, Spain or Portugal may be reluctant to send troops although they have the capacity to do so. If that is a general trend within the alliance, the statistical model should be able to reject the hypothesis that there is a relationship between resources and capabilities. The model captures a general trend and an outcome as a result of a certain alliance dynamic, not a country specific variation or an explanation for the behavior of each of the club members. Considering the troops abroad variable as the only measure of TMAC is not a comprehensive and precise approach and does not reflect the definition of capabilities in their completeness. However, it gives sufficient insight into the level of reforms, willingness of these states to undertake commitment to peacekeeping operations and, most importantly, reflects the overall dynamics of transformation in the new NATO. Again, the variations among different allies that, among other factors, result from the current distribution of power or their different roles in international system will be considered in a separate chapter.

Even at this stage, however, it should be noted that there is one exception to the model – Iceland. Due to its specific geographic location, Iceland does not maintain armed forces, and therefore, has a minimal contribution toward the alliance missions in terms of peacekeeping, crisis management and non-proliferation. However, the country contributes to the collective defense of the alliance with its important geographic position
in the Atlantic Ocean. As a very specific case within NATO, Iceland will be excluded from the analytical framework of this model.

Since NATO is approached as a heterogeneous club, it is necessary to study the separate homogenous sub-clubs. Again, in order to simplify both the assumptions and the findings of the concept, the model will focus explicitly on the various groups of countries -- the fifteen “old” NATO members (with the exception of Iceland), the ten “new” allies and the four non-allied Western European nations. I realize that the assumption for homogeneity within a heterogeneous group such as the fifteen “old” NATO nations tends to obliterate important details. However, it also allows us to check for commonalities in the distribution of resources and development of capabilities within the alliance’s older members. Nonetheless, I need to stress that additional fragmentation of this group into four (or five) sub-groups, as suggested by James Golden, contains methodological weaknesses because of the insufficient number of cases.\textsuperscript{53} Lastly, the effect of the homogeneity assumption within a heterogeneous group and the static nature of the model will be compensated during the in-depth case study.

The data have been collected for each of the countries from 1993 to 2004. This extended period allows capturing undergoing trends throughout the entire decade. In the case of the sixteen “old” NATO members, the relationship enables us to study the nature of relationship between the resource base and the developed capabilities within the club framework. Although they are heterogeneous in terms of their contributions to the collective defense, I expect to capture commonality in the trend. In all the three groups of countries, I focus on five separate resource variables measuring the resource base per

capita – military personnel, army, navy and air force equipment, and defense spending. Alternatively, defense spending and GDP spending can be measured in terms of purchasing power parities thus reflecting the differences of the cost of labor and military equipment among the different NATO members. However, the research indicates that this difference is not statistically significant.

The dependent variable in the model discussed in this paper is troops abroad for each of the observed thirty countries. It has been operationalized primarily in terms of UN and other peacekeeping forces, but also forces that have participated in 2003 and 2004 in the operation in Iraq. Furthermore, in order to match the military resources available and the development of allied capabilities as a result of these resources, the dependent variable has been lagged with one year. In this way, the accumulation of the resource base in a certain year affects peacekeeping the year after. Although in reality it has effect over a longer period of time, for the purposes of this model, I assume that one year is sufficient time to capture this trend.

The complementarities approach gives insight into the question of how rather than whether the allies become incorporated into the alliance structure and suggests a framework to study the overall functioning and dynamic of alliances as clubs providing security. Since its primary purpose is to capture the outcomes that a certain alliance dynamic produces, the model does not rule out the possibility that one or several of the club members could divert from the overall trend of the model. In the same way, the model recognizes that there are differences in the size and resource base among the different groups of allies that reflect variations in their capabilities. Again, the contribution of the model is primarily theoretical in the sense that it reevaluates clubs
goods theory as a framework for studying alliances by introducing the concept of complementarities. Also, besides its theoretical contribution, this model has policy-oriented implications which will be discussed separately.

Assessing the Effect of Complementarities

The model tests the hypothesis whether there is a significant relationship between military resources and allied capabilities in terms of troops abroad and therefore whether there is evidence for complementarities. There are three groups of nations: the old, the new allies and the non-NATO European Union nations. In this case the group of the “old” fifteen allies is the group that controls for the variation of the observed relationship. In other words, if the complementarities logic is correct, we could hypothesize that there is a much more robust relationship between resources and missions abroad for these fifteen nations compared to the other two groups (the new allies and the non-NATO nations).

As previously discussed, there are significant variations among the “old” fifteen NATO members, yet there are important similarities among them, too. First, they are either founding members or have joined the alliance during the Cold War period and have been able to achieve higher interoperability with the other allies over time. Second, they share similar political and economic systems and most of them, with the exception of Turkey, belong to the group of wealthy western democracies. Third, most of the European allies are also members of the EU with the exception of Iceland, Norway and Turkey. Therefore, despite some noticeable differences, I tested the relevance of complementarities by focusing on the fifteen allies as a coherent group. As previously
indicated, Iceland does not maintain armed forces, and, therefore, was excluded from the model.

*The Model of the Fifteen “Old” NATO Allies*

The model indicated that all five variables are significant. The army equipment indicates the highest level of significance (.001), while air force and military personnel record moderate level of significance (.036). Navy variable is significant at .05 but also has a high standard error (7.13). This can be explained with the specificity of the navy power, which includes fewer mostly large units of equipment such as frigates, submarines, patrol and costal vessels and amphibious vessels. If only several of these units of this equipment have been repaired, replaced, or decommissioned during the observed period, this process results in significant fluctuations and skews the overall picture of navy resources. Furthermore, this effect is strengthened with the fact that, due to their geographic constraints, some countries such as Luxembourg do not have a navy.

The variable “defense spending per capita” indicated significance at .05 which means that alliance structures such as NATO have stimulated a positive relationship between resource base in terms of defense spending and peacekeeping efforts of the individual allies. In other words, the more military resources the “old” fifteen NATO allies have allocated for defense, the more successful they have been in improving the alliance’s transformational capabilities. In earlier versions of this paper I also included the variable “wealth” operationalized as GDP per capita and found out that it is not significant. This implies that it is not important how rich or poor the allies are, since their contribution toward alliance capabilities does not depend on their national wealth. For
example, some less wealthy allies such as Portugal, Greece or Turkey have, in fact, been able to contribute much more to sending troops abroad for various peacekeeping operations than other wealthier nations. This finding also means that the argument against inviting poorer nations to join the alliance because they cannot contribute to the allied capabilities, is inconsistent. That is why wealth the wealth variable measured in terms of GDP per capita was excluded from the model. In order to verify the validity of this assumption, however, it is necessary to test the relationship between the five independent variables (personnel, army, navy, air force and defense spending) and the dependent variable (troops abroad) for the ten “new” NATO members.

[Table 1 about here]

_The Model of the Ten “New” NATO Allies_

The second model compares the ten allies that joined NATO in 1999 and 2004. This group of countries also meets the basic criteria for homogeneity – they all share common past and similar features due to their political and economic transition. Furthermore, they are relatively small states whose population varies from 1.3 to 38 million people and have limited resources with regard to population, GDP, defense spending and size of armed forces.

The commonality between the new allies is further strengthened by the nature of their transformation throughout the 1990s and early 2000s. By early 1997 all the countries from Central and Eastern Europe had already expressed their desire to join the alliance. Also, the North Atlantic Alliance enhanced the cooperation level with partner
countries in 1997 by moving beyond the achievements of the North Atlantic Cooperation Council that was established in 1991 and creating the Euro-Atlantic Partnership Council (EAPC). This new format proposed a new cooperative relationship with all the countries of Central and Eastern Europe, including the ten then prospective members from Central and Eastern Europe. Third, the process of NATO expansion was initiated at the Madrid Summit of 1997 with the invitation to the Czech Republic, Hungary and Poland to join the alliance. In addition, in April 1999 the alliance launched the Membership Action Plan (MAP) for all other prospective members to assist those countries that wanted to join the Alliance in their preparations by providing advice, assistance and practical support on all aspects of NATO membership.

Testing the concept of complementarities for the new allies from Central and Eastern Europe is important mostly from a theoretical perspective. If the assumption of complementarities is correct, then we should be able to find evidence for the relationship between military resources and troops abroad. In this case, the optimality of expanding alliances can be explained with the fact that the new members allocate resources efficiently and, with the gradual recovery of their economies, they are be able to contribute more significantly and proportionately to the alliance’s strategic goals by developing new capabilities that are important for the alliance.

Similar to the model with the fifteen “old” NATO members, the model with the new allies indicated, albeit differently, that military personnel, army and navy are significant variables, where the navy variable indicated high values of standard error. Again, it can be attributed to the specificity of the countries. Due to their specific geography, the Czech Republic, Hungary, Slovenia and Slovakia do not have any navy
resources at all. Thus, a model based only on six out of ten new allies could not lead to sound conclusions. Again, the wealth of the states does not indicate to be an important variable in defining resource base, since GDP per capita turned out to be insignificant.

However, there are two major differences between the “new” NATO-10 and the “old” NATO-15 models. Unlike in the case of the “old” allies, defense spending turned out to be statistically insignificant. There are two alternative explanations. First, although homogenous from outside, the new allies actually include two different groups of allies as far as background and basic characteristics of their military reforms and transformation are concerned. The first group consists of the six Eastern European countries that had heavy Cold War armies and were once members of the Warsaw Treaty Organization (WTO) – Bulgaria, Czech Republic, Poland, Romania and Slovakia. The second group includes countries such as Estonia, Latvia, Lithuania and Slovenia that had no experience with independent statehood prior to 1990. Therefore, these two groups of countries differed in the nature of their transformation. While for the six countries that inherited heavy military structures the transformation comprised mostly of reduction of the existent resources and their more effective re-allocation, for the four countries that began their state building in the early 1990s the transformation was first and foremost a process of institution-building. As a result, we could hypothesize two different types of relationships between the military resources and TMAC of these two groups of countries.

In the case of the former WTO countries there is an inverse relationship between land

54 Although Czech Republic and Slovakia are new states that emerged with the split of Czechoslovakia in 1993, they not only shared common statehood for about seventy-five years but also unlike the disintegration of the Soviet Union and Yugoslavia the Czechs and the Slovaks split the resources of Czechoslovakia, including the military ones, in a ratio that corresponded to the contribution of each of the two nations, usually in a ratio of two to one. This information was also confirmed with the representatives from the Czech and Slovak missions at NATO HQ during my interviews with them in January 2006.
power and forces abroad, as well as military personnel and forces abroad, while in the case of the newly emerging states this relationship is positive.\textsuperscript{55}

Second, the period 1993 though 2004 actually captures an extended time line. While it is helpful in measuring the complementarities of the “old” NATO-15, it is much harder to capture the same dynamic for the new allies because they started intensive reforms of their armed forces only after they expressed the desire to join the alliance, and, more importantly, after the introduction of the Membership Action Plan (MAP) in the late 1990s. In other words, a model that focuses on a period beginning in the mid- and late 1990s might have been able to present better evidence for the undergoing dynamic. Given the constraints of the data available and timelines of the quantitative model, I will use the case study to present more persuasive evidence in support of this explanation.

[Table 2 about here]

A logical question that follows from the “new” NATO-10 model is whether the complementarities in the case of the new allies should be understood only in terms of army, navy and military personnel per capita. However, at this stage of the research I cannot argue that this is a persuasive conclusion. Instead, I attribute this finding to the data available and would prefer to focus on the complete framework of the model as developed for the “old” NATO allies.

\textsuperscript{55} It is important to mention that there are two outliers from these trends among the former WTO members – Hungary differs in the relationship between land power and forces abroad and the Czech Republic deviates from the model in the in the relationship between military personnel and forces abroad. This could be explained with the faster pace of military transformation due to their earlier admission to NATO in 1999.
Finally, the third model focuses on the four non-NATO European countries: Austria, Finland, Ireland and Sweden. The purpose of testing the model of complementarities against the four non-NATO nations that are members of the European Union is to find whether evidence for complementarities exists outside of NATO’s alliance structure. If the complementarities hypothesis is confirmed in their case, then it reiterates the persuasiveness of other explanatory frameworks outside of alliance structures and power calculus, such as the integration process within the European Union. Alternatively, if the relevance of complementarities is rejected for these four non-aligned countries, this would confirm the original hypothesis on linkage between resources and allied capabilities attributable exclusively to the dynamics of alliance politics and power calculus.

When testing the model with the four non-NATO allies, it is necessary to make several important points of analytical distinction. First, this model does not aim to assess the contribution that these four countries make to the international peacekeeping efforts. There is no doubt that they are among the major contributors in this respect. However, the purpose of this research is to test the alternative explanation about the relationship between military resources and number of troops overseas as a measure for TMAC outside the alliance framework.

Although there are only 43 cases observed, the model indicates that except navy, no other resource variable is statistically significant. I can argue with confidence that I did not find any evidence in support of the relationship between resources and capabilities in the North Atlantic Area outside of the NATO framework. These findings confirmed the
original hypothesis that it not possible to apply the concept of complementarities to international security without taking into accounts the effect of alliances in international security.

[Table 3 about here]

THEORETICAL AND POLICY IMPLICATIONS OF COMPLEMENTARITIES

The concept of complementarities is currently applied at the state level and focuses explicitly on the “old” and the “new” allies. The next chapters will discuss the relevance of complementarities by surveying notions of Combined Joint Task Forces (CJTF), the NATO Response Force (NRF) and the evolution to the Prague Capabilities Commitment (PCC). Subsequently, I argue that complementarities can also be applied at the inter-institutional level by surveying the division of labor between NATO and the European Union in security affairs. On the grounds of the available military resources, the European Union (through ESDP) and NATO are currently developing or plan to develop complementing modes of alliance capabilities for their peacekeeping (including stabilization), crisis-management and non-proliferation missions abroad.

In this last section of the paper, I would like to discuss briefly some of the implications of the complementarities concept on elaborating a response strategy to terrorism. Post-9/11 international politics clearly indicates that no single nation is able to manage the global war on terror (GWOT), no matter how large its resource base is and how advanced its military capabilities are. Actually, the world after September 11, 2001 showed that alliances in general and NATO in particular, are actually important
structures of international politics. For example, currently NATO is contributing to the fight against terrorism through military operations in Afghanistan, Darfur and the Mediterranean and by taking steps to protect its populations and territory against terrorist attacks.\textsuperscript{56}

The International Security Assistance Force (ISAF) is NATO’s first and probably most important mission out of the North Atlantic Area. The alliance took command and coordination of the ISAF in August 2003. This international assistance force was originally established with a UN mandate to assist the Government of Afghanistan and the International Community in maintaining security within its area of operation.\textsuperscript{57} ISAF continues to operate according to current and future UN Security Council (UNSC) resolutions. Initially, its mission was limited to Kabul, but under Resolution 1510 passed by the UNSC on 13 October 2003 the role of the stabilization forces was beyond the limits of Kabul.

The main task of ISAF is to support the Government of Afghanistan in expanding its authority outside of the Kabul area to the rest of the country, and in providing a safe and secure environment to conduct free and fair elections, to spread of the rule of law, and assist in the reconstruction of the country. Although formally called security assistance force, it is essentially a peacekeeping force that does not differ significantly in the scope, authority and structure from the other peacekeeping operations. ISAF currently numbers around 32,000 troops from 37 different nations – allies, nine PfP

\textsuperscript{56} See: NATO and the Fight Against Terrorism, also available on the Internet http://www.nato.int/issues/terrorism/index.html, accessed on September 14, 2006.

\textsuperscript{57} See NATO in Afghanistan Factsheet, also available on the Internet http://www.nato.int/issues/afghanistan/040628-factsheet.htm, accessed on September 14, 2006.
countries and five countries outside of the North Atlantic Area (Australia, New Zealand, Egypt, Jordan and South Korea). \(^{58}\)

The logic of the complementarities is consistent with the argument in support of out-of-the area peacekeeping operations but that does not automatically imply the support for admission of new members, especially outside of the North Atlantic area. \(^{59}\) A number of policymaking and think-tank proposals have recently suggest new relations with different countries that vary from an upgraded relationship with the alliance to their full membership. The model of complementarities explains outcomes rather than the relevance of certain policy-oriented or decision-making steps. However, it implies that even before considering such steps it is necessary to make a careful cost-benefit analysis of whether the state in question can bring additional alliance capabilities at low cost and, most importantly, what would be the consequences of the Article Five commitments for the entire region.

**CONCLUSION**

This paper focuses on the case of NATO expansion and suggests novel interpretations of club goods theory and complementarities. Nonetheless, there are several key findings. First, the research found sufficient evidence for a relationship between resources and capabilities of the NATO allies, which I refer to as the concept of complementarities. Second, while applicable to the “old” fifteen, and to a certain degree


\(^{59}\) Ronald Asmus has been recently been arguing that “the best way to provide Israel with that additional security is to upgrade its relationship with the collective defense arm of the West: NATO.” See: Ronald D. Asmus, “Contain Iran: Admit Israel to NATO,” The Washington Post, February 21, 2006.
the “new” ten NATO allies, this relationship between resources and capabilities seems inapplicable for the countries in the region that are not a part of the alliance. Third, complementarities reflect a particular alliance dynamic, namely the functioning of alliances as clubs. Fourth, complementarities and club theory combined together explain the logic of alliance expansion and transformation, namely the club operates and reaches an optimal outcome. Despite the fact that different members contribute differently depending on their ability and willingness, alliances produce an optimal outcome when there is evidence for a relationship between the military resources of the alliance members and the modes of alliance capabilities that these countries have been able to develop.
REFERENCES:


NATO Handbook, NATO Office of Information and Press, 2001:


APPENDIX

Figure 1. *Relationship between the Amount of Resources (X) and the Price of Collective Defense (Y)*
Table 1. Influence on Capabilities per capita Operationalized as “Forces Abroad” for the Fifteen “Old” NATO Members (1993-2004)

Dependent Variable: Forces Abroad per capita

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Standard error</th>
<th>t-value</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Army Equipment per capita</td>
<td>-1.02</td>
<td>.27</td>
<td>-5.71</td>
<td>.000**</td>
</tr>
<tr>
<td>Navy per capita</td>
<td>82.89</td>
<td>7.13</td>
<td>11.63</td>
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<tr>
<td>Air Forces per capita</td>
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<tr>
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<tr>
<td>Defense Spending (in US Dollars) per capita</td>
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<tr>
<td>Constant</td>
<td>58.02</td>
<td>12.76</td>
<td>4.54</td>
<td>.000**</td>
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Adjusted R-squared .616

F-statistic 50.55** on 5 and 147 degrees of freedom

* Significant at the .05 level.
** Significant at the .001 level.

**Table 2. Influence on Capabilities per capita Operationalized as Forces Abroad for the Ten New NATO Members (1993-2004)**

Dependent Variable: Forces Abroad per capita

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Standard error</th>
<th>t-value</th>
<th>Sig</th>
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</thead>
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<td>Military Personnel per capita</td>
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<td>Constant</td>
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<td>14.56</td>
<td>4.39</td>
<td>.000**</td>
</tr>
<tr>
<td>Adjusted R-squared</td>
<td>.207</td>
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<td></td>
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</tbody>
</table>

F-statistic 6.03** on 5 and 89 degrees of freedom

* Significant at the .05 level.
** Significant at the .001 level.

Table 3. Influence on Capabilities per capita Operationalized as Forces Abroad for the Four Non-NATO States – Austria, Finland, Ireland and Sweden (1993-2004)

Dependent Variable: Forces Abroad per capita

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Standard error</th>
<th>t-value</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Army Equipment per capita</td>
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<tr>
<td>Navy per capita</td>
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<tr>
<td>Adjusted R-squared</td>
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</tbody>
</table>

F-statistic 4.35** on 5 and 37 degrees of freedom

* Significant at the .05 level.
** Significant at the .001 level.