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IF YOU BUILD IT, THEY WILL COME Applying the Lessons of Collective Action Theory to the 1991 Persian Gulf War

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Abstract

Collective action theory has been applied to problems of burden-sharing and financing of international public goods. The collective action theory literature has evolved in economics without a corresponding evolution in its application to international relations. Many security problems are regional in nature and provide both excludable and rival collective goods. These collective security problems can sometimes be seen as club goods. Club goods tend to be efficiently provided. A case study of the 1991 Persian Gulf War appears to show the relevance of collective action and club theory to defence cooperation in military coalitions. Collective action theory explains some key causal conditions that determined the outcome of the coalition. Strategic leadership by a large ally can force its allies to reveal their preferences and pay up. The technology of offensive warfare capability aggregation makes refunds possible, changing the cost-benefit equation. An aggregation technology with refunds lowers the risk associated with leadership and fosters cooperation.

Résumé

La théorie de l'action collective a été appliquée aux problèmes de la répartition du fardeau entre les alliés et le financement des biens publics internationaux. Bien que la littérature concernant la théorie économique de l'action collective ait évolué, sa mise en application dans le domaine des relations internationales a stagné. Plusieurs questions de sécurité internationale se situent au niveau régional et mettent en jeu des biens collectifs rivaux et exclusifs. Ces questions de sécurité collective peuvent être reformulées en terme théorique comme « biens d'association ». Les biens d'association ont tendance à être fourni efficacement. Une étude de cas portant sur la Guerre du Golfe de 1991 semble démontrer la pertinence de l'action collective et la théorie de club dans le cadre de coalitions militaires internationales. La théorie de l'action collective explique certaines relations causales déterminant le succès de la création de coalitions. Le leadership d'un acteur dominant peut forcer ses alliés à révéler leurs préférences et à payer en fonction de celles-ci. La technologie de l'agrégation nécessaire n'est pas achevée, changeant ainsi le calcul des

coûts-bénéfices. Cette technologie diminue le risque associé au leadership dans l'action collective et augmente ainsi la possibilité de coopération.

Dedicated to my family, above all, my wife and best friend Adrienne Hubble.

Contents

Abstracti
Résuméi
Contentsiv
List of Tablesvi
List of Figuresvi
Chapter 1. Collective Action: Evolution, Content and Misapplication
Origins & Evolution
Theoretical Foundations
Post-Olsonian Collective Action Theory - Club Theory & More10
Further Advances in Collective Action Theory16
Game Theory & Prognoses for Collective Action: From Prisoner's Dilemma to
Assurance Problem
Aggregation (or Supply) Technology
Principles of Collective Action
The Misapplication of Collective Action Theory
Chapter 2 International Security Cooperation and Collective Action 37
International Security Cooperation and Collective Action 38
Security Relationships and Coalitions. 40
Security as a Good
Costs in International Security
Benefits
Alliances as Security Products
Military Coalitions as Ad-hoc Security Cooperation
Why Alliances do Not Equal Coalitions: Coalitions as Operational Cooperation 45
Coalition Contributions as Collective Action Problems
Collective Action: Club Theory Applications in International Relations
Conclusion
Competing Interpretations: A Case with Many Theories
Competing interpretations: A Case with Many Theories
Causal Collutions
The Coalition Emerges Around a Sanctions Degime and Defence of Saudi Archie 72
American Leadership and Coalition Formation
Clubs and the Shape of Contributions 20
NATO Contributes
NATO COILUIDUIUS

iv

The GCC Contributes	88
The G7 Contributes	89
Major Side Payments and Individual Incentives	90
China & the Soviet Union	91
Egypt	92
Syria	93
Analysis of the Outcome: Causal Conditions & Coalition Contributions	93
Reputational Costs, Club Relationships and Perceptions of Burden-Sharing	94
Game Construction	95
Costs	97
Benefits	98
Leadership: Cause and Effect	101
Threshold Technology and its Effect on Contribution Decisions	101
Substitutability of Forces & Contributions	103
Conclusion	103
Chapter 4. Conclusion	106
Bibliography & References	109

v

List of Tables

Table 1.1: Prisoner's Dilemma	.19
Table 1.2: Assurance Game	.20
Table 1.3: Assurance Game with Refunds	.21
Table 1.4: Assurance Game with Refunds, Threshold & Transaction Costs	.22
Table 1.5: Aggregation Technology	.24
Table 3.1: Applications and Expected Outcome of Goods	.66
Table 3.2: US Burden-Sharing Expectations in Late August	.77
Table 3.3: Military Coalition Contributions & Club Membership	.82
Table 3.4: Foreign Government Contributions to the US for the Persian Gulf War (as of	
April 10, 1992)	.89

List of Figures

Figure 1.1 : Typology of Goods	11
Figure 2.1: Alliances as a Sub-set of International Security	44

Chapter 1. Collective Action: Evolution, Content and Misapplication

No society can exist without collective action.

Luis Fernando Medina, 2007

Introduction

Collective action theory applies the logic of rational choice to problems of cooperation between unitary actors. This large branch of micro-economics has been used to explain the existence and provision of public goods. Since most goods are not purely public, new theoretical developments attempt to explain the variation in cooperation according to the type of collective goods. This had led to various typological distinctions between pure public, impure public, club, private and jointly produced goods. Collective action theory has been applied with varying degrees of fidelity and success to the problems of international cooperation, particularly in the area of alliances and within-alliance burdensharing. Chapter 1 reviews the literature on collective action, critiquing incomplete applications and reviewing areas of the micro-economic literature that has not been adequately considered in the field of alliances and international security generally. Chapter 2 explores how alliances and security relationships can be expressed in terms of collective action and how international security problems can be reformulated as collective goods. Additionally, chapter 3 introduces a process-tracing case study of the 1991 Persian Gulf War, demonstrating a link between high levels of cooperation and leadership by a large actor. This relationship is strategic, since leadership is made possible by the rational expectation of the leader that leadership will facilitate cooperation. The technology of military coalitions makes leadership less risky and therefore more attractive than it might be otherwise. Finally, the study suggests that club relationships correlate to contribution decisions where contributions may be seen as a form of membership dues or visitation fee. The hypothesis that the 1991 Gulf War coalition corresponds to a "most-likely" case for international security cooperation due to the existence of a threshold technology and private incentives and payoffs is found to be plausible.

Origins & Evolution

If no society can exist without collective action then the study of society must necessarily concern itself with the question: how does collective action arise and when does it fail? The theory of collective action resonates within certain areas of social analysis because its incentive structure is so prevalent in every day life that it applies to many areas of social analysis. Collective action problems occur as a social phenomenon when the result of individually rational actions, taken together, appears irrational or inferior to another outcome. In 1965 Mancur Olson published a work that would have a lasting impact in American social science.¹ The Logic of Collective Action has great staying power and remains a seminal text in political science, particularly in the area of rational choice and micro-economic analysis. According to Todd Sandler, Logic's "analyses of collective action problems has transcended economics and has altered thinking about group behaviour in sociology, anthropology, law, and political science (especially international relations)."² Olson observed that large groups generally fail to voluntarily provide collective goods in the absence of enforcement mechanisms and provided a theoretical framework for explaining this type of market failure. The utility of the model was in its simplicity: Individual rationality is insufficient for collective rationality. Because the cost of providing collective goods outweighs the benefits for each individual as group size increased, rational individuals will attempt to ride free by benefiting from a collective good without contributing. Actions by individuals may actually worsen group-level outcomes.³ Even if they do contribute, the rational individual is better off - in a purely self-interested way - not contributing if others already provide the good at no cost. The individual is motivated to free ride and only "selective incentives" will motivate him to contribute.⁴ If each individual's incentive is to defect, then market failure occurs and a social optimum is not reached.

Group size is the dependent variable in Olson's model and determines the provision of collective goods. As group size increases the probability that individuals will take on the

³ Ibid.

8

¹ Mancur Olson. 1965. The Logic of Collective Action. Cambridge, MA: Harvard University Press.

² Todd Sandler. 2004. *Global Collective Action*. Cambridge: Cambridge University Press, 31.

cost of provision decreases. Large, impersonal groups tend to fail to share costs optimally if they lack central leaders capable of offering or enforcing selective incentives. The probability of good provision also depends on the relative benefits that individual group members take from varying levels of the collective good. Using Olson's example, a rich land owner benefits much more from a decrease in property tax than a small cottage owner and is thus much more likely to contribute to the effort to lower taxes.⁵ Olson predicts that in groups characterized by inequality of means or benefits, there is likely to be an "exploitation of the great by the small" as small members will abstain (free-ride) and larger members will shoulder the burden of public goods provision.⁶ The simplicity of the original model has been shown to limit its applicability, leading to new developments and expansions.⁷ Much additional work has been done in the area of collective goods. This theoretical development has not crossed over into the domain of political science and international relations. The Olsonian model continues to be "tested" by political scientists as though its pure validity were still a matter of theoretical importance. Collective action theorists ignore these tests and typically misapply the theory.

Theoretical Foundations

Collective action theory arose from neoclassical micro-economic theory and is based on theories of rational choice and actor-level decision-making. The fundamental assumption is that rational agents maximize their utilities within constraints. This theoretical approach is generally agnostic about how constraints evolve socially and how preferences are formed. The rational choice model uses constraints and preferences as exogenous parameters to form predictions about individual behaviour. Since collective action theory purports to show how individually rational behaviour can result in aggregated irrational results, its explanatory power is to show that irrational collective outcomes do not necessarily impugn the rational choice paradigm. Collective action theory (or its hypotheses) is falsifiable when it can be shown that: A. Rational individual choices

⁴ Olson, 1965, 27.

⁵ Ibid.

⁶ Ibid., 29.

⁷ Todd Sandler. 1977. "Impurity of Defense: An Application to the Economics of Alliances." *Kyklos*. 30(3): 443-60.

always lead to rational outcomes or, B. Irrational outcomes are never the result of rational decisions. It is not falsified when irrational choices are shown to lead to rational outcomes. This mistake has often been made with respect to alliance burden-sharing literature. If country A decides to contribute to public good X when we predict it to ride free, then all we have done is shown that actors sometimes act irrationally. This does not totally impugn the theory of collective action, but rather demonstrates a limit to the application of the model. However, if we consistently find that actors do not conform to rational choice expectations then the model is invalidated.

More generally, collective action theory explains market failure: the inefficient allocation of collectively useful resources. Collective action failure is a type of market failure, where interests are commonly aligned yet collective action does not materialize.

Post-Olsonian Collective Action Theory – Club Theory & More

The development of collective action theory in economic literature to account for the complexities of collective goods was born out of a paper that was published in the same year as *The Logic of Collective Action*. James Buchanan established club theory as an area of economics.⁸ Buchanan identified a major hole in economic theory: Neo-classical economic theory was based on the presumption of all goods⁹ being privately owned and

10

⁸ James M. Buchanan. 1965. "An Economic Theory of Clubs." Economica 32(1): 1-14.

⁹ Private goods consumption diminishes the total availability of the good in an amount equal to the use of it (E.g., eating an apple). Public goods are available to the whole population and one person's use does not diminish its availability to others. Exclusion mechanisms can be devised to privatize collective good, but these mechanisms can be costly or untenable. Examples include natural forces such as sunlight and wind. Impure public goods exhibit varying degrees of rivalry and excludability. The vast majority of "pure" public goods are actually impure due to the diminishing cost of exclusion mechanisms and the partial rivalry. Consider a common grazing pasture. Small numbers of cattle can eat all they want with little to no rivalry. Increased numbers put pressure on the sustainability of the commons such that rivalry is present. Joint products arise when the same action produces a mix of private and (pure, impure or club) public goods.





privately consumed. The nascent theory of public goods had questioned this presumption but had replaced it with the presumption that public goods must be collectively owned and consumed. Yet in reality, Buchanan noted that there existed a middle range between those two ownership/consumption paradigms where ownership and consumption was shared between small groups, known as clubs. Goods can be characterized along two axes in terms of rivalry and excludability. Figure 1.1 illustrates a suggestion about how goods can vary in their characteristics of rivalry and excludability, creating different types of economic goods.

Olson himself had noted this phenomenon and "indicated the need for exclusive clubs that restricted membership size owing to congestion or crowding as a greater utilization of an impure public good by one user decreases the benefits or the quality of service still available to others."¹⁰ Yet his model did not incorporate this observation. In classical economics all goods are private and "individually utilized", an assumption that has been increasingly refuted by the literature on public goods, which was still in its infancy in 1965. Public goods were those that could be used by many individuals, with no seeming exhaustion of supply. "No general theory has been developed which covers the whole

spectrum of ownership-consumption possibilities ranging from the purely private or individualized activity on the one hand to purely public or collectivized activity on the other."11 Public goods were characterized by technological properties that allowed them to be utilized collectively. However, Buchanan recognized that this new development did not mean that goods were either private or public in a dichotomous typology. There exists an entire spectrum of goods that vary along a continuum of "privateness" and "publicness" with the two types at either ends of the continuum. To fill the void, he proposed a theory of goods which were collectively provided but that were efficiently provided due to exclusion mechanisms that prevented crowding. Buchanan distinguished between private goods where "consumption by one individual automatically reduces potential consumption of other individuals by an equal amount" and public goods where "consumption by any one individual implies equal consumption by all others."¹² This is referred to as the degree of rivalry, since private goods are scarce and diminish under rivalry; public goods by definition do not allow one individual's use to decrease the availability of the good for others. Buchanan also shows that goods vary in their excludability (usually dependent on technological aspects). His club theory is designed for goods that may be excluded to other people, but that are non-rival or only partially rival.

Private goods are provided on the open market by way of a price mechanism where supply and demand functions converge at a market price. Yet not all goods are provided this way. For example, many swimmers cannot afford to build and maintain their own swimming pool; if no pool is built, a market failure exists where a demand goes unanswered due to lack of coordination. However, if a dominant provider like a municipality can collect membership and user fees to fund a common swimming pool, then even poor swimmers may be able to pay for some use of the common facility. Thus, a market failure is overcome through club arrangements. The purpose of examining voluntary club formation in international relations is to account for their functions and features. Clubs form to provide goods that members would not otherwise access.

¹⁰Todd Sandler and John Tschirhart. 1997. "Club Theory: Thirty Years Later." *Public Choice* 93(3-4): 336.
 ¹¹ Buchanan, 1965, 1.

¹² Ibid., 3.

12

Club theory suggests that collective goods can be optimally provided through exclusion mechanisms such as membership fees.

Club theory rests on two basic premises. First, the presence of crowding requires a restriction of group size, so that membership size is an endogenous variable... Second, both membership size and provision are interdependent allocation decisions.¹³

If additional users impose a strain on the availability of a common good, then this good is said to suffer from congestion (partial rivalry). In contrast to a public good, where freeriding imposes no additional costs, partial rivalry means that free-riding is costly in the form of reduced access to the collective good. With congestion (crowding), rational individuals will impose an exclusion mechanism to force free-riders out and allow users to pay up to point where their marginal utility of use equals the marginal cost of providing the good (assuming that exclusion mechanisms are feasible and low cost). Technology permits at least two exclusion mechanisms for many types of collective goods such as parks, pools, libraries and other utilities: membership and user fees. If the club is homogeneous, with all members using the same amount of the good, then a membership fee will be sufficient to fund the good.¹⁴ This would be the case for clubs where everybody swims at the pool three times per week and no more or less for one hour. If the club has members with heterogeneous taste, then visitation fees can be used to ensure that crowding is accounted for in the exclusion mechanisms within the club. Club members who swim frequently are not permitted to crowd out the members who only swim occasionally because they pay for their crowding costs through a visitation fee.

In the example of a two-person golf club, there is no rivalry since both members of the club can play at any time as much as they want. No use by one member will decrease the amount available to the other member. As membership of the club grows, crowding occurs and some members must be excluded to prevent crowding that diminishes the enjoyment of the members. By imposing an exclusion mechanism (eg. a membership fee, a

¹³ Ibid.

13

¹⁴ Richard Cornes and Todd Sandler. 1986. *The Theory of Externalities, Public Goods, and Club Goods.* Cambridge: Cambridge University Press.

tee-off fee and a reservation requirement) the crowding is limited such that the partial rivalry at the golf club does not diminish the benefits to the members. Moreover, the fees charged (costs to members) help offset the common costs of running the golf club. If no exclusion were possible, these fees could not be collected since members would get to play golf whether they paid or not. The dominant strategy would be to ride free and not pay in the absence of fees for membership. With no revenues, the golf club would deteriorate to an unkempt field, thus limiting the benefits to zero. In club theory and collective action theory, it is the exclusion mechanism and the technology of a shared golf terrain that make the golf club a viable collective enterprise.

Buchanan's work called into question the pervasiveness of public goods problems. According to Buchanan and later authors, "it is clear that few, if any, goods satisfy the conditions of extreme collectiveness."¹⁵ Upon closer examination, most public goods are impure owing to some rivalry in consumption or some ability to exclude people.¹⁶ The *type of good* (its technological features of rivalry, excludability and supply) will influence the degree to which optimality can be achieved thereby becomes an endogenous consideration to outcomes. As collective goods provide more excludable private benefits they will tend to be collectively provided through club and other group arrangements.

Finally, in predicting the outcome of collective action problems where club goods are at stake, it is important to note that clubs tend to form around groups of similar tastes and incomes. As Todd Sandler notes;

Group homogeneity proves helpful [for initial group formation] because common tastes mean that agreements can be reached with minimal transaction costs. If for example, all potential members have the same tastes and income, then all desire the same provision level and there is little to barter over. Such homogeneity facilitates potential members identifying each other at the formation stage. In the real world,

¹⁵ Buchanan, 1965, 2.

¹⁶ Todd Sandler, Jon Cauley and John F. Forbes. 1980. "In Defense of a Collective Goods Theory of Alliances." *The Journal of Conflict Resolution* 24(3): 538.

people do tend to join groups where members have similar views for the collective activity and similar means.¹⁷

Since clubs tend to achieve optimal provision of collective goods, much of the work in club theory involves identifying optimal membership size and good provision level for a given set of utilities and costs.¹⁸ Using total cost and benefit functions, Sandler shows how an optimum provision level can be derived for a club good for any given number of members.¹⁹ Using a total cost per person and total benefit per person, Sandler also derives an optimum membership size. A club is said to be in equilibrium where optimum good provision function and optimum membership levels function intersect for any given level of membership and good provision.²⁰

Club theory is a necessary refinement of microeconomic theory since many impurely public goods exist in society. These collective goods, neither purely public nor purely private, have different incentive structures and will be provided differently. A pure market analogy does not hold in these cases, since goods are provided for through central bodies according to membership or visitation. Since membership and institutional design influence greatly the incentive structure of international cooperation, it is necessary to examine the effects that these conditions can have on optimal good provision. Encouraging greater international cooperation may be a matter of properly organizing membership and cost sharing arrangements.

¹⁹ Cornes and Sandler, 1986.

¹⁷ Sandler, 2004, 35.

¹⁸ Optimality is used as a measuring stick to characterize how individual actions aggregate into social outcomes. The problems of political economy are most obvious when individually rational behaviour results in social outcomes that are theoretically or practically inferior to other possible outcomes. This problem is at the heart of collective action theory, where coordination problems and cooperative dilemmas arise between rational individuals. Seeking or recommending optimality is by definition a normative venture and is squarely a utilitarian concern. The microeconomic standard for optimality is based on Pareto optimality, where for any given allocation of a good no individual's allocation can be increased without decreasing the allocation to another. Market failure arises when a collective good is not provided despite individual preferences for the good.

Further Advances in Collective Action Theory

Non-cooperative game theory analyzes problems that simplify reality. This accounts for the cost-benefit trade-off and predicts the dominant strategies of players, the equilibria and the optimum solution to Collective Action (CA) problems. Non-cooperative game theory applications in international relations are linked to the common assumption of anarchy. The non-cooperative assumption and its application in game theoretic terms have been described by IR theorists as showing "substantial potential."²¹ For example, the stag hunt and the prisoner's dilemma have been commonly used game forms to describe international problems.²²

Collective action problems are what game theorists would term "collaboration dilemmas" as opposed to "coordination dilemmas." Collaboration dilemmas arise when individual strategies result in a sub-optimal outcome.²³ Coordination dilemmas have optimal equilibria and problems arise from misperception and signalling problems.²⁴ Yet the definition of a collective action problem is where individual strategies result in sub-optimal equilibria. Collective action theory itself is frequently identified with the Prisoner's Dilemma (PD), a central model in game theory. Not all collective action problems take the form of prisoner's dilemmas²⁵, and collective goods are often provided due to varying incentive structures. Among the more important is the assurance problem

²⁰ Todd Sandler. 1992. *Collective Action: Theory and Applications*. Ann Arbor: Michigan University Press. 70-72.

²¹ Lisa L. Martin and Beth A. Simmons. 1998. "Theories and Empirical Studies of International Institutions." *International Organization*. 52(4), 353.

 ²² Robert Axelrod. 1970. Conflict of Interest. Chicago: Markham, 60-70. Robert Jervis. 1978. "Cooperation Under the Security Dilemma." World Politics. 30(2), 167-214. Robert Putnam. 1988. "Diplomacy and Domestic Politics: The Logic of Two-Level Games." International Organization. 42(3), 427–461. G.H.
 Snyder. 1984. "The Security Dilemma in Alliance Politics." World Politics. 36, 461-495. Duncan Snidal.
 1985. "Coordination Versus Prisoners' Dilemma: Implications for International Cooperation and Regimes." American Political Science Review. 79, 923-942. K.W. Abbott, K.W. and Duncan Snidal. 1998. "Why States Act Through International Organizations." Journal of Conflict Resolution. 42(1), 3-32.

 ²³ Darren G. Hawkins, David A. Lake, Daniel L. Nielson. 2006. Delegation and Agency in International Organizations. Cambridge: Cambridge University Press 16.
 ²⁴ Ibid.

²⁵ Prisoner's Dilemma's are a type of non-cooperative game where two players have dominant strategies to defect. Much has been written on this type of game, and many international security theorists view the PD as the dominant game theoretic paradigm in international security. This view has been questioned by Runge, 1984. See C.F. Runge. 1984. "Institutions and the Free Rider: The Assurance Problem in Collective Action," *Journal of Politics*. 46, 155.

(AP): "It is easy to confuse PDs with collective action problems in general... In sum, PDs are a very narrow case of collective action, and a particularly fragile one at that."²⁶ This mistake is common and leads to false conclusions:

The PD leads to the conclusion that public goods will never be supplied without outside enforcement. However, the coordination game described by the AP suggests that there are incentives to develop and maintain institutions characterized by rules which make voluntary contributions to public goods a utility-maximizing strategy.²⁷

The economic literature has moved beyond casting all collective action problems as PDs, yet political scientist have not followed in large numbers. Analysts must establish the type of game being played by looking at all aspects of the game, including incentives and degrees of communication. Some games are coordination problems where cooperation under anarchy is expected if information and communication are sufficient to overcome the coordination problem. Collective action problems cannot be assumed to be PDs.

Collective action theory as advanced by Olson and others was based on the assumption of Nash behaviour where: "actions are simultaneous and each player chooses a best response to the anticipated best response of others." Communication, under these strategic assumptions, does not occur. These underlying assumptions have an impact on the principles of collective action. If assumptions of Nash behaviour are inappropriate, actions are not simultaneous, and communication is allowed, then collective action prognosis may be overly pessimistic. If individual expectations are conditioned by interaction with other agents, or if agents have a preference for coordinating their behaviour, then the Nash assumption gives way and the strategic situation becomes an "assurance problem" (AP).

In the AP the particular outcome depends crucially both on prior expectations and on a preference for coordinating one's own actions with the actions of others. These expectations are formed by institutions that facilitate the coordination of behavior

²⁶ Luis Fernando Medina. 2007. A Unified Theory of Collective Action and Social Change. Ann Arbor: University of Michigan Press, 67.

by providing prior information. If public goods problems are perceived by many people as APs, this has implications for the structure of incentives likely to yield voluntary contributions.²⁸

The advanced evolution of international institutions such as international diplomatic norms and missions, clubs like NATO, the G7, and the Paris Club has created focal points and common expectations for coordinating international action. Contrary to expectations based on a PD, international cooperation often resembles assurance problems: "In reality, we observe substantial voluntary contributions to public goods without outside enforcement."²⁹ The international system involves coordination problems where each actor's actions affect the actions of other actors (strategic interaction) due to prior experiences, shared knowledge and communication and other focal points.

Game Theory & Prognoses for Collective Action: From Prisoner's Dilemma to Assurance Problem

Game theory is a branch of applied mathematics used to determine the results of rational decisions by individual agents where aggregate outcomes are determined by multiple choices. Rationalist theory in IR employs many of the assumptions of microeconomic theory. These assumptions are expressed in the axiom: Individuals maximise their utility within the restraints of bounded human rationality (cost versus benefits). Game theory has grown exponentially in its applications to myriad world problems since its initial appearance in applied mathematics in 1944.³⁰ Employed far beyond the world of economics, it has applications in the pure sciences, mathematics and social sciences.³¹ Some security problems are properly constructed as non-cooperative games where cooperation can net the players greater gains than unilateral action.³² The theory is already

18

²⁷ Runge, 1984, 155.

²⁸ Ibid.

²⁹ Ibid., 157.

³⁰ J. Von Neumann and O. Morgenstern. 1944. *Games and Economic Behavior*. Princeton: Princeton University Press.

³¹ Scott Barrett. 2007. Why Cooperate: The Incentive to Supply Global Public Goods. Oxford: Oxford University Press.

³² See Sandler, 2004 chapters 7 & 8, 144-191.

widely accepted in explaining why arms races occur.³³ Todd Sandler argues that the Cold War ended because the nuclear arms race between the United States and the Soviet Union changed from a Prisoner's Dilemma into an Assurance Problem because the realization of economic costs of armament changed the leaders' payoff matrix and the equilibrium.³⁴ The payoff matrix is an expression of the costs versus the benefits within the constraints of the situation.

Prisoner's Dilemma ³⁵	B does not contribute	B contributes	
A does not contribute	0, 0 (Nash)	6, -2	
A contributes	-2, 6	4,4	

Table 1.1: Prisoner's Dilemma

In the game expressed in Table 1.1, each player faces a decision whether to contribute a unit of the public good with a benefit of 6 per unit and a provision cost per unit of 8, expressed as a negative number. The total benefit becomes 12 for each player, minus 8 in costs to each player for a net benefit of 4 for each. This construction abides by a summation technology where each unit contribution adds equally to the public benefit. The Nash equilibrium is where neither actor provides a unit, since they lose if they change their strategy unilaterally. The dilemma is that if plays are simultaneous or sequential, players will tend to not contribute even though a social optimum would be reach if both players would contribute. The main point here, emphasized by Sandler, is that not all CA is defined by the prisoner's dilemma. In fact, 78 different game structures have been identified.³⁶ Moreover, since games are socially constructed in IR by communication, information, social conditioning etc., CA failures can be addressed by changing the structure of the game.

Game theory's predictive power in IR is limited due to the complexity of causal conditions. The simpler the theoretical construction of a game, the more it is based on assumptions that may or may not reflect real life situations. Despite its explanatory

³³ Byron M. Roth and John D. Mullen. 1991. Decision Making: Its Logic and Practice. Savage, MD: Rowman & Littlefield.

³⁴ Sandler, 2004, 42.

³⁵ Ibid., 21.

usefulness, its predictive capacities are limited in IR by our inability to capture all of the incentives, costs and benefits, in a given real-life problem. However, the benefit of game theory applications in IR is the ability to show what incentive structures exist for given areas of international cooperation and conflict. The analysis of games shows the possible solutions to given problem and ties outcomes to the underlying incentive structures.

Three dimensions of "publicness" define a collective action problem: rivalry, exclusion and aggregation technology.³⁷ Assuming a pure public good (one with no exclusion and no rivalry), consider a two-person game where a threshold must be achieved for anyone to take home the public benefits. The technology of the threshold reverses the defection prediction of the PD, where cooperation is both a Nash equilibrium and the optimal outcome. Sandler's 2004 description of an *assurance game* assumes that each actor can provide 1 or 0 units of the public good (resource restraints) and is expressed in Table 1.2.

Table 1.2: Assurance Game

Assurance Game ³⁸	B does not contribute	B contributes	
A does not contribute	0, 0 (Nash)	0, -4	
A contributes	-4, 0	4, 4 (Nash)	

Assume that two units must be provided at a unit cost of -4 before the benefit of 8 is received by all (purely public). Non-contribution is a Nash equilibrium, because neither A nor B would have any incentive to unilaterally choose to contribute, since they would incur a cost of -4 and no benefit. However, a Nash equilibrium is also achieved when both contribute to the provision: With a net benefit of 4, no player has an incentive to unilaterally withdraw their contribution since the good would no longer be provided and they would still incur the same cost of -4. The result of this game is to suggest that if players value the good and have information regarding the threshold nature of the game, then a collectively optimal solution can be reached through individual rationality.

³⁶ Ibid.

³⁷ *Ibid.*, 45-74. Threshold technology is a supply technology where a minimum threshold must be met in order for the good to be provided. A detailed explanation follows on page 16.

³⁸ This table is taken from Sandler, 2004, 21.

prediction can be applied to international military coalitions, as shall be done here using the case of the 1991 Persian Gulf War. Given that multiple equilibria occur with refunds, the game is underdetermined by the incentive structure and outside factors will tip the game in the direction of one solution or another. In this case, leadership is rewarded. If players play non-sequentially (one player must go first), then the prognosis for the public good being provided is good. The first player will see that if they contribute, the other will likely follow suit to gain the benefits of cooperation. Once the first player contributes the likelihood of a second player contribution increases significantly. If play is simultaneous (Nash behaviour), then the outcome will depend largely on information considerations (state's assessment of what the other will do). If the play is simultaneous and repeated, then eventually we would expect mutual contribution, both due to chance and due to player's acting strategically. One factor that can influence this outcome in a game is whether refunds of contributions can occur if the threshold is not reached.³⁹

B does not contributeB contributesA does not contribute0, 0 (Nash)0, -4 (+4) (Nash)A contributes-4 (+4), 0 (Nash)4, 4 (Nash)

 Table 1.3: Assurance Game with Refunds

Table 1.3 modifies Sandler's description of the Assurance Game by assuming that contributions are refundable if the threshold for collective provision is not met. If refunds of contributions are given if the threshold is not reached, then the incentive structure of the game changes and dominant strategies of both players will converge towards mutual contribution, a Nash equilibrium and a social optimum. Table 1.3 indicates the payoff matrix for A and B, where the (A, B) is the sum of benefits received by both A and B for a particular outcome. Since each quadrant shows a Nash equilibrium, the payoff matrix is indeterminate. However, add two realistic assumptions, and the game changes again. Assume that a threshold of 8 is required for any good to be provided at all. Assume also that a transaction cost is incurred when the refund is given. For simplicity, assume the transaction cost is equal to 1.

	B does not contribute	B contributes
A does not contribute	0, 0 (Nash)	0, -4 (+3)
A contributes	-4 (+3), 0	4, 4 (Nash) (Social Optimum)

Table 1.4: Assurance Game with Refunds, Threshold & Transaction Costs

Table 1.4 adds the assumption of transaction costs to an assurance game with refunds and threshold supply technology. The Nash equilibria will be mutual defection or mutual contribution. If the game is repeated indefinitely, then cooperation and the Nash equilibrium and the social optimum should converge either through a tit-for-tat strategy⁴⁰ or through the formation of mutual expectations. This aspect of "shadow of the future" and repeated interactions has been shown to increase the likelihood of cooperation in strategic interaction.⁴¹ Using game applications, Sandler shows that carefully defining the characteristics of the public good – in terms of exclusion, rivalry and aggregation technology - is essential to providing collective action insights and prognoses.⁴²

Aggregation (or Supply) Technology

Early CAT assumed that contributions were purely substitutable.⁴³ Known as summation technology, this pure substitutability assumes that each unit provided towards the good, by any actor, contributes equally toward the good. In reality this is not the case and later theorists abandoned this assumption in favour of analyzing how provision contributions were aggregated.⁴⁴ For example, military contributions are not all equally substitutable. An US infantry brigade is quite different from a Bangladeshi infantry brigade, and the two are not perfectly substitutable for military planners. If contributions to

⁴⁰ A tit-for-tat strategy is where each player copies the last move of the other player. Using this strategy, it only takes one player to cooperate once and cooperation will emerge as a stable equilibrium. See Robert Axelrod. 1984. *The Evolution of Cooperation*. New York: Basic Books.

⁴¹ Robert Axelrod and Robert O. Keohane. 1985. "Achieving Cooperation Under Anarchy: Strategies and Institutions." *World Politics* 38: 226-254.

⁴² Sandler, 2004, 66.

⁴³ Costs are purely substitutable when player's contributions can be substituted for one another without decreasing the overall level of provision. An example of this is cash contributions, which are purely substitutable.

a public good are not purely substitutable, then the aggregation of the good in question abides by differing technologies. When contributions to a good are not substitutable, or when a threshold is required to provide the good, then different incentives exist for cooperation. Sandler identifies six different aggregation technologies that differ in their cost-benefit distribution across actors and hence their prognosis for CA.⁴⁵ For example, a threshold technology exists when a certain amount of contributions is required for anybody to benefit from the collective good. Contributions under the threshold will not yield any benefits. In this case, contributions will revolve around the player's expectations of whether the threshold will be met, and whether their individual contribution is required to meet the threshold. This example suffices to show that the aggregation technology of contributions is crucial to understanding collective action problems. Despite this, the applications of collective action theory in IR have not established the type or degree of aggregation technology.

Table 1.5 lists the different types of aggregation technologies that have thus far been identified and gives a prognosis for supply under those conditions. These prognoses can be converted into useful hypotheses to be tested against actual CA problems. The table is used to summarize the effect of aggregation technology on the prognoses for collective action. This study will focus largely on threshold technology and its influence on the outcome of CA problems. Of note, the threshold aggregation technology is predicted to have a high degree of optimal outcomes reaching the threshold. The substitutability of contributions and the aggregation technology will often have a significant impact on the outcome of the CA problem. One type of supply-side issue is the question of monopoly goods, where a good can only be supplied by one actor. This question is not addressed here, since the monopoly situation does not apply directly to questions of military coalitions.

⁴⁴ Sandler, 2004, 68. ⁴⁵ *Ibid*.

Aggregation Technology ⁴⁶	Examples	Strategic Implications	Provision Prognosis
Summation: Public good levels equal the sum of individual contributions	Charitable activities Rapid reaction force	Prisoners' dilemma or chicken if b _i -c _i <0 [Where b is benefit and c is cost]	Undersupply or the need to coordinate efforts to avoid dire consequences
Weakest link: Only the smallest effort determines the public good level	Security against hijackings Limiting the diffusion of a pest	Assurance	Matching behavior with optimal results if tastes and endowments are the same.
Threshold: good must surpass a threshold for benefits to be received	Peacekeeping Fire suppression	Assurance	Threshold often reached and outcome may be near to optimal.
Best shot: only the largest effort determines the public good level	Discovering cures Infiltrating terrorist networks	Coordination	Discrete goods may be efficiently supplied, but continuous goods are unlikely to be efficiently supplied.
Weighted sum: each contribution can have a different additive impact.	Cleanup of sulphur emissions Controlling a pest	Wide variety of game forms	A wide variety of outcomes are possible, with sub optimality being less of a concern.

Table	1.5:	Aggregation	Techno	logy

Sandler considers peacekeeping to abide by threshold technology because the force levels required to achieve the necessary effect are fixed by the situation and military doctrine. In other words, there is a minimum force level beneath which no peacekeeping operation will occur. In concrete terms, in order to commence an operation, actors have to be convinced that they have sufficient forces (in a risk-weighted paradigm). Determining the level of sufficient forces is highly dependent on complete information about the adversary. As information decreases, the threshold characteristics may give way to best-shot or weakest

link aggregation technology. The threshold technology and associated strategic implications will be examined in greater depth in Chapter 2

Threshold technology occurs when a minimum level of provision exists before the good can be provided. Consider global positioning technology. If one satellite is put into orbit, no GPS signal will be able to be calculated. With two or three more, then only a small coverage of the planet would be possible. In order to have full global GPS coverage on land and sea, it takes twenty-four satellites. Providing one satellite is insufficient for the public good to be provided unless other contributors make up the difference between one and twenty-four. Threshold technologies, when using game logic, lead to assurance problems and increase the prognosis of supply to optimal levels.⁴⁷

Using a human games experiment, it has been shown that voluntary private contributions will yield a socially optimal result when threshold public goods are involved and information is perfect. Mark Bagnoli and Michael Mckee use an experiment where multiple groups of five and ten people are given tokens to contribute to a public good.⁴⁸ The public good is provided if a certain threshold is met. The public good is a division of the tokens amongst the players. The players are told what amount of the proceeds will be theirs if the public good is provided. This experiment showed that given a threshold that everyone is informed about, voluntary contributions will sum to equal the threshold amount. Secondly, they showed that no test subject would contribute more than he hoped to gain from the division of the public good. Therefore, individual rationality was strongly at play in the game. Finally, while they attempted to refute Olson's size proposition, where increases in group size decrease the chances of collective action success, this hypothesis was not fully supported and suggests that group size continues to have an influence on collective action outcomes.

Charles Bram Cadsbya and Elizabeth Maynes tested threshold technology prognoses in their experimental study of volunteer university students playing decision

⁴⁶ Ibid.

⁴⁷ Sandler, 2004, 68.

⁴⁸ Mark Bagnoli and Michael Mckee. 1991. "Voluntary Contribution Games: Efficient Private Provision of Public Goods." *Economic Inquiry*. 29(2), 351-366.

games.⁴⁹ They showed that three factors increased the likelihood of cooperative behaviour: 1) Continuous contributions are allowed over a period of time, instead of an "all or nothing" one-time decision. This increases the chances of contribution since players can engage in matching behaviour to elicit cooperative behaviour from other players, similar to a tit-for-tat strategy where the player repeats the last move of the opposite player. 2) A money-back guarantee if the threshold is not met increases the chances of success. 3) High rewards increase the chances of success.

While most studies of threshold public goods provision in the economic literature depended upon their assumptions of perfect information (and by giving their test subjects complete information in the laboratory), this assumption is not a realistic one in many areas of life. Determined to test whether incomplete information would lower the chances of collective action success in threshold public goods, Marks and Croson conducted further experiments.⁵⁰ They showed that incomplete information is not a barrier to collective action success. They tested two sets of incomplete information: 1) Where subjects did not know the distribution of gains, but did know the total sum and 2) Where subjects did not know the total value of the gains and did not know the distribution. Both tests provided evidence that incomplete information can yield collective action success. However, where subjects did not know the total value of the gains they were unable to calculate a fair proportion of the gains that would accrue to them. In this test, the study found a lack of convergence towards the threshold. This provides further evidence for the proposition that individuals seek to maximize their individual gains. When information regarding individual gains is incomplete, collective action success is possible but less likely.

⁴⁹ Charles Bram Cadsbya and Elizabeth Maynes. 1999. "Voluntary Provision of Threshold Public Goods with Continuous Contributions: Experimental Evidence." *Journal of Public Economics*. 71, 53–73.

⁵⁰ Melanie B. Marks and Rachel T.A. Croson. 1999. "The Effect of Incomplete Information in a Threshold Public Goods Experiment." *Public Choice*. 99, 103–118.

Weighted sum technology applies different weights to each individual contribution to equal the overall level of good provision. Equation 1 describes a weighted sum relationship where x and y are relative weights on a scale of 0 to 1.

Equation 1

100x + 100y = 150 where x = 0.5 and y = 1

Weighted sums arise from comparative advantages between actors where the unit cost of provision varies according varying economies of scale or other relative efficiencies.⁵¹ The implication of a weighted sum technology for a given collective action problem is that agents with comparative advantages (relative weights approaching 1) will tend to supply more of the collective good, all other things remaining equal. Comparative advantages are common in international relations, particularly in the military, scientific and technological fields. These advantages can lead to weighted sum aggregation technology within a collective action problem. Moreover, with weighted sum contributions "the country's derived share of its own contribution is often high; this motivates supply efforts because this share reflects the country's "ownership" to the consequence of its public good contribution."⁵² If the benefits of the collective action are fully excludable, then the leader-provider can "tax" free-riders who don't contribute, thus financing the over-all optimal provision level through burden sharing.⁵³

In general, aggregation technologies other than summation technology offer better prognoses for collective action. The original Olsonian propositions in *Logic of Collective Action* depended on summation technology as an assumption. Scholars can examine aggregation technology to adjust the prognoses for collective action.

⁵¹ Economies of scale arise in micro-economic theory when increasing production of a good decreases the over-all per-unit cost of the good.

⁵² Sandler, 2004, 67.

⁵³ Todd Sandler and John Cauley. 1975. "On the Economic Theory of Alliances." *The Journal of Conflict Resolution* 19(2): 345.

Principles of Collective Action

The general principles explaining collective action are cumulative: each successive addition has qualified additional causal conditions that can affect collective outcomes. The principle that group size can correlate to collective action success or failure has not been refuted. Additional causal conditions have been shown to influence the success or failure of collective action.

1. *Group size*. All other things remaining equal, large groups may fail to provide for themselves public goods. As group size increases the probability of optimal provision decreases.⁵⁴

2. *Net benefits.* The key to successful collective action lies in whether contributors receive a net benefit, or minimize their net loss. As private incentives increase, individual contributions become more likely.⁵⁵

3. *Repeated interactions.* Repeated interactions in PDs increase the probability of collective action success.⁵⁶ A tit-for-tat strategy, where each player copies the last move of the other player, has been shown to be an equilibrium solution for repeated games in PDs.⁵⁷ In indefinite iterations the tit-for-strategy leads to a cooperative equilibrium. Repeated interactions increase collective action success beyond strategic PDs due to the development of shared expectations.⁵⁸

4. *Sequenced play.* Where decisions are simultaneous, no actor can be absolutely sure whether other actors will contribute or not. When one actor plays first, other actors will be forced to maximize their benefits in accordance with the contribution decision of the first player.

5. *Good type and joint products.* Pure public goods can lead to market failures since individuals may not contribute if they can enjoy the good for free. As private incentives

⁵⁴ Olson, 1965; Sandler, 2004.

⁵⁵ Sandler, 2004, 32.

⁵⁶ Axelrod and Keohane, 1985.

⁵⁷ Axelrod, 1984.

rise, the likelihood of efficient supply is increased. Where pure public goods are jointly produced alongside private goods, efficient supply of the good is expected where agents accept cost up to the point where marginal cost approaches marginal benefit. The type of collective good, and the prognosis for supply, depends on three characteristics.

- a. *Rivalry*. The greater the rivalry, the greater crowding effect where additional users decrease the amount available and sub optimal outcomes can result if they are not attenuated through exclusion mechanisms.
- b. *Excludability*. The cheaper or more feasible the exclusion mechanism, the greater the chances that clubs and groups will form and offer optimal provision levels.
- c. *Technology of supply*. As shown in Table 1.5, the substitutability of contributions is not a given. There are times when the weakest link determines level of the public good (ie. immunizations). This study will make reference to both the weighted sum technology and threshold technology.

6. *Group composition.* The income and tastes of members of a group affect the prognosis for collective action in the face of common interest. Alliance burden-sharing literature shows that rich countries in alliances tend to bear a disproportionate cost for providing collective defence goods.⁵⁹ Clubs will tend to form around groups of similar tastes and incomes. The international equivalent of this would be the European Union, NATO, the G7 (and G8), and the Paris Club.

The Misapplication of Collective Action Theory

Several studies in political science have generally misapplied the theory of collective action by relying on the original Olsonian model without its later developments.

⁵⁸ Sandler, 2004, 30.

⁵⁹ Mancur Olson and Richard Zeckhauser. 1966. "An Economic Theory of Alliances." *Review of Economics and Statistics*. 48, 266-279. John Oneal. 1990. "The Theory of Collective Action and Burden Sharing in

Factors other than group size have been excluded from the analyses. Studying the characteristics of collective goods in terms of rivalry, excludability and aggregation technology have not been included. Furthermore, theorists are quick to dismiss what they understand of collective action theory and replace it with new models. Depth is sacrificed for breadth, and three or four theoretical approaches are tested in order to propose a new model that combines elements of all the theoretical approaches. These models typically go unheeded by future analyses.

In 1988 Charles Kupchan analyzed the US creation of the Rapid Deployment Force (RDF) as a response to European refusal to endorse a full-blown NATO out-of-area strategy in the Persian Gulf. The US had declared its interest in oil supply lines and containing Soviet influence by working to maintain its political influence in the Gulf. European countries were reticent to use NATO to expand military forces into the area. It is not clear that any of the European countries saw significant benefit to be gained by deploying a NATO force in the Persian Gulf. Kupchan states that "collective action theory suggest that intra-alliance behaviour is fundamentally a public goods problem."⁶⁰ However, many defence capabilities, as Kupchan himself notes, have private or quasi-private properties that influence the provision of collective levels of defence among allies.

Kupchan's misapprehension of collective action theory is evident in his statement equating collective action problems as problems of public goods. Moreover, he states that CAT "focuses upon the distribution of military and economic capability among member states and the dynamics of group action as the key independent variables."⁶¹ First, the theory of collective action is agnostic about the nature of intra-alliance behaviour. Rather, it is incumbent upon analysts to define the characteristics of goods sought by states in the 'market' of international security. Second, the distribution of capability has little bearing on collective action theory, but is rather a neorealist variable. The main variables of collective action theory revolve around incentive structures, not capabilities. A state with

NATO." International Organization 44(3): 379-402. Todd Sandler. 1993. "The Economic Theory of Alliances." Journal of Conflict Resolution. 37(3), 446-83.

 ⁶⁰ Charles A. Kupchan. 1988. "NATO and the Persian Gulf: Examining Intra-Alliance Behaviour." *International Organization*. 42(2), 324.
 ⁶¹ Ibid.

very little capability will still be tempted to contribute to a profitable venture provided that risk is acceptable. This is not to say the capabilities do not influence outcomes. Using collective action theory however, capabilities are bracketed. Specifically, collective action theorists will consider income inequality as a factor affecting the provision of public goods. If capabilities co-relate to income, then there may be a convergence of expectations between neorealist predictions and the prognosis for collective action. A much simpler explanation of the disinterest that the European community showed for RDF is that the benefits and costs did not create an incentive to contribute. While some free-riding may have occurred, there is no evidence to contradict the major expectations of collective action theory, since the "publicness" of the RDF is highly abstract and is left unjustified by Kupchan.

Beginning in 1994, Bennett *et. al.* applied collective action theory, "alliance dependence" theory and balance of threat realism to try and analyze "burden-sharing" in the Persian Gulf war. In addition to those systemic theories, they considered several state level theories and developed an integrated predictive model. The goal of the research was to evaluate the theories by testing how well they predict the decision of states to contribute to the Gulf War coalition. Furthermore, they proposed to examine "burden-sharing": the phenomenon whereby collective goods are provided by multilateral cooperation and financing. They claim that CAT fails to explain why so many countries did not ride free and exploit the US willingness to provide the public good.⁶²

According to this application of the theory, "the smaller the state, the less likely it is to contribute" to a collective good.⁶³ This view assumes that public good utility is consumed in proportion to the size of the state. This is assumption goes unjustified; gains are not necessarily relative to state size. The problem with this statement is that it conflates state size with the benefit to be had from the collective good. This is a misapplication of Olson's exploitation hypothesis. A simple example: a small state threatened by a large neighbour will benefit more from the neighbour's demise than a large state who is nearby

⁶² Andrew Bennett, J. Lepgold and D. Unger. 1994. "Burden-Sharing in the Persian Gulf War." *International Organization*. 48(1), 42. See also Andrew Bennett, J. Lepgold and D. Unger, eds. 1997. *Friends in Need: Burden-Sharing in the Persian Gulf War*. New York: St. Martin's Press.

but not threatened. The variable hinges on the net benefits received, which does not necessarily co-vary with state size. This simplifying assumption prevents the authors from truly exploring the costs and benefits involved in the decision to contribute. Moreover, the authors make no attempt to go beyond the 1960s literature on collective action theory, 30 years later. In 1997 their paper was expanded into an edited collection of studies on the Gulf War, with each author using Bennett *et. al.* general theoretical framework. This had the effect of multiplying the theoretical misapplication through the collaboration of *14 different authors*. The work would go on to be used as an example of case study scholarship by Alexander George and Andrew Bennett.⁶⁴

Ironically, the case study of Iran identifies Iran as a "free-rider" and argues that they rode free because they were "unable to pay" and they were not dependent on the United States. "Inability to pay" is not a variable in collective action theory. Even poor countries may undertake costs if there is a greater benefit. The study shows that Iran made a rational choice to keep the peace with Iraq in exchange for occupied territory held by Iraq since the end of the Iran-Iraq war. Using the author's own data, it is clear that Iran profited from the higher price of oil to the tune of 700-800 million dollars per month due to Iraq's actions against Kuwait.⁶⁵ Secondly, Iran and Iraq's interests converged with respect to the price of oil. Both OPEC countries supported higher prices. Third, the benefits of seeing Iraq defeated militarily and its regional hegemony reduced substantially would be received at no cost to Iran. Finally, cooperating with the United States, given the tensions between the revolutionary regime and the American administration, would be very costly domestically for the regime. Once we understand the mixed motives of Iran's contribution decision, it is clear that Iran's incentives were highly skewed in favour of the nuanced neutrality that it undertook in the 1991 Persian Gulf War. Bennett et. al. provide no theoretical development for collective action theory, since their Olsonian model has been entirely replaced by later developments. Further study should identify the errors made in this

32

⁶³ Bennett, et. al., 1994, 42.

⁶⁴ Alexander George and Andrew Bennett. 2004. *Case Studies and Theory Development in the Social Sciences*. Cambridge, MA: Harvard University Press.

⁶⁵ Haleh Vaziri. 1997. "Iran's Response to the Iraqi Invasion of Kuwait: The Vindicated Free-Rider?" in *Friends in Need: Burden-Sharing in the Persian Gulf War*, op. cit., 304.

analysis and consider a re-reading of the facts to place them in the proper analytical context respecting the axioms of collective action theory.

Glenn Snyder published *Alliance Politics* in 1997, the same year as Bennett *et. al.*⁶⁶ In his view, the collective goods theory applied to security is one where security is a pure public good.⁶⁷ This leads him to view collective action theory as "undercutting" the balance of power theory. The assumption of pure public goods, ignoring all the private, club and joint products involved in security situation, leads to fundamental pessimism that is unjustified by the proper application of collective action theory.

David Auerswald also fails to incorporate the advances in CAT in his case study of the 1999 war in Kosovo.⁶⁸ He does, however, introduce the notion of the K-group which sheds some light on small group interactions.⁶⁹ Auerswald applies the same methodology as Bennett *et. al.* in considering alliance burden-sharing in the case of NATO's intervention in Kosovo in 1999. Using balance of threat realism, collective action theory and two country-level variables (public opinion and government institutions), he makes the same mistake as Bennett *et. al.* First, all collective action problems are presumed to be pure public goods market failures. Second, he makes reference to Olson and Russell Hardin's work, but does not incorporate other developments in collective action theory. Relying on Hardin's work, he argues that:

The extent to which group members act to provide collective goods depends on a number of factors, the most important of which is group size. More specifically, what matters is the size of the subgroup that is capable of providing the collective good themselves and would benefit from doing so even if no other group member contributed. Russell Hardin (1982:40–48) argues that the smaller this subgroup (or K-group as he calls it), the greater is the likelihood that the good gets provided.⁷⁰

33

⁶⁶ Glenn Snyder. 1997. Alliance Politics. Ithica : Cornell University Press.

⁶⁷ Ibid, 50-51.

⁶⁸ David Auerswald. 2004. "Explaining Wars of Choice: An Integrated Decision Model of NATO Policy in Kosovo." *International Studies Quarterly*. 48, 631–662.

⁶⁹ Russell Hardin. 1982. Collective Action. Baltimore: Johns Hopkins University Press.

⁷⁰ Auerswald, 2004, 636.

With this concept, a collective good is more likely to be provided when the group capable of providing the good (the K-group) is smaller. The smaller the group, the greater transparency makes free-riding more noticeable. When free-riding is noticed, it can result in negative side-payments or other types of negative feedback from the other members of the group and therefore provide a disincentive to free-ride. Up until now, only two variables are considered in determining whether a public good will be provided: 1) State size; and 2) K-group size. As we shall see, these variables are not sufficiently developed to attempt to answer the complexities posed by CA problems in international security. Unfortunately, the selection of Hardin's model of collective action remains disconnected from the major advances of collective action theory. Hardin ignores impure goods, joint products and aggregation technology such that his contribution to collective action theory is limited to refining slightly the Olsonian model. He also focuses primarily on prisoner's dilemmas, which are often inappropriate for the problems facing allies. By relying on Hardin's adaptation of collective action, Auerswald ignores crucial features of collective action theory.

The main problem in Auerswald's analysis is that he takes no pains to justify the characterization of the collective action problem.

There were at least two collective goods in question during the Kosovo conflict. The first was stopping ethnic cleansing (or perhaps even genocide) in Europe. A second collective good being threatened was the continuation of the NATO alliance as a viable security institution.⁷¹

First, the question of a public good for ethnic cleansing must be justified. Can moral rules be a sort of "public good", non-rival and non-excludable? This is one way to construe them. It is likely that a collective action problem is created when neighbouring countries hear of genocide if they prefer an end to the genocide but they are unwilling to bear the costs of intervention to achieve that good. Collective intervention would normally result in an optimal cost-sharing arrangement. This ignores the fact that it normally takes military intervention to stop genocide and that military intervention will produce "joint products"

⁷¹ Auerswald, 2004, 637.

where private benefits are accrued along with the moral (public) ones. The "joint products" model has been identified as a characteristic of public good provision due largely to the fact that most impure public goods are jointly produced with private goods. A model that ignores the side products created along with military intervention to force an end to genocide will inevitably understate the benefits to intervention. The error will likely cause analysts to expect mutual defection and instead find evidence of cooperation. Even if stopping genocide is a pure public good, the intervention required to stop it is not simply the collective provision of a pure public good. Rather, it will produce a complex set of strategic "multiple outputs" with "benefit exclusion" to those who do not participate in the intervention.

Second, the "continuation of the NATO alliance as a viable security institution" is too nebulous to be a collective good: it is tautological. NATO is not an end in itself but rather a means to an end. Hence, NATO provides collective security goods and by definition cannot itself be a collective good. However, if NATO is a security club then perhaps some contributions are not directly related to the payoff of the current security problem but rather more generally contributions to maintain status, access and long-run stability within the club.

Finally, it should be noted that some political scientists have applied the logic of collective action without making wrong assumptions or misapplying the theory. The one work that succeeds in doing this is Robert O. Keohane in *After Hegemony*. Relying on the presumption that regimes evolve out of collective action success and where common interests dictate common responses, he has made theoretically informed observations based on the solid foundation of collective action theory.⁷²

Todd Sandler establishes two tests for pure publicness of the good in question.⁷³ The first is to look for a high level of co-relation between income levels and the burden being shouldered.⁷⁴ This is based on prior research that has shown that financing public

⁷² Robert O. Keohane. 1984. After Hegemony: Cooperation and Discord in the World Political Economy. Princeton: Princeton University Press.

⁷³ Sandler, 2004, 204.

⁷⁴ Ibid.
goods without enforcement provisions is done disproportionately by the rich.⁷⁵ The second method is to look for "benefit proxies that are correlated" with burdens, consistent with the joint products explanation.⁷⁶

The above-mentioned cases represent a simple critique of previous applications of collective action theory. The current literature applying the principles of collective action to military alliances, with notable exceptions, has not kept pace with the multiple developments in collective action theory. In particular, attention must be paid to joint products, club and impure goods and summation technology in order to capture in our analysis of alliance interaction the truest representation of the operative incentive structures. The typological analysis of "collective goods" must be approached rigorously and examine the type of goods being demanded and supplied. The next chapter will examine the ways in which collective action theory applies to questions of international security and the implications for collective action success.

⁷⁵ Hirofumi Shimzu and Todd Sandler. 2002. "Peacekeeping and Burden-Sharing, 1994-2000." *Journal of Peace Research*. 39(6), 651-68.

⁷⁶ J. Khanna, and Todd Sandler. 1996. "Burden Sharing in NATO: 1960–1992." Defence and Peace Economics 7(2): 115-133.

Chapter 2. International Security Cooperation and Collective Action

Alliances are one form of security relationships among many. David Lake shows how security relationships between states form over time as a result of cost-benefit incentive structures in IR. In this view, decisions to form security relationships are pathdependent in that they determine the cost-benefit incentives for future cooperation. For the purposes of problem-based analyses, security relationships can be exogenous variables that impose costs for any given security problem. Lake suggests a continuum of security relationships between states that can emerge: alliance, sphere of influence, protectorate, informal empire, and empire.⁷⁷

Different definitions of the term "alliance" exist. The most formal, and most common, definition is of written agreements between states for future security cooperation (conditional or otherwise). Another, more encompassing definition is any formal or informal agreement between states to cooperate on security matters. At the heart of the matter is a general agreement on the condition of anarchy in international politics. Yet even anarchy is not unproblematic, as a closer look at David Lake's view of security relationships will show. To neorealists, talk is cheap and alliances are pieces of paper that formalize alignments. A more liberal view sees "talk" as a costly signalling mechanism that is undertaken to lock in benefits of cooperation under the uncertainty of the future. A more paradigm-challenging definition is that of Lake, where anarchy is not given and alliances are only the most anarchic form of security cooperation agreements.⁷⁸ The dynamics of international collective action suggest that the anarchy assumption needs to be revisited. Security relationships can resemble clubs, where both short-term security goods and long-term club relationships entail cost-benefit trade-offs. Moreover, whether talk is cheap or not depends more on what benefits accrue to the members of security clubs. The definition of alliance here is a contingent contract, written or unwritten, for future collective security cooperation.

⁷⁷ Lake, 1999.

⁷⁸ Ibid.

International Security Cooperation and Collective Action

International politics is a rich tapestry of relationships.⁷⁹

The international state system is founded upon the principle of state sovereignty, a "convenient fiction" invented to keep external influences from dictating terms to local princes.⁸⁰ Given the lack of international enforcement mechanisms and the geographic dispersion of state actors, it can be said that international problems must solved through coordinated solutions. It is under this premise that it can be said that the study of international relations implies understanding the guiding motives of collective international action.

The assumption of anarchy in IR is a common point of departure for many analysts: Both realist and liberal analyses rely on this assumption.⁸¹ Yet the anarchy assumption becomes problematic in the face of hierarchical security relationships or in the case of clubs. Abbott and Snidal argue that there "is no nuanced account of the forms of cooperation because the anarchy assumption makes IOs and other institutions largely irrelevant."⁸²

Much as the free market and the invisible hand formed the foundation for classical economic theory, anarchy is a basic assumption used by political scientists to treat interaction in the world security market. The "international system, like a market, should reflect discrete interactions and not entail alliances."⁸³ Yet just as theorists had to explain the emergence of the firm (the *visible* hand that replaces market mechanisms for a large portion of the economy), political scientists have to explain the emergence of international organizations and hierarchical security relationships out of the anarchical system of independent states. In fact, the theory of the firm has provided a basis for the explanation

⁷⁹ David A. Lake. 1999. *Entangling Relations: American Foreign Policy in its Century*. Princeton: Princeton University Press, 27.

⁸⁰ Stephen Krasner. 1999. Sovereignty: Organized Hypocrisy. Princeton: Princeton University Press. ⁸¹Lake, 1999, 27.

⁸² Abbott and Snidal, 1998, 6.

⁸³ Arthur A. Stein. 1990. Why Nations Cooperate? Ithaca, NY: Cornell University Press, 152.

of the emergence international cooperation and institutions.⁸⁴ Instead of beginning with anarchy, analysts like David Lake begin with a basic observation of international life. Hierarchy has been a fact of international life since the birth of the first empire. While anarchy may describe adequately the relations amongst 19th century Great Powers in Europe, the application of the anarchy assumption across time and space in IR simply does not stand up to empirical observations.

To Lake and others, alliances are simply a form of security relationship among many, with a particularly low degree of hierarchy among dyads.⁸⁵ These relationships are differentiated along a continuum of hierarchy. In this view, alliances can result when states "pool resources in pursuit of some common security objective while retaining complete authority over all areas of decision making... In an alliance, then, both parties remain fully sovereign."⁸⁶ However, other types of security relationships can emerge, like empires. In the case of empire, a hierarchical relationship exists where resources are centrally managed, security is the responsibility of the imperial centre, and principalities trade autonomy for security.

Alliances, in Lake's view, are the product of joint economies: "Alliances and other relatively anarchic security relationships are most likely when there are substantial gains from joint production, little risk from pooling resources with others, and only slight costs to monitoring and enforcing relationships."⁸⁷ In Lake's view, alliances are a "relational contract" where security "firms" are created to maximize profits with given cost constraints. Contracts are formed to attempt to limit the opportunistic behaviour by partners, regularize exchanges by diminishing and controlling uncertainty and minimize transaction costs. In other words, mutual gains are achieved by bi-laterally agreeing to forego the opportunity to exploit the other. As such, alliances achieve a non-zero sum benefit for the contracting parties. One of the main causal conditions that allow alliances to

⁸⁴ Keohane, 1984.

⁸⁵ Lake, 1999; J.D. Morrow. 2000. "Alliances: Why Write Them Down?" Annual Review of Political Science 3, 65.

⁸⁶ Lake, 1999, 27.

⁸⁷ Ibid.

form is the existence of joint products, where security cooperation increases overall benefits while decreasing total costs or holding them equal.

Security Relationships and Coalitions.

Coalitions will only emerge in the more anarchic security relationships, ie. alliances and sphere of influence relationships, because in more hierarchic structures the empire will provide security due to economies of scale, division of labour benefits and centralization of authority. In this typology, security relationships emerge and endure based on underlying joint productions and cost structures, thus making them long-run security solutions. If alliances are a form of relational contract, then the emergence of military coalitions between allies is the exercising of an option in that contract or the exercising of the contingent promises of the contract. The same may also be said for sphere of influence relationships. Therefore, the underlying security relationship will act as an independent causal condition influencing the level of military cooperation on any given common security problem. Overall, coalitions will be more likely to form between allies or states within the sphere of influence of another state. In this view, coalitions are a short-term phenomenon conditioned by the same underlying conditions as Lake's relational contracting theory. These coalitions, rather than be contracts for relationships, are contracts for concrete objectives in international security and are therefore self-terminating.

It is not necessary to rely on the assumption of anarchy in international relations to evaluate the costs and benefits of security cooperation. Rather, where alliances exist we are likely to find an important level of joint products making security cooperation optimal for multiple states. When unforeseen security problems arise relational contracts will at least partially regulate the response of the states. The same joint products that help form a cooperative security relationship may exist when unforeseen security problems arise.

Security as a Good

International security can properly be treated as a good because empirically nearly all states are willing to pay dearly for it, either in blood, cash, opportunity costs or autonomy costs. Rational choice theorists often theorize problems in security cooperation as "goods" in order to apply economic logic.⁸⁸ This is often done without clearly defining what constitutes a "good". This results in abstract formulations that lack specification.

Some alliance literature assumes that states are rational actors in a security marketplace where security is scarce and is a normal private good.⁸⁹ Yet, how private is state security? Does an increase in one state's security not spill over to other states? Is each unit consumed by one state is entirely unavailable to other states? Rather than being a theoretical question, this question is best answered empirically. Security goods can neither be assumed to be private nor purely public.⁹⁰ Rather, security goods can be explained using reference to the excludability and rivalry of benefits. Jointly produced goods can exist where one act of collective cooperation results in a variety of benefits.

Although security among states demonstrate the properties of club goods (full excludability and partial rivalry), most analysts ignore these properties because club theory is not well integrated into the micro-economic models in the IR theory domain. This analytical mistake can lead to misapplication of micro-economic theory, yet much of the literature does not define security as a good. Analysts should follow a simple test: for example, a product can be a good if buyers and sellers create a market to exchange goods (at a price). Defining the properties of exchange, the opportunity cost and benefits, possible externalities and the like is a necessary prerequisite to a full analysis of micro-economic applications in alliance theory.

Costs in International Security

Alliances impose costs and have security benefits.⁹¹ Some of the major costs are in autonomy⁹², transaction costs, the risk of entrapment and the risk of opportunism.

⁸⁸ M. Altfeld. 1984. "The Decision to Ally: A Theory and Test." *The Western Political Quarterly* 37(4): 523-544.

⁸⁹ Altfield, 1984. A good is normal when an agent's preference for that good rises with their income level. Ie. The more they can afford, the more they will buy.

⁹⁰ Morrow, 2000, 63.

⁹¹ Altfield, 1984; Morrow, 2000; and T.C. Morgan and G. Palmer. 2003. "To Protect and Serve: Alliance and Foreign Policy Portfolios." *Journal of Conflict Resolution* 47(2): 185-186.

⁹² Altfeld argues that alliances are security goods that are produced at the (opportunity) cost of autonomy. "So far in the analysis I have treated security as a standard economic good. This is not quite correct, however.

According to Altfield, states choose to arm themselves for defence or ally themselves based on their costs of arming and allying.⁹³

Different types of security agreements have different autonomy costs. For example, a non-aggression pact would have much less autonomy costs than a collective defence agreement that obliges states to defend one another under a given set of conditions. This difference would be crucial to explaining why some states formed an alliance and others did not; varying the costs is sure to influence the outcome of rational decision-making. States spend a great deal of time negotiating agreements because they expect to be held to them.⁹⁴

A study of US-led coalitions by Atsushi Tago tests various hypotheses regarding their formation.⁹⁵ Tago shows that sharing a principal language and a formal alliance partnership with the US increases the chances of states joining US-led coalitions. His results also show that states are less willing to join US-led coalitions when they are not invited by host governments to intervene. Furthermore, states are more likely to join US-led coalitions that enjoy UN Security Council legitimacy. Tago's data leads to an identification of some costs involved in coalition decision-making.

1. Sharing a language with the US reduces the potential costs of joining one of its coalitions;

2. Geographical proximity to conflict areas increases the chances for negative spill over and the possible benefits from cooperation.

3. An invitation from a host government decreases the potential costs of military conflict (less bloodshed, less demanding of military resources) and the costs of domestic

⁹⁴ Abbott and Snidal, 1998, 4.

42

The reason for this is that security is not purchased by the government but rather produced by it out of inputs. The government is thus both the producer and consumer of security." Altfield, 1984, 524.

⁹³ Jack S. Levy and Michael N. Barnett. 1992. "Alliance Formation, Domestic Political Economy, and Third World Security." *Jerusalem Journal of International Relations*. 14(4), 19-40.

⁹⁵ Atsushi Tago. 2006. "Why Do States Join Us-Led Military Coalitions? The Compulsion of the Coalition's Missions and Legitimacy." *International Relations of the Asia Pacific*. 00, 1-24.

and international opposition (ideological opposition can impose political costs both at the national and international level).

Benefits

The benefits of international security cooperation can be tangible in terms of assets, rights, or trade opportunities. Benefits can also be expressed in terms of political influence.⁹⁶ In analysing the cost-benefit decisions of states, these benefits should be stated explicitly.

Alliances as Security Products

Not every form of security cooperation results from an alliance or results in an alliance.⁹⁷ Alliances are thus construed as agreements for future security cooperation (contracts with varying degrees of enforceability). In general, they depend on contingencies and leave room for freedom of action on the part of each allying state. Security cooperation such as coalition contributions is possible without a formal alliance agreement. Alliances are but one form of security cooperation between states.⁹⁸ In fact, alliances are neither necessary nor sufficient conditions for security cooperation in war.⁹⁹ Figure 2.1 illustrates the suggested overlap between alliances as future cooperation contracts and ad-hoc coalitions as current arrangements, since forming an alliance does not guarantee universal security cooperation between states.¹⁰⁰

⁹⁶ For example, "a hegemon may become the world's cop because it then has more input in setting the world's agenda." Sandler, 2004, 35.

⁹⁷ B.A. Leeds. 2003. "Do Alliances Deter Aggression? The Influence of Military Alliances on the Initiation of Militarized Interstate Disputes." *American Journal of Political Science* 47(3): 427-439.

⁹⁸ Lake, 1999, 17.

⁹⁹ Stein, 1990; Morrow, 2000.

¹⁰⁰ Proportions are for illustrative purposes only and are not drawn based on empirical data.





To realists, alliances and alignment are interchangeable terms that have no independent typological meaning.¹⁰¹ This is because both are expressions of the same causal variable: the distribution of capabilities across the system.¹⁰² To realists, talk is cheap and formal agreements are ephemeral. In contrast to the realist view, the liberal view sees alliances as carrying both commitment and opportunity costs and security benefits. Rational states trade off costs to maximize their security benefits within budget constraints. Stephen Walt rejects the use of formal agreements to define alliance relationships. He uses the terms alliance and alignment interchangeably and argues that "an attempt to employ a strict typology of alliance commitments could easily be misleading because the true meaning of either formal or informal arrangements is likely to vary from case to case."¹⁰³ The hypotheses generated by applying CAT to international security problems should be careful to include both informal and formal alliances in order to prevent selection bias and examine the role of formalities in the cost structure of international cooperation. In

¹⁰¹ Stephen Walt, 1987. *The Origins of Alliances*. Ithaca, NY: Cornell University Press; Levy & Barnett, 1991; Snyder, 1997; Morrow, 2000, 76.

 ¹⁰² K. Waltz. 1979. *Theory of International Politics*. Reading, MA: Addison-Wesley.
 ¹⁰³ Walt, 1987.

possible to explain why some alliances are formalized and some are not. In the case of adhoc military coalitions, formalities may be kept to a minimum in order to pursue a more or less temporary alignment of interests around a commonly perceived collective security good.

The concept of joint products has been introduced to demonstrate that collective goods are often jointly produced along with private goods, avoiding sub-optimal provision through private incentives.¹⁰⁴ States pursue security policies, alliances and coalitions based on the private incentives that arise from joint production of security goods. This has a major impact on how alliances are analyzed. The common mistake in applying collective action theory to alliances is the presumption that alliances provide pure public goods. Writing in 1980, Sandler and Forbes stated that "changes in the seventies no longer allow for the straightforward application of the pure public good model to alliance behaviour."¹⁰⁵ Furthermore, the "change in NATO's military strategy, the development of new weapon systems, and the increase of disputes exogenous to the East-West split favour the application of the joint product model, since rivalry in consumption, multiple outputs, benefit exclusion, and private benefits are increasingly characterizing modern alliances."¹⁰⁶ Even the deterrence that alliances provide is not truly public: it carries elements of impurity (ie. it is partially excludable).

Military Coalitions as Ad-hoc Security Cooperation

Why Alliances do Not Equal Coalitions: Coalitions as Operational Cooperation

Within alliances varying levels of operational cooperation can exist for individual security problems. An alliance can exist between two states though the states may not necessarily cooperate closely on every security problem. An alliance does not necessarily create a formal obligation to contribute operationally to coalitions. For example, the long-standing Anglo-American alliance did not cause the UK to cooperate in the American-

¹⁰⁴ Lake, 1999.

 ¹⁰⁵ Sandler, T. and J. Forbes. 1980. "Burden Sharing, Strategy, and the Design of NATO." *Economic Enquiry* 18: 426.
 ¹⁰⁶ *Ibid.*

Vietnam war in the 1970s. Alliances are co-related to coalition formation: in fifteen cases of US led coalitions since the Korean War, states were 3.8 times more likely to join if they had formal alliances with the US.¹⁰⁷ A longstanding and highly institutionalized alliance such as NATO reduces the costs involved in ad-hoc military coalition formation, relies on pre-existing command structures, force assets and standard operating procedures which forms the basis for latent inter-operability between long-standing allies. In economic terms, institutionalized alliances increase the substitutability of military capabilities within the alliance and decrease substantially transaction costs. Second, alliances are dependent on states threat assessments. Collective security agreements, such as the North Atlantic Treaty, institutionalize threats such that threats to one member of the alliance are considered, formally, to be a threat to all its members. Third, long-standing alliances reflect and reproduce shared inter-subjective ideas of political and world order, and hence make shared threat assessments, common discourse, similar prescriptions and coalition cooperation more likely within the group than would be generally found. Formal alliance relationships influence a state's decision to contribute to coalitions by reducing the barriers to cooperation.

According to Glenn Snyder, the "most important determinant" within the alliance security dilemma is "the relative dependence of the partners on the alliance-how much they need each other's aid."¹⁰⁸ The alliance dependence hypothesis makes an implicit assumption of hierarchy, where one state relies on security guarantees made by another state. Using Lake's continuum of security relationships, the more dependent an ally is upon its allies for security, the more hierarchical the security relationship. Moreover, as the specific security benefits to the dependent ally increase, the more influence the benefactor will have over the dependent ally. This influence will permit the stronger benefactor to impose negative side payments or threaten to withhold security benefits to prevent defection or free riding. This can cause what Snyder, Lake and others have termed as "entrapment": when allies are forced into conflicts they would otherwise avoid by the

46

¹⁰⁷ Tago, 2006, 19. ¹⁰⁸ Snyder, 1984, 471.

actions of one of their allies.¹⁰⁹ Alliance dependence is therefore both a function of the security benefits and expectations of benefits, and positively co-related to hierarchy within a security relationship.¹¹⁰ The dependency may create cost expectations on the part of allied states that have to decide whether to contribute or not to coalitions, especially if a dominant ally wishes to collect contributions. These costs are relatively fixed for each given security problem. Only operating costs and opportunity costs, a fraction of sunk costs, vary depending on contribution decisions. In the face of leader decisions to act, small states contribute strategically to maximise their returns in a situation where most of their costs are already sunk.

Coalition Contributions as Collective Action Problems

Coalition warfare is older than the Peloponnesian War. Coalition warfare is a peculiar subspecies of warfare because it *presupposes operational cooperation between two or more states to achieve a mutually preferred strategic end state,* while individual strategies may vary. Coalition warfare is much more prevalent in IR since the end of the Cold War, and seems to have become a dominant strategy on the part of the United States in achieving its strategic goals.¹¹¹ Theoretically, alliances are prior to coalitions because the preferred strategy of non-aggression between states is a logical pre-requisite to operational coordination. This does not preclude the possibility of simultaneous alliance and coalition formation between two or more countries; however, previous work has shown that there is a strong positive correlation between an existing alliance with the United States and a decision to contribute to a US-led coalition.¹¹² Coalition formation is more of a CA problem in anarchic security relationships such as alliances because in hierarchical security relationships contributions are allocated centrally.

Coalitions are coordinated solutions to common security problems. Successful coalition formation occurs when states in a contribution game have dominant strategies¹¹³

¹⁰⁹ Ibid.; Bueno de Mesquita, B. 1981. The War Trap. New Haven, CT: Yale University Press; Lake, 1999.

¹¹⁰ Snyder, 1984.

¹¹¹ Lake, 1999, 217.

¹¹² Tago, 2006, 19.

¹¹³ A dominant strategy occurs when the structure of the game permits a player only one play in which he will be better off regardless of what the other player plays.

to contribute. Dominant strategies in turn depend on the user-specific benefits of cooperation. The distribution of costs and benefits for a particular problem will depend on systemic, state-level and technological factors. Collective action theory does not itself explain the existence or interaction of these factors. Coalition contributions can be explained by identifying the structure of the collective security problem, the type of public and impure public goods, and the various possible outcomes. By examining these aspects, it can be shown under what causal conditions individual rationality will be sufficient for successful collective outcomes. This proposition will form the underlying methodological assumption for the case study in Chapter 3.

Coalitions by their nature will tend to abide by a threshold technology when information about adversaries is adequate. In principle, no rational state will fight an offensive war without the necessary capabilities to win or without a chance of winning.¹¹⁴ Even a defensive state fighting for its survival will likely capitulate to the aggressor once it believes it has no chance of defending itself successfully. This hypothesis was powerfully tested when the US dropped nuclear weapons on Japan to force the end of the Second World War. When faced with a security problem they must gather the necessary forces before addressing the problem. If the necessary capabilities are not gathered then no action will be taken. Some sub-optimal coalitions can be formed in conditions of uncertainty where states misjudge their own strength, the strengths of their allies or the strengths of their enemies.¹¹⁵ In general, coalitions must achieve a minimum of forces available in order to be viable. This hypothesis may be difficult to test because some weak coalitions never form due to not meeting a threshold, while some aborted UN peacekeeping missions may actually provide test data. The threshold technology may create a selection effect or bias where unformed coalitions are not considered at all and therefore effectively ignoring effectively the null hypothesis. This selection effect may be avoided by studying the transition from "non-coalition" to "coalition" using process-tracing or comparative techniques. With a threshold aggregation technology public goods will tend to be provided

¹¹⁴ Bruce Bueno de Mesquita, James D. Morrow, Ethan R. Zorick. 1997. "Capabilities, Perception, and Escalation." *The American Political Science Review* 91(1), 15-27. This is not to state definitively that all states act rationally. It is an assumption built into the examination of actor's choices in collective action problems.

once a leader steps forward particularly when the leader has a large comparative advantage in supplying the good, such as the US does with respect to security.¹¹⁶ This is because other actors see that if the leader's contribution is not sufficient to achieve the threshold, then their contributions are necessary for everyone to enjoy the benefit of the good. As long as refunds are possible if the threshold is not reached, actors will tend to contribute towards the threshold.¹¹⁷

In coalition warfare, advanced military contributions may be roughly substitutable. The substitutability of forces will affect how contributions are aggregated. Where substitutability of forces varies widely across a potential coalition some coalition members will contribute proportionately less than others.

Collective Action: Club Theory Applications in International Relations

"A club is a voluntary group deriving mutual benefits from sharing one or more of the following: production costs, the members' characteristics, or a good characterized by excludable benefits."¹¹⁸

Collective action theory has been applied in IR since 1966.¹¹⁹ The theoretical applications to IR problems have advanced in its complexity and analytical power in the last 40 years. Collective action in IR "takes as the problematic of international governance the existence of coordination and collaboration problems requiring collective action."¹²⁰ Theories of collective action have been applied to "vast and diverse set of institutions and groups ranging from interpersonal relationships to international alliances such as NATO and the UN."¹²¹

¹¹⁵ Ibid.

¹¹⁶ Sandler, 2004.

¹¹⁷ If the threshold is not reached, contributors get refunds and are not penalized and if the threshold is reached, they take home the benefits of the public good or impurely public good.

¹¹⁸ T. Sandler and J. Tschirhart. 1997. "Club Theory: Thirty Years Later." Public Choice 93: 335.

¹¹⁹ Olson and Zeckhauser, 1966.

¹²⁰ Abbott and Snidal, 1998, 6.

¹²¹ T. Sandler, J. Cauley and J.F. Forbes. 1980. "In Defense of a Collective Goods Theory of Alliances." *Journal of Conflict Resolution* 24: 538; see also Olson and Zeckhauser, 1966, K.A. Oye. 1986. *Cooperation under Anarchy*. Princeton: Princeton University Press; Snidal 1985; Abbott and Snidal, 1998.

Mancur Olson and Richard Zeckhauser's "Economic theory of alliances" used the premises of Olson's work on collective action. What resulted was a study of NATO "burden sharing" where they found evidence of exploitation of the great by the small. This result bolstered the Olsonian model and its applicability to alliances and international security. This study was followed by later studies of alliances where CAT became a leading explanatory vehicle in explaining state choice within alliance relationships.¹²² However, the application of the collective action theory in alliance literature halted at the Olsonian model, the exception being the work of Todd Sandler and his collaborators.

As discussed in Chapter 1, club goods should be optimally provided because they do not suffer greatly from the free-rider problem and allow an equitable distribution of benefits and costs among users.¹²³ Security competition between clubs may be best analysed through the realist paradigm where relative gains concerns, balancing, misperception, and the security dilemma are likely to hold. Security cooperation within clubs is best seen as the provision of impurely public security goods that are excludable, partially rival and dependent on shared tastes/preferences (threat assessments, language, socio-economic ties, cultural affinities, etc.). While the application of the logic of collective action brackets preference formation, other approaches such as the constructivist approach may offer suitable explanations. Alliances that become reliable security relationships with cost-sharing arrangements become essentially clubs. Coalitions that form around specific security problems may use existing clubs or expand existing clubs to provide the good in question. The logic of collective action can help analyze the structure of incentives and technologies of supply that act as causal conditions for club formation or the collective provision of collective goods. Many international security problems can be

¹²² T. Sandler, F.P. Sterbenz, and J. Tschirhart. 1985. "Uncertainty and Clubs." *Economica* 52(4): 467–477. Sandler, T. and J. Tschirhart. 1993. "Multiproduct Clubs: Membership and Sustainability." *Public Finance* 48(2): 153–170. T. Sandler. 1977. "Impurity of Defense: An Application to the Economics of Alliances." *Kyklos* 30(3), 443-460; Sandler and Forbes, 1980; J.C. Murdoch and T. Sandler. 1982. "A Theoretical and Empirical Analysis of NATO." *Journal of Conflict Resolution* 26(2): 237–263; Kupchan, 1988; Bennett, *et al.* 1994 and 1997; K. Hartley and T. Sandler. 1999. "NATO Burden-Sharing: Past and Future." *Journal of Peace Research* 36(6): 665-680; Auerswald, 2004.

¹²³ Fratianni, M. and J. Pattison. 2001. "International Organisations in a World of Regional Trade Agreements: Lessons from Club Theory." *The World Economy* 24(3): 333-358.

reformulated as club goods.¹²⁴ Pure public goods are very rare, and impure public goods are often provided due to the existence of selective incentives, repeat iterations, cooperative conditions, information availability and other causal conditions sufficient for collective action. In general, the message is optimistic: optimal good provision will occur in many cases where club arrangements avert market failure.

Clubs form around security problems when there is 'homogeneity of tastes' and where multiple 'firms' share the same good or basket of goods. Within the international arena, shared threat assessments can be viewed as homogeneity of tastes. The more these threat assessments are identical, the more identical are the proposed security solutions. Therefore, security clubs should form around some shared preference, either for a given institutional structure or a particular security arrangement.¹²⁵ This does not require members to pursue identical strategies: cooperation dilemmas can emerge within clubs. Club theory requires dominant providers because initial start-up costs are high, but price exclusion can later ensure and adequate distribution of costs.¹²⁶ This area of research can be applied to myriad international cooperative ventures:

Clubs also characterize international political economy. Crisis management forces... can be dispatched in a club arrangement to member countries, whereby the recipient is charged a user fee for each dispatch. Research and expert groups of scientists are also shared internationally, as are military forces.¹²⁷

In the case of international organizations, club rules will affect the optimal club size.¹²⁸ Clubs dominated by a single great power who funds much of the club's resources may wish to preserve their control by insisting that the smaller members not be able to overwhelm them with their numbers. This is evident in, for example, the management o the International Monetary Fund where voting power is directly matched to contribution rates,

¹²⁴Sandler *et al.*, 1980; Murdoch and Sandler, 1982; J. Khanna and T, Sandler. 1996. "Burden Sharing in NATO: 1960–1992." *Defence and Peace Economics* 7(2): 115-133.

¹²⁵ Not all security problems will become club goods; in some cases no shared solution will emerge between independent countries.

¹²⁶ Sandler and Tschirhart, 1997, 334.

 ¹²⁷ T. Sandler. 1992. Collective Action: Theory and Applications. Ann Arbor: University of Michigan Press.
 73.

¹²⁸ Fratianni and Pattison, 2001, 337-338.

protecting the richest countries from exploitation by the majority of poorer ones. In a heterogeneous club characterized by inequality of means simple majority governance rules are unlikely. Institutional arrangements can become an endogenous variable for determining membership and provision levels in international organizations. The use of club theory to analyze military alliances has only been done by economists.¹²⁹

Club theory can be expressed in game theoretic terms, depending on the assumptions being made by the analyst. However, some of the normal game assumptions are restrictive and inappropriate in many international security problems. Game theory "helps to establish the optimum number of clubs and their stability of composition, although... some generality is sacrificed in the formulation since provision determination is pushed to the background."¹³⁰ Whereas public goods are best analysed using noncooperative game assumptions, the voluntary nature of club membership makes enforcement possible through expulsion from the club. N-person cooperative game theory "is most appropriate" where enforcement is possible.¹³¹ The game theoretic possibilities allow analysts to identify stable sets of coalitions. Moreover, clubs can ally with one another to form "clubs of clubs". Some military coalitions resemble this "clubs of clubs" scenario, the most notable example being the 1991 Persian Gulf War, where an overlapping membership of G7 nations, NATO members, Gulf Cooperation Council members and Arab League members formed to oust Iraq from Kuwait.

The economic theory of alliances has undergone an evolution from using a public goods model to a club goods model, recognizing the impurity of many alliance defence goods. The public goods model of defence first advanced by Olson and Zeckhauser in their article "An Economic Theory Of Alliances," failed to account for adequate burden-sharing between allies and overestimated the tendency of exploitation and free-riding. Sandler's innovation was to apply the club analogy to defence production, noting that "defense may

¹²⁹ Olson and Zeckhauser, 1966; T. Sandler and J. Cauley. 1975. "On the Economic Theory of Alliances." The Journal of Conflict Resolution 19(2): 330-348.; Sandler and Tschirhart, 1997. ¹³⁰ Cornes and Sandler, 1986, 197.

¹³¹ Ibid., 196.

exhibit impurity with respect to divisibility of benefits. In many instances, a unit of defense production renders less than a full unit of benefit spillovers to the other ally."¹³²

Congestion properties are inherent in certain defence products, e.g. military training, intelligence sharing, telecommunications bandwidth, etc.¹³³ The implication for defence analysis and international relations is that some defence goods will be optimally provided through club-like arrangements. The existence of dominant providers and exclusion mechanisms will help to ensure that market failure is avoided and marginal cost sharing is imposed: For example an "alliance that shares conventional armaments or a 'Star Wars' defence is a club, since non-contributors may have their protection withheld."¹³⁴ Alliance goods can include such impure public goods as influence, protection guarantees, over-flight rights, access to bases, and intelligence. In all of these cases, these goods are at least partially excludable and partially rival.¹³⁵

The NATO alliance shares defence goods and provides mutual defence assurances that act as a club good. Yet it also acts as a more general security club where economies of scope permit the organization to provide a multiplicity of goods:

If economies of scope truly characterize international organizations, then these institutions should provide multiple collective goods. This, indeed, appears to be the case. The NATO alliance, for example, not only provides defence, but also polices illicit drug trade, improves highway safety throughout Europe, and facilitates scientific research.¹³⁶

With a defined membership that is sought after by many countries in European countries NATO membership confers reputational enhancements, security guarantees, intelligence sharing, access to training, defence facilities, weapons transfers and a host of other private benefits. Many of these goods are almost private yet share some public characteristics.

53

¹³² Sandler and Cauley, 1975, 341.

¹³³ Ibid.

¹³⁴ Sandler, 1992, 64.

¹³⁵ According to Frattiani and Pattison: "The ability of a club to exclude non-members from the activity of the club is never perfect: witness the positive externality provided by NATO to non-members." See Frattiani and Pattison, 2001, 339.

¹³⁶ Sandler, 1992, 127.

These goods are collectively provided to club members because there are economies of scale and scope and because there is only partial rivalry of consumption. Intelligence is one of those areas where once the information is available; it can be shared between users at a very low cost. However, if it shared too widely, its value is diminished. Influence on regional security policies is another area where additional influencers diminish somewhat the strength of the influence of partner states. There is evidence that the US considers quite carefully the cost-benefit trade-off of NATO expansion in particular.¹³⁷ Where additional costs are to be incurred by the US, the offsetting benefits are proposed to be: economic benefits of increased arms trade with new members, increased political influence and collective security benefits.¹³⁸ Where these benefits are perceived to be low, the tendency is to require new entrants to pay the entire cost of the expansion. Fundamental to the proposal of new membership is the principle that costs should be paid by those who benefit.¹³⁹

One study applied the lessons of club theory to regional trade agreements (RTA) with success; it notes that "there is a theory [club theory] with significant explanatory power behind the formation and performance of IOs, but this theory is rarely noted."¹⁴⁰ Their study demonstrates how the logic of clubs can show how individual rationality provides for collectively rational solutions. National trade barriers erected worldwide contribute to market failures where a demand for cooperation exists but cannot be easily negotiated due to the large number of actors, the ability to free ride and the difficulty of enforcing agreements. In contrast, regional trade agreements have emerged as local club arrangements to reduce trade barriers due to the existence of a smaller number of actors and the presence of dominant providers who can enforce club exclusion mechanisms.¹⁴¹

Take the main implication of the theory of clubs: from the point of view of an individual country, the optimum amount of cooperation is reached where the ratio

141 Ibid.

¹³⁷ Carl Ek, 1998. *NATO Expansion: Cost Issues*. Congressional Research Service: Washington, DC. Report 97-668 F.

¹³⁸ Ibid.

¹³⁹ Ibid.

¹⁴⁰ Fratianni and Pattison, 2001, 334.

of the share of its benefits in the club to the share of the cost times the marginal benefits for the group as a whole equals the club's marginal costs.¹⁴²

Accordingly, the incentive structure of the international economic world order in the post-World War II era allowed the creation of many international organizations backed by the US, which was willing to bear a disproportionate amount of the costs involved because US economic output amounted to a majority of the world economy.¹⁴³ As this hegemonic economic position has seen a relative decline, the increasing failure of some of those original multilateral institutions is rooted in the shifting incentives towards a more equal burden sharing for the costs of cooperation.¹⁴⁴ The existence of private and club goods in the area of international cooperation meant that in those areas with club-like arrangements, cooperation was able to survive the relative decline in the American willingness to pay for cooperation. Accordingly, NATO countries assumed a greater proportion of the defence burden as their relative economic benefits increased through the 1960s and afterwards. The emergence of regionally based club-like arrangements to increase trade efficiency by lowering barriers is based on the ability of regional leaders to structure the regional agreements to provide collective goods through effective cost-sharing arrangements.

The emergence of international military coalitions offers an opportunity to observe club-like behaviour in the provision of collective security goods. For example, Sandler makes a convincing argument that the Persian Gulf War was conducted in a club-like arrangement between coalition partners. The United States was able to collect financial contributions from more than six states, including Kuwait, for its actions in defence of the small Gulf state. Total contributions eventually tallied to nearly the entire cost of the Gulf War effort.¹⁴⁵

In security clubs many of the membership benefits are excludable, especially if a dominant provider is able to provide enforcement through selective incentives. Moreover, there are reputational considerations that increase the likelihood that membership will be

¹⁴² Ibid, 334.

¹⁴³ Lake, 1999.

¹⁴⁴ Lake, 1999.

seen as conferring influence on either a specific process or a general ability to voice concerns. Canada, for example, displays a great deal of concern for demonstrating that it "pulls its own weight" in international organizations.¹⁴⁶ One of the main features of Canadian foreign policy has been to contribute to multilateral organizations whose membership benefits include influence and reputational benefits.

Another of the implications from club theory for military alliances and coalitions is the possibility of identifying an optimal membership size. Club theory takes membership size as an endogenous variable, with an optimum membership level for every value of fixed and variable costs along with utilities associated with the club's goods.¹⁴⁷ Club theory could be used to analyze the question of NATO enlargement where club size is the main problem. In the case of NATO enlargement, club theory would recommend against adding members if there was a significant chance that new members would add more costs than benefits.

In military coalitions, an optimum membership size is likely to exist since additional members impose costs without necessarily adding to the aggregate output. If a threshold is involved, then contributions beyond the threshold will add costs without adding benefits, becoming sub-optimal. New members could impose entrapment costs on the coalition. If membership in the coalition confers voting rights in the setting of military strategy, then each new member decreases the relative voting power of the other members. If the security benefits brought to the remainder of the coalition by adding new members are relatively scarce, then membership will be restricted to maximize benefits to the club members. In such a case, club theory could be used to show that, using a given estimate of benefits and costs, that adding new members to the coalition would decrease the optimality of the security arrangement and destabilize the agreement. Therefore, as military coalitions form,

¹⁴⁵ US Department of Defense. 1992. Conduct of the Persian Gulf War: Final report to Congress. Washington, D.C.: GPO.

¹⁴⁶ For example, when deploying troops abroad Canada has been very diligent in considering whether its contributions will be viewed by the United States as contributing favourably to alliance goals. This occurred when the Canadian government deployed troops to Afghanistan with the intent of supporting its NATO commitment in 2002-2003. See J.G. Stein and E. Lang. 2007. *The Unexpected War: Canada in Kandahar*. Toronto: Viking.

¹⁴⁷ Fratianni and Pattison, 2001, 339.

an optimal club size could mean that additional members are refused entry to the club. As such, non-membership in the club may not indicate a desire to ride free, but rather that contributions beyond the optimum are not accepted. Finally, membership in a club may enhance reputational considerations for both new joining members and the aggregate club whose standing is enhanced by its increased membership size or importance. For example, in the case under study in Chapter III, there is evidence that the US saw the participation of Arab countries in the coalition as a key enabler to success.

Conclusion

The different definitions of alliances in the literature make it beneficial to look at a typology of "relational contracts," where alliances are not the only security relationship. By equating alliances, alignments and security cooperation specificity is lost. These relationships emerge from rational choices based on cost-benefit functions. Alliances are a sub-set of security relationships. A typological sub-set of alliances could vary also in terms of commitment - the cost of defection – or in terms of the collective security good. This synthesis would form a common basis for discussions about alliances in rational choice security scholarship.

In international security, there are few truly public goods. For example, an increase in security for one state can easily mean a decrease in security for another, depending on intentions, available information and interpretation. Many "public goods" in international politics are actually impure public goods. Joint products occur when (impurely) public goods and private goods are produced simultaneously in the same action. When identifying public goods, the private goods that may be jointly produced and provide private incentives to state action must be identified. The array of joint products constitutes independent variables in calculating states' incentives to cooperate. If joint products are mixing private incentives with CA problems then the incentive to contribute is changed and the prognosis for supply of the good in question is improved.¹⁴⁸

¹⁴⁸The prognosis for provision of goods with joint products depends on the ratio of excludable goods to nonexcludable goods. If excludability is dominant over non-excludability, then the provision prognosis is better and CA is more likely. See Sandler, 2004, 59.

Some international organizations will act as clubs where collective goods are provided and membership tolls are exacted on members in the form of required contributions or financing. States may even contribute to collective goods that have a low benefit to them when their utility for the other club goods is high and their concern for maintaining membership in good standing is accordingly high. This will occur when clubs achieve economies of scope and are able to provide different goods (NATO is one example). Hence, some clubs that form military coalitions receive benefits that are not entirely obvious. In fact, if they do not appear to benefit from contributing then their contribution is likely best seen as a toll for side benefits related to club membership. For example, if the entire club of G7 nations contributes to a military venture, it is possible that they are revealing their preferences for a club good.

Club theory can be used to explain why international organizations with the most members are sometimes least effective in achieving their aims. Framing the costs and benefits surrounding international cooperation usually causes some methodological problems for IR researchers. Yet general hypotheses can be generated for analysis and testing and predictions related to club theory offer sufficient analytical power to investigate the incentive structures of international cooperation using the theory. Homogenous groupings of states will tend to form security clubs around shared security preferences, expressed either in outcomes or in institutional structure. Organizations that impose membership or visitation fees can efficiently provide the desired level of club goods. Where membership carries a cost, joining will occur when the exclusive benefits available to members is greater than the cost of membership and the enjoyment of the club goods.¹⁴⁹ Therefore, when military coalition contributions are proxies for membership fees, contributions will co-relate positively with benefits received within the club and from the military action. Where contributions co-relate positively to income instead of benefits, then the good in question is likely a pure public good.

Chapter 1 has shownthat the under-developed application of CAT to IR problems casts some doubt on its explanatory power. Chapter 2 has discussed the application of

58

collective action theory to problems of international security cooperation. Chapter 3 will attempt to re-analyze a previous case study, informed by more recent developments in CAT.

¹⁴⁹ Consumption (provision) will be at the intersection of cost and utility functions with equilibrium where marginal cost approaches marginal benefit.

Chapter 3. Case Study: War in the Persian Gulf (1990-1991)

The case study will include a review of the varying interpretations of the international cooperation induced by the events surrounding the Persian Gulf War. The case study will include a narrative history of the events prior to and following the Iraqi invasion of Kuwait on August 2nd, 1990. Once the US cemented an agreement to act with Saudi Arabia the security problem turned into an assurance game, at least in the minds of American leaders. In the assurance game, the US knew both its own payoff structure and the payoff structures of its allies. It could therefore fix its level of contribution at a sufficient level to demand payment from other players around the table. Because of varying language, procedures, budgets, training and military technology amongst potential coalition allies, coalition contributions are not pure substitutes for one another. Therefore, even when relative benefits may be high, some countries will not contribute military forces for reasons of cost-effectiveness. When a security leader identifies a collective good and provides it unilaterally, it can collect payment from other club members by using club relationships to exact payment.

The existence of impure public and private goods in the Gulf War problem, an assurance strategy by US leadership, and the existence of threshold aggregation technology in military coalition warfare help explain the outcome of the 1991 Persian Gulf War.¹⁵⁰ Collective action theory predicts a high level of cooperation among states with contributor-specific benefits and states that value the collective good. The public, club and private benefits of cooperation outweighed the expected costs of the contribution in state calculations for all the contributing states. Collective action in this case was a result of the causal mechanisms of individual rationality in a situation where *individual rationality was sufficient for collective rationality*.

¹⁵⁰ Sandler (1992) has hypothesized the existence of club goods in the Persian Gulf War. The proposal of applying the logic of threshold technology and the resulting assurance problem to this specific problem is unique to my analysis (to the best of my knowledge).

The research design is based on a single case and employs a process-tracing analytic explanation as a within-case plausibility probe. The plausibility of hypotheses generated with reference to collective action theory is tested by looking for congruence between the outcome and the underlying causal conditions. Since the outcome emerged over a period of approximately a year (ie. from conflict initiation to full payment from allies) a processtracing methodology is appropriate. By identifying key thresholds and the emergence of leader-follower behaviour, plausible causal relationships are identified between leadership, private/club incentives and contribution decisions. Congruence between the macrotheoretical predictions of rational choice collective action theory cannot be fully proved without running a full test of competing hypotheses. These competing hypotheses have been generally well tested in Bennett et. al. By confining the aim of the results to look for congruence between collective action predictions and the evolved outcome of the Persian Gulf War, we limit the results to confirming or infirming the plausibility of collective action theory to explain the outcome. This is useful since many past studies have claimed that collective action theory by itself is unable to adequately explain outcomes. While this may be true, the hypothesis tested here is that collective action theory is plausibly congruent with the outcome in the Persian Gulf War. A more robust claim would require much greater data collection and larger samples using cross-case methods. This analysis, consistent with the rational choice approach, relies on the unitary actor assumption. Domestic political factors are not entirely absent from the analysis, but are assumed to be exogenous cost/benefit factors used by the unitary actor to make rational choices.

The limitations inherent in the methodology adopted here are several: 1) No one causal condition can be isolated as the "tipping" condition in favour of cooperation. 2) Some assumptions of unitary actor must be relaxed to allow for the effects of two-level games. 3) The approach is highly "rationalist" and does not consider alternative approaches to the research problem; 4) The costs of non-contribution are not considered in detail, largely because "non-contribution" is not the dependent variable under consideration. Nevertheless, the costs of non-contribution do affect the cost-benefit analysis of contributing states. This analysis attempts to identify the main cost under consideration: however, some non-contribution costs may be excluded for reasons of space,

relative importance, or because they did not appear relevant in the data. Because of these limitations, conclusions are unlikely to be generalized beyond this case of collective action.

Competing Interpretations: A Case with Many Theories

There are three principal interpretations of the 1991 Persian Gulf War that bear upon the emergence of the military coalition. The first is the Bennett et. al. analysis that posits that the coalition emerged because the United States was willing to bear the burden of defending Saudi Arabia and liberating Kuwait because it had both an incentive to act (benefits) and was able to bear the costs (due to size). Countries in the Persian Gulf balanced against Iraq to offset the threat it posed and cooperated with the United States by providing basing rights, military forces and financial compensation. Countries outside the Persian Gulf area contributed to the military coalition largely as a result of their alliance links to the United States which made American requests for support harder to deny in the face of Iraqi aggression against a small neighbouring state.

The second analysis is that of "relational contracting" offered by David A. Lake. Using the theory of relational contracting (ie. the theory of the firm), Lake finds that states generally sought from among the following "positive externalities": "deterrence of further aggrandizement, the destruction of Iraq's ability to engage in regional intimidation, and the diminution [of] Iraq's leadership in the Islamic world."¹⁵¹ These are a few of the ways of describing how "belling" Iraq stood to benefit its nervous neighbours. These benefits can be described as an absolute decrease in Iraq's power that would simultaneously equal a relative increase in the power of its regional neighbours.

In the case of all the states' contributions, the benefit to be attained was the reduction in the risk and the potential cost associated with an Iraq that controlled one-fifth of world oil supply.¹⁵² Since cartel behaviour is common in oil supply, control of a large percentage would allow Iraq to control the market by decreasing the global price and increasing its market share or by cutting production and forcing prices higher. By reversing

¹⁵¹Lake, 1999, 228. ¹⁵²Bennett *et. al.*, 1997.

the Kuwaiti invasion, net oil producers could dilute Iraq's potential control of the oil market. Thus, both consumers and producers had opposite yet convergent stakes in preventing the rise of a price-maker in the world oil market.

An analysis by Andrew Cooper of the decision of middle powers to contribute to the Persian Gulf War shows that American leadership was successful because of a remarkable alignment of interests amongst the middle powers. The middle powers were not bound to follow, but rather reacted by making small contributions reflecting their interests at stake. Cooper et alia argued in 1991 that leadership itself was likely insufficient to produce cooperation. Rather, the private incentives of the followers determined the extent to which they were willing to follow.¹⁵³

Todd Sandler's view of the outcome of the Persian Gulf War is expressed very succinctly in two pages of analysis. He notes the existence of "significant selective incentives or private benefits for [some states'] participation."¹⁵⁴ He also notes that contribution levels matched neatly with benefit levels: "the largest first pledges came from Saudi Arabia and Kuwait-the two countries with the most to gain from the operation. Japan and Germany also made pledges but did not send troops to support the effort. Both of these countries depend on oil from the Persian Gulf."¹⁵⁵ In short, Sandler argues that the Persian Gulf War coalition was made possible by the large amount of joint products (and private benefits) involved in the military coalition:

Operation Desert Storm clearly demonstrates the importance of private benefits. Moreover, it shows that conventional protection can be provided by a set of allies that charges or collects fees from other interested nations. This club arrangement can be used for a wide range of collective action problems (e.g., disaster relief), in which excludability is feasible. The scheme works best when payment is made at the time that the service is rendered.¹⁵⁶

¹⁵³A.F. Cooper, R.A. Higgott and K.R. Nossal. 1991. "Bound to Follow? Leadership and Followership in the Gulf Conflict." Political Science Quarterly 106(3): 395. ¹⁵⁴ Sandler, 1992, 178.

¹⁵⁵ Ibid.

¹⁵⁶ Ibid.

The refusal to free ride is explained by demonstrating that contributor-specific benefits were equal or greater than the costs involved. This is done by showing how the goods involved in the US led coalition against Iraq in 1991 were impurely public. The collective security goods, joint products and selective incentives were sufficiently large that cooperation was the dominant strategy for many states. Sandler's collective action hypothesis will be tested for plausibility.

This case selection is based on Bennett's 1994 and 1997 studies. This case selection is a natural choice due to the Gulf coalition's importance in the post-Cold War era and the subsequent growth of the military multilateralism. In order to properly critique Bennett's application of CAT their data is used. An advanced application of CAT is a useful theoretical approach and explains the choices of states to contribute to problems of security cooperation. The case's significance is demonstrated by the focused attention it has received, resulting in a large volume of data available for study. In recasting the Bennett *et. al.* study, I will show that in order to apply CAT properly to a series of cases the game, goods, aggregation technology and the costs and benefits must all be identified.

Hypothesis

The following causal conditions will be examined to probe the validity of certain collective action principles in the proposed case: Generally speaking, continuous contributions increase the chances of contribution since players can engage in matching behaviour to elicit cooperative behaviour from other players. A threshold technology of military intervention will increase the chances of multi-lateral cooperation. Refunds, if the threshold is not met, increase the chances of success. A large actor acting strategically by contributing unilaterally will increase the chances of success. Finally, the existence of private or club benefits and joint products will increase the chances of additional individual contributions.

In this case, the large contributor-specific benefits or negative externalities, the leadership of an asymmetrically large actor capable of enforcing exclusion and the existence of a threshold aggregation technology made contribution to the US-led coalition a profitable/rational decision for a large number of states. In fact, many states appear to have contributed up to marginal rate of substitution, where contribution expenses were in direct proportion to the amount of private or club benefits at stake. More generally, CAT was both an endogenous feature of American *raison d'état* and explains adequately the evolution and shape of the coalition that opposed Iraq in the Persian Gulf crisis.

Causal Conditions

Table 3.1 introduces the conditions that are expected to have an impact on the decision to join or contribute to a coalition. These conditions are expected to act as stimuli to actors facing decisions on international security cooperation, and are noted in summary form.

Good type	Application	Expected outcome
Public Good	The international norm of	Countries will typically contribute to this
	sovereignty. ¹⁵⁷	public good in direct proportion to their
		income. States vulnerable to violations of
		sovereignty will tend to contribute more than
		their income would suggest. ¹⁵⁸
Negative	The actions of one country against	Where regional externalities or mixed public
externalities	another can create spill over	and private goods exist, there is an incentive
(Or regional	effects within the region where the	to contribute to a solution to either minimize
public bad)	warring countries exert economic	losses or maximize gains in direct proportion
	or military influence. ¹⁵⁹	to the relative or absolute gains. ¹⁶⁰
Private	Access to oil.	Contributions levels will be equal to a
Incentives	Side-payments. Eg. cash, debt	typical supply/demand curve where
	forgiveness or political quid pro	contribution levels rise until marginal
	quo.	benefits are equal to marginal costs.
	Trade links.	
	Credit default risk.	
	Hostages.	
Joint Products	Influence benefits. ¹⁶¹	The level of influence desired will be paid
1. T		for directly by contributions.
Clubs	Mutual defence assurances are	Holding an alliance or security relationship
	diminished if the allies fail to	with the invaded country should give the
	respond to a threatened ally. Each	allies an incentive to act against the threat.
	member privately has reasons for	As a coalition forms, a leader of multiple
	having allied itself to the	clubs can coordinate membership fees to
	threatened state to begin with. The	influence the outcome. ¹⁶³
	same reasons which motivated the	Small allies may pay more than their
	original alliance may further	marginal benefit if their membership fee is
	compel states to act in solidarity	due.
÷	with their ally. ¹⁰²	
	Some military coalition	×
	contributions may be more general	
	membership fees rather than a	
	direct quid pro quo for the current	
	security problem.	

T	ah	le	3.	1	· A	nnlications	and]	Expected	Outcome	of	Goods
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The Persian Gulf security problem involved more than two pure public goods. Rather, it involved one pure public good, and various impurely public and private goods. The

¹⁵⁷ Bennett *et. al.*, 1994. ¹⁵⁸ Ibid.

¹⁵⁹ This is an expression of the balance of threat hypothesis using economic terminology.
⁶⁰ Sandler, 2004, 147.
¹⁶¹ Ibid.

¹⁶² Anessa Kimball. 2006. "Alliance Formation and Conflict Initiation: The Missing Link." Journal of Peace *Research* 43(4): 371-389. ¹⁶³ Sandler and Cauley, 1975.

decision to contribute produced joint products (public, club and private goods). Furthermore, the aggregation technology allowed states to declare contributions once the needs were made clear. These contributions were implicitly refundable at any time by withdrawing from the coalition (with 100% being refundable if the threshold for action was not met). Moreover, since pledges are not collected immediately, defaulting on a pledge can effectively be a refund. In general, absolute gains were sought while states tried to keep their own costs to a minimum. CAT predicts that small actors will contribute to public goods when joint products exist (impure public goods with private incentives) and when a threshold aggregation technology encourages leader-follower or matching contribution behaviour.¹⁶⁴ The Persian Gulf War is a most likely case for an assurance game representation of international security cooperation.

War in the Persian Gulf

The first major war in the Persian Gulf in the Cold War era was the nearly decadelong war between Iraq and Iran. During the 1980s, many of the conditions for the 1990-1991 Persian Gulf War developed. The ongoing costs of the war between Iran and Iraq led to Iraq becoming heavily indebted to Gulf States, in particular Kuwait and Saudi Arabia. These debts would become increasingly costly and a source of conflict between Saddam Hussein's Ba'ath party regime and its creditors.¹⁶⁵

American interest in preserving the shipping lanes to the Persian Gulf dates from the end of World War II and the US has maintained a permanent naval presence in the Persian Gulf since the late 1940s. As American natural oil reserves were depleted, the American economy and industrial production depended on increasing access to foreign oil, where new discoveries in the Persian Gulf promised a steady energy supply. The 1973 oil crisis demonstrated to what extent the American economy, and consequently the global economy, was hostage to its reliance on foreign oil. The high opportunity costs associated with

¹⁶⁴ Sandler, 2004.

¹⁶⁵ Steve A. Yetiv. 1992. "The Outcomes of Operations Desert Shield and Desert Storm: Some Antecedent Causes." *Political Science Quarterly* 107(2): 195-212.

spikes in the price of oil were measured in lost economic output and growth. In fact, spikes in energy prices are highly co-related to the beginning of economic recessions.¹⁶⁶

In their study of the 1991 Persian Gulf War, the majority of contributions came early after the announcement of American intent.¹⁶⁷ In 1980 US President Jimmy Carter stated what would be known as the "Carter Doctrine" and stated that it would henceforth be American policy to preserve American interests in the Persian Gulf. This doctrine led to an informal alliance relationship between the US and the newly formed, Saudi-led, Gulf Cooperation Council. The form of collective action adopted was the creation of a Rapid Deployment Force (RDF) which would be a standing arrangement to provide ad-hoc military cooperation in the case of threats to any of the Gulf states.

Iraq's debt to Kuwait was source of irritation and the Iraqis wanted to negotiate debt forgiveness with its neighbours.¹⁶⁸ In the face of Iraqi non-payment, Kuwait had been pumping additional oil from the oil fields that it shared on the Iraqi border. This was seen in Baghdad as theft in breach of the standing agreement for sharing the oil in the border area. More generally, Kuwait was accused of over-producing oil and collaborating with the United States to keep the price of oil low. Iraq also disputed Kuwait's control of the strategic port on the Gulf that left Iraq essentially land-locked. On July 15, 1990 the build-up of Iraqi invasion forces on the border of Kuwait began.¹⁶⁹ The next day, the Iraqi government sent a list of complaints to the secretary general of the Arab League. Included in the complaint was a list of demands, including the raising of the price of oil, cessation of "oil theft", a complete forgiveness of Iraqi wartime debt, and further financial assistance to help Iraqi post-war reconstruction.¹⁷⁰ The next day, Saddam Hussein escalated the tensions by declaring in a public speech that "if words fail to afford us protection, then we will have

¹⁶⁶ Ben S. Bernanke, Mark Gertler and Mark Watson. 1997. "Systematic Monetary Policy and the Effects of Oil Price Shocks." *Brookings Papers on Economic Activity*. 1997(1). 91-157.

¹⁶⁷ James H. Lebovic. 1994. "Before the Storm: Momentum and the Onset of the Gulf War." *International Studies Quarterly* 38(3): 447-474.

¹⁶⁸ According to Yetiv, "estimates suggest that Iraq began the Gulf war with U.S. \$35 billion in reserve and ended the war \$80-100 billion in debt. Adding its Iran-Iraq war reconstruction and debt repayment costs and its basic yearly expenditures, it would have taken Iraq nearly two decades to recover under optimal conditions." Yetiv, 1992.

¹⁶⁹ L. Freedman and E. Karsh. 1993. *The Gulf Conflict 1990-1991: Diplomacy and War in the New World Order*. Princeton: Princeton University Press. 47.

no choice but to resort to effective action to put things right and ensure the restitution of our rights.³¹⁷¹ By taking this political dispute public, the Iraqi president made an ultimatum. Kuwaiti leaders did not believe that Saddam would resort to military action and that if it did, it would be limited to the border areas under dispute. In Washington, this was also the assessment of the intelligence establishment. In response to Iraq's president's ultimatum, the US issued a statement declaring that it would "defend its interests and friends in the region."¹⁷² On July 19th, Secretary of Defence Richard Cheney repeated the declaration, even going so far as to say that US would not sit idly by in the face of military aggression against Gulf states. There was apparently some ambiguity about American policy, and historians have argued that the US ambassador delivered an equivocal response to Saddam while he asked her vaguely about a possible American response on July 25th. The ambassador "lacked clear instructions to warn him against aggression" and apparently stated that the US had "no opinion' on Iraq's border dispute with Kuwait."¹⁷³ Although Kuwait reportedly offered to write down Iraq's entire war-time debt owed to Kuwait and provide a loan of up to 9 billion dollars, Iraqi officials did not get the answers they wanted and the last attempt failed at a summit in Jeddah on July 31st. Iraq invaded Kuwait on August 2nd, 1990.

Reaction in the rest of the Arab world was immediate. An extraordinary meeting of the Arab League took place on 2nd of August, and the Iraqi invasion was condemned. Arab leaders began consulting each other and a consensus emerged on two main issues: 1. Iraq had to withdraw unconditionally from Kuwait. 2. Arab countries were politically unwilling or unable to eject him militarily. The logical conclusion of these to facts was a sort of dilemma whereby Iraq would have had to agree to withdraw by choice in order for there to be an "Arab solution." Iraq was nowhere close to having achieved its goal of setting up a satellite state in Kuwait and it therefore refused to withdraw. The main sticking point between Iraq and the other main Arab countries was the status of the exiled Kuwaiti government, the Al-Sabah family. For Iraq, there was no question of allowing the

¹⁷⁰ Ibid, 48.

¹⁷¹ Ibid, 48-49.

¹⁷² Ibid, 50.

exiled royal family to return to power. For Saudi Arabia, Egypt and Syria, this was a condition of negotiations.¹⁷⁴ In game theory terms, there was no overlapping win set between the two bargaining positions.

A collective security good emerged immediately when an international consensus was formed condemning the Iraqi invasion of Kuwait. It does not appear that every country placed the same value on this good, yet it appears that all the major powers and most of the rest of the world viewed the invasion of Kuwait as a negative collective good. The reversal of this invasion would constitute a regaining of lost ground.

It is basic to an understanding of everything that followed the Iraqi invasion of Kuwait that this action was immediately identified by the bulk of the international community as a blatant act of aggression without nuance or ambiguity. From the start the United Nations set itself the goal of getting Iraq out of Kuwait, and at no point thereafter was that goal ever judged to be secondary to the potential costs of achieving it.175

On August 2nd, the day of the invasion a key meeting between Bush and British PM Margaret Thatcher took place in Colorado. Among the concerns that Bush and Thatcher shared were concerns for foreign nationals in Kuwait and the supply of oil. Thatcher urged Bush to take a hard line against Iraqi aggression, promising British support and even predicting other multi-lateral cooperation. After having spoken to the President of France, Thatcher told Bush that France also "would support collective action."¹⁷⁶ This meeting would prove to be instrumental in the initial coalition that emerged between the US, Britain and the Gulf states.

Indeed, Thatcher's role at the outset of the crisis proved to be crucial. She happened to be visiting Colorado at the time of the invasion and talked to Bush for two hours in Aspen before American policy had coalesced. She urged a leadership role on the

¹⁷³ Bennett, A. 1997. "Sheriff of the Posse: American Leadership in the Desert Storm Coalition." in Friends in Need: Burden-Sharing in the Persian Gulf War, op. cit., 47. ¹⁷⁴ Ibid., 73.

¹⁷⁵ Ibid.

¹⁷⁶ Ibid., 75.

United States, suggesting that the only way to deter an Iraqi attack on Saudi Arabia was for both their countries to send combat troops to the region.¹⁷⁷

Also on August 2nd, the United Nations Security Council (UNSC) met and issued a resolution determining that there was a "breach of international peace and security", condemning the invasion and demanding that Iraq withdraw "immediately and unconditionally" all of its forces from Kuwait.

While the US policy evolved over the course of the conflict, its strategic aims were never in doubt within the administration. The Carter Doctrine and American energy policy, Iraq's aggression, the perceived threat to Saudi Arabia and the treatment of hostages and Iraq's nuclear ambition all resulted in a firm American policy to reverse the invasion. Once the Americans decided to act and foot the bill, their strategy turned to bringing other countries along with them in order to maximize the chances for success and reduce the overall risk and costs to the United States.

The next day on August 3rd, the US National Security Council decided to deploy troops to Saudi Arabia to deter Iraqi threat. United States, Great Britain and Saudi Arabia played out the first stage of a strategic game. The United States and Saudi Arabia both wanted to eject Iraq from Kuwait and contain the Iraqi threat to other GCC states. To do so efficiently, the United States needed basing rights in Saudi Arabia. Yet to allow American forces to be stationed in Saudi Arabia would entrap the Saudi regime and further antagonize an already dangerously unpredictable regime in Baghdad.

By August 4th, the US had already moved quickly to assure Saudi Arabia that Iraq would not threaten it. One reported discussion at Camp David is instructive. US National Security Advisor Brent Scowcroft stated that the "The Saudis worry whether [the US is] really serious [about its security guarantees to Saudi Arabia]."¹⁷⁸ The deployment of air forces to Saudi Arabia was being discussed, but it was seen as an escalation that would

71

¹⁷⁷ Cooper, 1991, 406.

¹⁷⁸ Bob Woodward. 1991. The Commanders. New York: Simon & Schuster. 251.
further aggravate the situation without guaranteeing the security of Saudi Arabia.¹⁷⁹ President Bush replied to his advisors:

My worry about the Saudis is that they're going to be the ones who are going to bug out at the last minute and accept a puppet regime in Kuwait. We should be asking them how committed they are.180

Scowcroft identified an assurance problem, arguing: "it's a chicken and egg problem, [since] they can't go out front until they know whether we can be counted on."181

A situation similar to that depicted by the Prisoners' Dilemma was avoided by secret communications and mutual trust between the Saudi and American governments and as such the states were able to credibly commit to collaborative policy outcomes. The noncooperative game equilibrium solution of mutual defection in the case of a Prisoner's Dilemma was defeated because the assumptions of non-communication did not hold. Moreover, the spectre of future relations with the United States likely loomed large in the calculation of benefits for the Saudis.

The Coalition Emerges Around a Sanctions Regime and Defence of Saudi Arabia

The Iraqi threat and its proximity to Saudi Arabia set the threshold for success: a large armed force defending Saudi Arabia and deterring any further Iraqi aggression. Once the threshold was set, the assurance game was played. The American move to re-assure Saudi Arabia made it possible for Saudi Arabia to commit to working with the United States against Iraq. At this moment, Saudi Arabia drastically reduced its freedom to turn around and accept Iraqi control of Kuwait. In game theoretic language, this was strategic interaction. Strategic interaction is when one actor takes into account the expected reaction of another player to his move. This strategic interaction, if it had been absent, would likely have resulted in a failure to cooperate. The Saudi regime sought private assurances directly from the President of the United States that if the Saudis asked for American intervention, the Americans would immediately deploy a substantial force and promise to protect Saudi

¹⁷⁹ Ibid. 180 *Ibid*.

Arabia from Iraqi aggression. Without this assurance, the Saudis could not have asked for help.¹⁸² If they would have been turned down by the United States, they would have become substantially more vulnerable to Iraq and domestic political risk. There is evidence that the 'shadow of the future' and the long-run expectations of repeated interactions made the Saudi's more willing to cooperate with the US. The past and expected future security relationship with the US made an agreement possible.

The deal between the US and Saudi Arabia led to a public U.S. promise to deter an attack on Saudi Arabia and to reverse the invasion of Kuwait on August 5th. Defence Secretary Richard Cheney visited to Saudi Arabia and presented a plan for deploying some 250,000 troops. King Fahd quickly agrees to host these forces, since they would be sufficient to defend his country and the size of the commitment would make it virtually impossible for the Americans to renege on their commitment. On August 8th, the US made public the massive deployment of US troops to Saudi Arabia. The effect of US leadership was to convince other nations to do their part and to convince them that US policy was quite firm. Moreover, the US administration expected that the announcement itself and subsequent build-up of troops in the Gulf could have caused Saddam to withdraw. Under conditions of uncertainty, the move was expected to express a credible deterrent and counter-threat to Saddam's regime.

At the same time, the US began seeking broad-based support for global economic sanctions against Iraq. The cost of imposing sanctions was quite serious for many countries. Iraq was one of the largest oil exporters, and imported a lot of manufactured products and food. Cutting off this trade was viewed in Washington as short term costs that were necessary to force Saddam from Kuwait. Cutting the supply of oil flowing through Turkey would mean lost income for Turkey. Japan and many other countries relied on oil from Iraq or Kuwait and would have to find oil supplies elsewhere. The USSR and France supplied weapons and their companies provided contracting support to the Iraqi army.

¹⁸¹Ibid, 252..

¹⁸² Ibid. See also Freedman and Karsh, 1993; Bennett *et al.*, 1997; and Lake, 1999.

Concern for foreign nationals in Kuwait and Iraq began mounting in world capitals as it became clear that Saddam Hussein was keeping his options open and restricting the movement of foreign nationals in both Kuwait and Iraq. On August 3rd, a group of over 100 UK nationals were rounded up and held in Kuwaiti hotel. A statement by the puppet Kuwaiti foreign minister on August 6 explicitly linked the fate of foreign nationals with the international sanctions response. This policy was reinforced in a radio interview by Iraq's ambassador to France on August 14. International diplomats began pressing for free movement of foreign nationals in Iraq and Kuwait. When it became clear that Saddam Hussein was still holding the hostage option open, the United Nations Security Council unanimously issued Resolution 664 on the urging of the European Community.¹⁸³ The resolution called on Iraq to respect the rights of foreign nationals and permit them to leave immediately. The resolution apparently had the opposite effect, causing Saddam Hussein to "harden his own stance."¹⁸⁴ The next day, Saddam issued what is now known as his "hostage policy." He linked their future release to the withdrawal of all Western forces from the Gulf and a promise not to attack Iraq. He also issued a decree threatening death to any citizen found harbouring foreign nationals. At least 51 countries had foreign nationals either in Kuwait, Iraq, or both.

While the final coalition resulted in war, the initial formation of the coalition occurred because there was a consensus on the collective good involved (Iraqi withdrawal from Kuwait) and a consensus on the costs: a sanctions regime. As the sanctions regime failed to move Iraq, it became obvious that it would take a long time, possibly up to two years, for the sanctions to work.

The "contributions" in this phase of the coalition was individual country's willingness to suffer the economic costs of imposing sanctions. However, on this issue the US leadership was determined. The political costs of continuing to do normal business with Iraq would be high, since the world community had widely condemned the invasion. The US and Britain had the unilateral ability to enforce sanctions from the sea in the Persian Gulf. Moreover, 95% of Iraq's exports were oil and as such offered a "special

¹⁸³ Freedman and Karsh, 1993, 137.

opportunity for sanctions."¹⁸⁵ Therefore, by restricting supply to zero, it would be impossible for individual countries to circumvent the sanctions. In this, the cooperation of Syria and Turkey was crucial since most Iraqi oil was exported by pipeline. Kuwaiti oil could be restricted by sea blockade. On Sunday August 5th, the European Community agreed upon a series of sanctions, including an embargo on Iraqi/Kuwaiti oil and freezing all Iraqi and Kuwaiti assets. The initial coalition required to make a sanctions regime effective was crystallized by resolution from the UN Security Council on August 6th. Violating a resolution of the UNSC involved high reputational costs and risked putting states on the wrong side of US side-payments. Even before the UNSC resolution "most of the major powers moved quickly to stop all trade with Iraq, including oil supplies."

The sanctions game played-out like an assurance game, where the United States took the lead once again and announced economic sanctions immediately following the invasion. By looking to the UN to authorize sanctions, the US increased the probability of international cooperation since its allies put a premium UN authority. Soviet and Chinese support for sanctions were both required to get a vote through the UNSC, and putting it to a vote in the UNSC was required to get their support (or abstention from veto). Therefore, the UNSC resolution was seen as both a way of declaring and increasing the consensus on the use of economic sanctions to enforce the UNSC's earlier demand for Iraqi withdrawal from Kuwait. Once UNSC authority was obtained, the cost of doing business with Iraq became the reputational cost of defying the UNSC in the face of Iraqi intransigence and the cost of negative side payments from the US and its close allies. Saddam's hostage policy also changed the payoff structure to make it very costly for states to back down. UN resolution 664 specifically changed the payoff structure for those European states such as France who had nationals in Iraq and Kuwait. Any perceived openness to negotiating with Iraq would be seen as a selfish grab endangering all the other foreign nationals. This support was displayed in a fourth UN resolution against Iraq, calling for Iraq to release all foreign nationals from Iraq and Kuwait held against their will on August 18th. Moreover,

¹⁸⁴ Ibid.

¹⁸⁵ Ibid., 82.

¹⁸⁶ Ibid., 81.

the coalition could only hold up so long as Iraq refused to budge on its withdrawal from Kuwait.

The combined effect of the international reaction to Iraqi aggression, US leadership, UNSC backing and the technology of cutting off Iraq's oil exports made respecting the sanctions regime a dominant strategy. This initial coalition unity would be maintained through ongoing US leadership and a large amount of side-payments. Some defection occurred. Jordan's "tottering economy" was dependent on oil supplies from Iraq and did not respect the sanctions regime.¹⁸⁷

On 10 September, NATO held a high level meeting and many of its members announced their contributions to the coalition. Belgium, Greece, Spain, the Netherlands, Italy, France, and Britain pledged troops. Egypt also pledged troops. By late October, the US administration realized that sanctions may take more than a year to work and that the longer sanctions were in effect the lower the likelihood that the entire coalition in place would be able to hold. President Bush wanted an offensive option for physically ejecting Iraqi forces from Kuwait. The military advised Bush that it would take a doubling of US force levels in Saudi Arabia and the region to achieve a decisive military victory and minimize friendly casualties. Thus, on October 30, the US NSC decided in secret to double the US deployment to Saudi Arabia. Secretary of State James Baker was sent off to various coalition countries to urge UN resolution authorizing the use of force: "These trips had a secondary goal of encouraging additional economic and military contributions, but they did not result in any major new allied contributions."¹⁸⁸ In fact, no new major contributions would be announced until the commencement of hostilities in mid-January.

On November 8th, the US publicly announced its decision to double troop deployment to Saudi Arabia. This new offensive threshold would take months to reach, restricting the commencement of ground offensive to February. Thus commenced a new phase of the coalition, whereby the US strategy was shifting to the execution of an offensive military campaign. This raised the costs of contribution dramatically because

¹⁸⁷ Ibid., 186.

¹⁸⁸ Ibid.

blood would be spilled. Not surprisingly, this new phase resulted in no new allied military contributions. Yet now the US administration could argue to its allies that they needed to help cover the costs of the campaign since they would not be providing major forces and they would be benefiting from US leadership.

Contributors	To Frontline States	To US for Military, per month		
Saudi Arabia	4 billion	500 million		
Kuwait	3 billion	400 million		
Japan	1.3 billion	60 million		
UAE	1 billion	100 million		
Germany	0.6 billion	40 million		

Table 3.2: US Burden-Sharing Expectations in Late August¹⁸⁹

After announcing its decision to open the offensive option, the US began pressing its allies on the Security Council that a resolution authorizing force to eject Saddam Hussein from Iraq was required. Pledges of financial compensation by US allies now totalled 13 billion, but only 10 billion to the US Treasury. Table 3.2: US Burden-Sharing Expectations in Late August details the pledges and expectations of financing to "frontline states", primarily the US, Turkey, Egypt and Jordan. US diplomatic efforts intensified to gain UN support authorizing force, an ultimatum with a date. The choice to seek UNSC authorization to use "all necessary means" was a deliberate attempt to keep the widest possible coalition together. While both the US and British administrations were of the opinion that no new resolution was necessary, it was judged by Washington to be the safest way of keeping all of its allies in the coalition. The US was careful to frame the military response as a collective action by the international community in order to counter the possible, and likely, perception that it was rushing to military action for its own purposes. On November 29th, the UNSC issued an ultimatum to Iraq ordering it to withdraw from Kuwait by January 15th or face consequences. The date itself had been negotiated with the Americans preferring the 1st of January and the French interceding to push to give Iraq more time. The British worried that setting a date would complicate the strategy by giving Saddam a stalling tactic

and committing the coalition to act immediately after the deadline or face the charge of having backed down. The US agreed to set the date at the 15th of January. By December, Iraq had freed all of its hostages, but had made no move to withdraw from Kuwait. After last minute diplomatic engagements to convince Iraq of the coalition's serious intent to force it from Kuwait, air strikes commenced the day after the deadline expired.

The American position led it to distribute important side payments. In order to "hold together the anti-Iraq coalition, it was imperative to help sustain Gorbachev in power even as the bases of communist rule crumbled beneath him, to forget the Chinese massacre in Tiananmen Square and to find common cause with Asad of Syria."190

American Leadership and Coalition Formation

It is difficult to see how an effective multi-lateral response to the invasion could have taken place without American leadership. More specifically, the evidence suggests that the American administration viewed their government as the only catalyst for effective international action:

[Few] other states would have been inclined to do what the United States did; and surely no other state could have done it. As Secretary of State James A. Baker III argued before Congress, "We remain the one nation that has the necessary political, military and economic instruments at our disposal to catalyze a successful response by the international community." Bush was to repeat the same theme in the State of the Union message: "Among the nations of the world only the United States of America has had both the moral standing and the means to back it up."¹⁹¹

While in hindsight, the 1991 coalition appears to have been a multi-lateral military effort, the US took the initiative in every major shift in the crisis and deployed by far the most decisive resources to achieve its aim. While the number of co-operators was large and even larger once the actual war began, the effort was centred around American policy based on their massive military, economic and political resources. Moreover, while this leadership

¹⁸⁹ Bennett, 1997, 49.

 ¹⁹⁰ Freedman and Karsh, 1993, 215
¹⁹¹ Cooper *et al.*, 1991, 393.

did pay off in the end, it did entail a great deal of risk, at least in the minds of the decision makers:

In this first phase, the US offered a large deployment before it had gained strong support from any states except Britain and Kuwait, and even before it had secured Saudi approval. Indeed, a substantial U.S. commitment proved necessary to win Saudi support, and the US risked having to defend SA with few military or economic contributions from others.¹⁹²

Interestingly, the implications of theory of collective action *itself* may have influenced the US decision to lead. According to Bennett, the US "took the lead because they believed the Iraqi invasion threatened important U.S. security and economic interests, and because they felt that collective-action dynamics would prevent an effective response in the absence of U.S. leadership."¹⁹³ When influential members of Congress began criticizing allied nations for their lack of financial or military contributions to the coalition, it appears that this exercise was designed to impose additional reputational and other costs to what was viewed in the US as allied "free-riding."

While pre-war costs were estimated to be in the area of 100 billion, the actual costs were much lower. The total cost to the US is estimated to have been 57-77 billion, of which most was eventually offset by financial contributions from Saudi Arabia, Kuwait, Japan, Germany and others. Yet the US assumed much of the risk, undertaking costs and even commencing the war before 80% of the eventual financial compensation were even offered.¹⁹⁴ With the disastrous war in Vietnam close in the minds of many Americans, the political cost of expected casualties had to be considered.¹⁹⁵ While military planners used very high figures to plan conservatively in order to incorporate the worst case scenario and have the medical facilities available, the actual expected number of casualties was in the

¹⁹² Bennett, 1997, 38.

¹⁹³ Ibid.

¹⁹⁴ Ibid., 39.

¹⁹⁵ See John Mueller. 1985. War, Presidents, and Public Opinion. Lanham, MD: University Press of America.

order of 1000 soldiers killed.¹⁹⁶ The eventual total number of US soldiers killed was 256, while the number of wounded was higher.¹⁹⁷

Clubs and the Shape of Contributions

There are several international clubs whose members unanimously (or almost) provided support to the US-led coalition. Set logic has been applied to situations of causal complexity and underpins qualitative comparative analysis (QCA) developed by Charles Ragin.¹⁹⁸ Its importance is in the fact that it allows researchers to look for correspondence between outcomes and various causal conditions and combinations of causal conditions within a group of cases. In short, if a causal condition is a subset of the outcome it is said to be a "sufficient condition." Ie., if all leaky faucets result in floods, then the leak is sufficient for flooding. It is not necessary to have a leaky faucet to get a flood. It could happen another way. If the outcome is a subset of a causal condition, that causal condition is said to be "necessary." If everyone over the age of 90 is a lifelong non-smoker, then being a non-smoker is a necessary condition to live past the age of 90. Identifying relationships of necessity and sufficiency allows us to isolate cause and effect, effectively allowing causal inference. For example, in the case of military coalitions, the existence of private incentives appears to be sufficient, but not necessary, to induce coalition contribution.

Using set logic, if G7 members are a subset of coalition members then being a G7 member is a sufficient condition for coalition membership. In this case, being a member of the GCC was also a subset of the coalition. Moreover, being a member of NATO was "usually" sufficient for membership in the outcome. Twelve out of 16 NATO countries committed forces. Two NATO countries, Iceland and Luxembourg, had no expeditionary capabilities. A thirteenth NATO country, Turkey, moved 100,000 troops to the border of Iraq and pinned down Iraqi forces that might have otherwise been used in offensive

 ¹⁹⁶ Bennett, 1997, 39. Planning estimates were 7,000 US soldiers killed, 20,000 injured. Some 63 non-US soldiers were killed in action after the commencement of hostilities on January 15th, 1991.
¹⁹⁷ Ibid.

¹⁹⁸ Charles C. Ragin. 2000. Fuzzy-Set Social Science. Chicago: Chicago University Press.

action.¹⁹⁹ Using set logic, it appears that club membership in itself could have been sufficient for at least some nominal level of contribution. Moreover, once the threat to Turkey was expressed as a request for forces to NATO in December 1990, the alliance was essentially forced to act.

¹⁹⁹ Sabri Sayari. 1997. "Between Allies and Neighbors: Turkey's Burden Sharing Policy in the Gulf Conflict." In *Friends in Need: Burden-Sharing in the Persian Gulf War*, op. cit., 197-218.

Military Contributor	Troops	Army	Navy	Air Force	Other	Oil Import	Arms Export	Border
G7 and NATO							18	CELEN.
United States	540000	X	X	X		X	X	
United Kingdom	31930	X	X	X			X	
France	19330	X	X	X	S	X	X	
Canada	1370		X	X			X	
Italy	1310	X		X		X	X	
Germany	700		X			X	X	
GCC	CALL STREET		and the state	1000000000	Section of		The second second	
Saudi Arabia	137160							X
Kuwait	7800	X	X	X				X
Oatar	1580	X		X				
United Arab Emirates	1450	· X		X				
Oman	940	X	X	X				
Bahrain	700	X		X				
NATO	N.S. L. Margar	Part Contract	La real and	Sector State	Contraction of the	a second statement	State State State	a Pater
Turkey	100000	X				X		X
Netherlands	1000		X			X		
Spain	770		X			X	X	
Belgium	550		X			X		
Greece	210		X			X		
Denmark	90		X			X	X	
Norway	60		X					
Other	Same and		1 CARLENCE	1	Sec. Sec.	S STAND STAND	State of the second	Sold Starting
Egypt	39160	X			L		X	
Syria	14800	X						X
Pakistan	8700	X		8		X		
Bangladesh	2330	X				X		
Morocco	1880	X				X		
Australia	1230	-	X					
Senegal	500					X		
Niger	480	X				X		
Phillipines	300				M	X		
Argentina	300		X					
Poland	200				M	X	X	
Korea	160				M	X		
Czechoslovakia	140				S	X	X	
New Zealand	50			X	M	X		
Hungary	40				M	X	X	
Sierra Leone	30				M		-	

Table 3.3: Military Coalition Contributions & Club Membership²⁰⁰

Troop contribution data is from Lake, 1999.

Net oil importers are determined using 1990 figures from the Statistical Review of World Energy 2008.

Arms exporters to Iraq are determined by total value of arms sales from 1981-1990 from the SIPRI database.

The border column represents those states with shared borders with Iraq.

NATO Contributes

The dominant strategy within the NATO community was to offer token military contributions largely as a function of income and military capability. Their contributions were neither "free-riding" nor true attempts to share the burden. Rather, these contributions

²⁰⁰ Lake, 1999, 230 and Bennett, 1997, 42.

were equivalent to pay-up dues related to the overall club membership. In order to maintain good standing in the US-led security club, the US expected its allies to pay up. These contributions were mostly minor. The exceptions were the US, France, the UK and Turkey, each with its own reason for contributing what it did. The UK contributed enthusiastically, reflecting its interest in maintaining both good standing with Washington, the high value it placed on forcing Iraq from Kuwait, and its interest in maintaining influence over the course and conduct of the coalition strategy. France was more ambivalent about the strategic aims of the coalition, and largely tailored its participation to respond each time the US escalated its military position with matching (but much smaller and peripheral) contributions. Turkey waited to see what position NATO would take vis-à-vis Iraq. When NATO wholeheartedly condemned the invasion and endorsed sanctions, Turkey moved to impose sanctions and moved 100,000 troops to the Iraq border as a defensive measure. Overall then, the US led its NATO allies to contribute in small ways that reflected each states interest in both the collective good in question and its overall preference for maintaining the NATO security club.

The existence of private "influence" benefits is quite clear. At least, it is clear from the studies of government decisions that there was a common belief that international influence over campaign goals and decisions would be in direct proportion to the contributions being offered. Both Britain and France appeared to weigh the costs (including risks) vis-à-vis the influence benefit when deciding force levels. In August, the initial British decision was to send air and naval forces to the Gulf to bolster the defence of Saudi Arabia, attempt to reinforce sanctions and show resolve against Iraq. As September approached, "it was realized that the initial contribution was too small to be truly significant."²⁰¹ In early September as the US began to build up ground force levels in Saudi Arabia, the British administration looked to "find a level of contribution that achieved the maximum political profile with the minimum risk."²⁰² According to Freeman and Karsh, the dominant state rationale linked influence benefits with contributions: "If Britain was making a greater military input then it could also expect to achieve a greater

²⁰² Ibid.

²⁰¹ Freedman and Karsh, 1993, 112

influence over the policy output.²⁰³ By 14 September, Britain announced that it was sending an armoured brigade, roughly 8000 troops including the support personnel, to Saudi Arabia.

Britain's military contributions were purely substitutable with US forces, unlike all the other military contributions. Britain put its forces under US command, which the French refused to do. Moreover, Britain's forces were compatible and capable, and had "deliberately sent forces to the Gulf that could be moved quickly and that would fill gaps in existing deployments."²⁰⁴ The British "had a great deal to gain geopolitically" from both the outcome of the conflict and the impact of its contribution to the war.²⁰⁵

French reaction to the invasion of Iraq by Kuwait was muted by the fact that France had been a long-time ally of Iraq, that France was keen to maintain a foreign policy independent of American influence and that its Socialist government was pacifist in inclination. On 9 August, as the US was beginning to seek allied contributions for its coalition against Iraq, France announced that it would not be part of the multi-national coalition being proposed by the US. While France did want Iraq to leave Kuwait, it did not align itself fully with the US coalition until the war began in January 1991. This reflected a French preference to pursue diplomatic engagement further and also that France was fundamentally more willing to negotiate terms with Iraq than was the US. France was Iraq's second biggest arms supplier after the Soviet Union. It had supplied almost one quarter of Iraq's arsenal and was reportedly owed FF28 billion by Iraq.²⁰⁶ In 1987, Iraq was France's largest arms customer, buying double the amount of arms being sold to the next biggest customer (Egypt).²⁰⁷ Due to Iraq's indebtedness, any prospect of war would increase the likelihood of default on France's Iraqi debt holdings. Due to the policy ambivalence that France placed on the Iraq issue, its "net contribution to the crisis was

²⁰³ Ibid., 113.

²⁰⁴ Joseph Lepgold, "Britain in Desert Storm: The Most Enthusiastic Junior Parnter." In *Friends in Need:* Burden-Sharing in the Persian Gulf War, op. cit., 71.

²⁰⁵ Cooper, 1991, 406.

²⁰⁶ Freedman and Karsh, 1993, 38.

²⁰⁷ Isabelle Grunberg. 1997. "Still a Reluctant Ally? France's Participation in the Gulf War Coalition." In *Friends in Need: Burden-Sharing in the Persian Gulf War*, op. cit., 118.

modest.²⁰⁸ Its net contribution was estimated to be "close to 230 million.²⁰⁹ As a substantial trading partner and debtor country, it was not in France's interests to see Iraq crippled further than necessary.

It was only after the storming of the French embassy in Kuwait by Iraqi soldiers that France decided on 14 September to deploy a military contingent of air and naval forces totalling 1200 men to Saudi Arabia. The government of France gradually increased their military presence from November to January, eventually totalling more than 10,000 troops in Saudi Arabia. In the end, French net contributions were "modest" due to the fact that the cost of its military operations was offset by financial contributions from Saudi Arabia, Japan, Kuwait, Germany, Belgium and Norway.²¹⁰ France's policy ambivalence towards the US-led coalition was largely due to its conflicting interests in both a strong Iraq, its opposition to the annexation of Kuwait and its long-run interactions with the US. In the end, the spectre of repeated interactions with the US likely tipped the balance in favour of backing the coalition strategy. This strategy was hedged by withholding political and military support for a military strike until the last possible moment.

As Cooper *et. al.* point out, the French contribution was determined by a predictable outcome based on American leadership and directly proportional to the benefits that it perceived in the joint products of military intervention: "They recognized that participation in the fighting was a necessary condition for participation in the peace with its lucrative reconstruction contracts and a reshaping of access to supplies of Gulf oil."²¹¹ The French contribution was thus largely a token presence in return for the hope of influence benefits, which reflected France's ambivalence surrounding the collective good to be achieved. Any influence gained with the US was also a potential loss of influence and good will in the Arab world. As the Arab states coalesced against Iraq, this trade-off was tipped in favour of joining the coalition.

- 208 Ibid.
- ²⁰⁹ Ibid.

²¹⁰ Ibid.

²¹¹ Cooper et al., 1991, 405.

Germany acted quickly to impose sanctions against Iraq within hours of the Iraqi invasion. Germany was in the process of unification between East and West Germany and was highly reliant on the goodwill of both the US and the Soviet Union. In early September, Germany supported a European Community resolution that pledged financial support to the Arabs, but not to the US for its military build-up in the Gulf. In Washington, "members of Congress reacted angrily."²¹² This caused a "storm of animosity, extraordinary in its extent and intensity' over what critics called 'paltry contributions' by Japan and Germany."²¹³ In the opinion of senior American Congressional leader and other allies, "Germany's ... contributions fell far short of what was expected of one of the world's leading economic powers."²¹⁴ Three "turning points" have been identified by Hellmann in the contributions made by Germany: the first round of requests for financing by US Secretary of State Baker in mid-September 1990, Baker's visit in early January and the escalation of war after the UN imposed deadline of January 15th 1991.²¹⁵ After the first turning point, Germany announced financial aid of 2.2 billion of which half would go directly to the US. Yet the majority of the aid was announced as the war approached and after the war commenced. American suggestions that they were looking at further cuts to troop levels in Europe may have heightened Germany's sense of reliance on US power and an unspoken security quid pro quo.²¹⁶ In the end, Germany contributed 11.5 billion to the coalition effort in direct financial compensation and military and logistical support.

Turkey's contribution to the coalition was both significant and costly. In this sense, it was similar to the GCC states that bore the brunt of the costs for the war. Turkey's response was very controversial within the government and led to two ministerial resignations and the resignation of the Chief of the General Staff. While Turkey was compensated by GCC states in the order of 3-4 billion, its economic opportunity costs due to sanctions and lost trade were much higher (15-20 billion).²¹⁷ However, there is reason to

²¹² Ibid, 175.

²¹³ Ibid.

 ²¹⁴ Gunther Hellmann. 1997. "Absorbing Shocks and Mounting Checks: Germany and Alliance Burden Sharing in the Gulf War." In *Friends in Need: Burden-Sharing in the Persian Gulf War*, op. cit., 167.
²¹⁵ Ibid.. 170

²¹⁶ Ibid., 176.

²¹⁷ Savari, 1997, 203.

believe that if Turkey had not contributed to the sanctions regime which cost it so much, its American financial aid, its hopes of European Community membership and its standing within NATO would have been damaged. It has been argued that Turkey's contribution was highly dependent on the personality and judgement of the President of the time, and thus its contribution is more difficult to judge using systemic level cost-benefit analysis.²¹⁸ However, it is clear that Turkey's contribution reflected both its concern about the threat Iraq posed and its preference for security cooperation within NATO.²¹⁹ At a time when Turkey's future role within Europe was in question, Turkey's president saw its reaction to the invasion of Kuwait as an opportunity to cement its relationship with the US.²²⁰

The contribution of the middle powers was minor and reflects an important club membership effect. Those countries who were not allied with the US through NATO, like Finland and Sweden, contributed the least. These cascading middle power contributions "tended to be in response to shifts in American policy."²²¹

At the conclusion of a NATO foreign ministers conference on 10 August 1990, Canada announced it was sending three ships to the Persian Gulf to participate in the sanctions regime. This contribution was matched by Australia on the same day. After the initial contributions to the sanctions regime, there were no further important contributions from the middle powers until war had broken out and the outcome of the collective security problem was no longer in much doubt.²²² For example, the Canadian government did not approve offensive combat missions for its CF-18 fighter squadron until the tail end of the war.²²³ It was only after the outbreak of war that Finland, Norway and Sweden sent hospital ships to the Persian Gulf as a form of contribution. Overall, the contribution of the middle powers was insignificant to the outcome. These contributions were perfunctory

²¹⁸ Ibid.

²¹⁹ Ibid.

²²⁰ Ibid., 207.

²²¹ Andrew F. Cooper and Kim Richard Nossal. 1997. "The Middle Powers in the Gulf Coalition: Australia, Canada, and the Nordics Compared." In *Friends in Need: Burden-Sharing in the Persian Gulf War*, op. cit., 272.

²²² Cooper *et al.*, 1991.

²²³ Ibid.

dues paid by allied members and relative contributions appear to co-relate to alliance membership.

The GCC Contributes

The Gulf Cooperation Council²²⁴ (GCC) is a "political-security grouping"²²⁵ of Persian Gulf states, with certain geographic, regime-type and economic links. These countries all had more or less secularist feudal regimes lead by royal families. They also exported a lot of the world's oil and made up an important bloc within OPEC. They also shared an antipathy with the Islamist Iranian regime, and had backed Iraq in its war with Iran. In response to the perceived Iranian threat, the GCC states in cooperation with the US developed a common security apparatus called the "rapid deployment force" (RDF). The GCC developed into a security club:

[T]hroughout the 1980s the GCC helped increase the internal stability of pro-American Gulf States and enhanced their military coordination. It also improved their defense and strategic interaction with Washington and gave them a political forum within which to coordinate their policies.²²⁶

Saudi Arabia was the dominant leader within this club based on the size of its population and economy and its strategic importance to Muslims as the home of Mecca. Saudi Arabia shared its Airborne Warning and Control System (AWACS) intelligence with first Kuwait and then other Gulf states.²²⁷

The costs involved with a contribution for the Gulf states were the risk of opportunism by the United States, the domestic political cost of alliance with the US and the risk of further escalating tensions between Iraq and vulnerable Gulf states.²²⁸ According to Lake, the United States and others were able to reduce these costs through political measures. The United States government constrained its potential opportunism by agreeing to separate command structures and by seeking UN backing for the mission.

²²⁵ Yetiv, 1992.

²²⁴ The GCC's membership was Saudi Arabia, Kuwait, Oman, United Arab Emirates, Bahrain and Qatar.

²²⁶ Ibid.

²²⁷ Ibid., 200.

Finally, the United States reduced the risk of vulnerability in the face of an aggressive Iraq by committing a force of overwhelming size, 250,000 troops, to defend Saudi Arabia. To many analysts, the contribution of the GCC states was over determined due to the threat to its vital interests, oil market control and regime survival: "Given the degree to which their vital survival interests were directly threatened (Kuwait's had already been extinguished) by Saddam Hussein's desire to expand Iraq's power in the Gulf, it is little wonder that the Gulf states were so willing to go along with whatever approach the United States desired."²²⁹

	Contributions (in millions of US dollars)					
Contributors	Cash	In-Kind	Total			
Saudi Arabia	12809	4030	16839			
Kuwait	16015	43	16058			
Japan	3870	218	4088			
UAE	9441	571	10012			
Germany	5772	683	6455			
Korea	150	101	251			
Other	7	22	29			
Total	48064	5668	53732			

Table 3.4: Foreign Government Contributions to the US for the Persian Gulf War (as of April 10, 1992)²³⁰

The G7 Contributes

The G7 was in 1990 the club of the world's largest capitalist economies linked together by political coordination. Its membership is shown in Table 1, and overlaps heavily with NATO membership. The only non-NATO member of the G7 was Japan. Japan's contribution indicates that Japan did not value the collective security good in the same way as its major ally, the US. Yet its security was guaranteed by the US and its economy was also dependent on trade with the US. The "club" effect was strong in Japan's case, since it placed high value on both its relationship with and therefore its reputation within the US and the larger G7 community. Its perceived ability to pay based on income, its perceived benefits, the prospect of repeated interactions and long-term benefits of existing security and economic relations provided incentive for contribution. Japan

²²⁸ Lake, 1999.

²²⁹ Cooper *et al.* 1991, 401.

²³⁰ Lake, 1999, 230.

cooperated with the sanctions regime once it was announced and offered 1 billion in direct aid in early September. An *Economist* article sounded critical when it declared that "for weeks Japan has been brooding over how little it can contribute towards getting Iraq out of Kuwait."²³¹ At the same time, members of Congress were beginning to evaluate and criticize allied contributions to the coalition effort. On September 14th, Japan promised another 3 billion. The bulk of Japan's contribution only came once war was underway and the costs of the coalition were increased by the cost of war. On January 24th 1991, Japan announced a further 9 billion in direct financial compensation.²³²

Major Side Payments and Private Incentives

Two important private incentives to join the military action could have been the dependence on imported oil and the export of arms to Iraq. While it is clear from the data that access to oil played an important part in underpinning both the Carter doctrine and the decision of the US to oppose Iraq's invasion of Kuwait, it is unclear that this concern was universal. While the test concluded here was unable to establish a direct causal link, there does seem to be a plausible argument that dependence on imported oil may have been a sufficient cause for joining the coalition. Most coalition members (aside from the GCC states) were dependent on imported oil. Many countries dependent on imported oil did not join the coalition, and therefore this condition was not necessary to the outcome. Since oil is a private good, it could be that some contribution decisions were conditioned by the expectation of future access to oil.

As Table 3.3 shows, all of the leading NATO powers who were members of the G7 had significant arms trade with Iraq. This analysis cannot establish a link between these causal conditions. Overall, there is no evidence of a link between arms trade and the decision to contribute. It is only within the G7/NATO states that a link could be made. However, the decision to contribute to a military coalition could be both positively and negatively influenced by arms trade links. A state could wish to preserve its trade links by ignoring the sanctions regime and not contributing to the coalition. In fact, it could profit

²³¹ Danny Unger. 1997. "Japan and the Gulf War: Making the World Safe for Japan-U.S. Relations." In *Friends in Need: Burden-Sharing in the Persian Gulf War*, op. cit., 143.

from this decision. This seems to be the case with Jordan's response to Iraq's invasion of Kuwait. Russia also had significant arms trade with Iraq, yet both facilitated the coalition by its political support in the UN Security Council and failed to contribute to the military coalition. However, a state could also see contribution to a military coalition as a means to maintain influence in a post-war reconstruction and a means to recover arms transfer debts. While arms trade relations could be used to posit a sufficiency argument for the leading coalition powers, it could also be spurious and the data here is not robust enough to support it. It may also be difficult to isolate arms trade from overall relations of economic intercourse and interdependency. Finally, within the process tracing of this case analysis there has been no indication that states viewed arms trade as a significant factor in their cost-benefit analysis, with the possible being France. In the case of France, the proportionately large arms trade with Iraq, coupled with the outstanding arms debt, may have made the French particularly reluctant to go to war with Iraq.²³³

Outside of the clubs of the GCC, NATO and the G7, it appears that major sidepayments and political *quid pro quo* were necessary conditions for contributions or acquiescence in the face of American leadership.

China & the Soviet Union

While China did not contribute to the Gulf war coalition, its acquiescence was required at the UNSC for any resolutions to pass. The United States used political side-payments to achieve Chinese cooperation: "it would appear that the anticipation of a straightforward *quid pro quo* drove Chinese policy: deference on the Gulf conflict in return for an unambiguous side payment - a warming in the Sino-American relationship that had been so soured by the Tiananmen massacre in June 1989."²³⁴

Much like China, the value that the Soviet Union placed on the collective security good was much more ambiguous. The USSR was a net oil exporter, an Iraqi ally and trading partner as well as an arms exporter to Iraq. In a period of political instability within

²³² Ibid.

²³³ Grunberg, 1997.

²³⁴ Cooper et al., 1991, 400.

the Soviet Union that eventually resulted in a coup and the dissolution of the Soviet Union, the Gorbachev administration was anxious to maintain American support for its reforms and administration. The Soviet Union also received a 4 billion dollar loan from Saudi Arabia before a UN vote at a time financial vulnerability.²³⁵

Egypt

Egypt was by 1990 heavily in debt to Western creditors including the United States, with debts totalling 45 billion.²³⁶ Egypt's' estimated economic costs for imposing sanctions and contributing to the coalition were estimated at 4 billion dollars, while this cost was more than made up for the fact that the US forgave 7 billion dollars of loans due.²³⁷ Moreover, even while this debt forgiveness was promised as early as 7 August privately and announced publicly on September 1st, Egypt did not announce that it would join the war effort until the commencement of hostilities on 16 January 1991. Washington also pressured Saudi Arabia and other Gulf states to cancel 7.7 billion dollars in loans by late September 1990.²³⁸ It convinced France and Finland to write down 2.8 billion and 78 million respectively. Moreover, "by May 1991, nearly 25 billion in debt had been forgiven."²³⁹ These side-payments were necessary to keep Egypt within the coalition, since its "vitals security interests were not as directly threatened as those of the Gulf states."²⁴⁰ Yet, it "had a great deal to gain geopolitically" and its regional standing "was greatly enhanced by its broker's role at the meetings of the Arab League held immediately after the invasion."²⁴¹

²³⁵ Ibid.

²³⁶ Daniel Brumberg. 1997. "From Strategic Surprise to Strategic Gain: Egypt's Role in the Gulf Coalition." In *Friends in Need: Burden-Sharing in the Persian Gulf War*, op. cit., 105.

²³⁷ Ibid., 97.

²³⁸ Ibid.

²³⁹ Ibid., 105.

²⁴⁰ Cooper et al., 1991, 401.

²⁴¹ Ibid.

Syria

There is evidence that Syria's military contribution, while of marginal military importance contributed to the coalition in the form of political legitimacy.²⁴² Moreover, Syria's contribution was highly rational in that it leveraged significant side payments: "Syria's continued participation in the coalition had to be positively reinforced several times by 'side-payments'".²⁴³ Specifically, in October 1990, the US approved a Syrian military move against a Lebanese general who was seeking Syria's expulsion from Lebanon. European Economic Community sanctions were lifted. Britain restored diplomatic relations. Saudi Arabia, on the urging of the US, provided Syria with 1 billion dollars and in total Syria reportedly received 2 billion.²⁴⁴ More generally, Syrian deployment of soldiers to Saudi Arabia seemed to move in lock-step with the increasing of side-payments. On October 31st, after significant side-payments of cash and political concessions it finally deployed the advance guard of the armoured division that it had promised in the month of August. Finally, as a political quid pro quo, the US assured Syria that the peace process with Israel would be "reinvigorated."²⁴⁵ Also, it is possible that "joining the coalition was sort of an insurance against [wider war with Israel]."²⁴⁶

Analysis of the Outcome: Causal Conditions & Coalition Contributions

"Many states contributed to the coalition for private reasons, thereby offsetting the otherwise dominant tendency to free ride."²⁴⁷

In tracing the process of governmental decisions to contribute to an international military coalition, it is clear that simply looking at the final outcome, either in dichotomous terms or in relative contribution levels, only tells a part of the story of the causal conditions that were either necessary or sufficient.

²⁴² Raymond A. Hinnebusch. 1997. "Syria's Role in the Gulf War Coalition." In Friends in Need: Burden-Sharing in the Persian Gulf War, op. cit., 220.

²⁴³ Ibid., 222.

²⁴⁴ Ibid.

²⁴⁵ Ibid., 223.

²⁴⁶ Ibid., 228.

²⁴⁷ Lake, 1999, 228.

The decision by the US government to take a hard-line against Saddam Hussein is not examined here as it has been done so quite adequately elsewhere.²⁴⁸ From a perspective action theory, it matters only that the US identified a collective security good that it was willing to pay for up to a point. By taking a position of constant, but strategic, leadership the US was able to force its allies to pay up for either their own stake in the good in question, or the general security club arrangement that pre-existed the invasion event. Where neither of these conditions were at sufficient to elicit "burden-sharing" or cooperation, private incentives coordinated by the US were usually independently sufficient to elicit some form of cooperation. Of note, private incentives were not always successful (in the case of Jordan or Iran) in eliciting cooperation. Yet it has been shown that both Jordan and Iran stood to benefit more from their "neutrality" than through cooperation with the US coalition.

Reputational Costs, Club Relationships and Perceptions of Burden-Sharing

Within the club of global economic powers, the G7, American influence was so great that its domestic politics were able to impose reputational costs on those countries that were seen to be benefitting by US action. The US Congress was concerned after the announcement of Operation Desert Shield in the face of its expected costs that allied nations who stood to gain from US action would fail to contribute to the US effort. Senator Robert Byrd expressed the concern of many in the US Congress when he castigated Germany and Japan for "free-riding" on US policy.

Mr. President, I think this is a shame and a disgrace that Germany and Japan, two countries which will benefit far more than will the United States, two countries whose need for the oil of the Middle East far exceeds our need, will stand by and cynically watch American men and women shed their blood in the sands of the

²⁴⁸ Woodward, 1991; Freedman and Karsh, 1993; Bennett et. al., 1997.

²⁴⁹ In return for Iran's neutrality, Iraq made important territorial concessions in returning occupied territory taken in the Iran-Iraq war. Jordan's economic dependence and domestic political support for Saddam Hussein's regime were both very high. This suggests that the cost of balancing against Iraq would have been too high for Jordan's regime. See Vaziri, 1997, 299-313 and Jeffrey R. Lord and Kristin M. Lord. 1997. "Additional Cases from the Gulf Crisis and Burden Sharing in UNPROFOR." In *Friends in Need: Burden-Sharing in the Persian Gulf War*, op. cit., 323-343.

Arabian desert and refuse to help to finance in their treasury [sic] the costs of this effort"²⁵⁰

The initial strategy allowed a broad-based coalition to form and literally entrapped governments even as the over-all strategy shifted from sanctions and defence to an offense. This entrapment was due to the high reputational costs of defection:

Being on board meant in a very real sense being lashed to the mast: the costs of resisting or opposing the decisions being taken in Washington (much less defecting from the coalition altogether) were so high they became virtually impossible to countenance. Moreover, the behavior of Saddam Hussein himself increased the costs of defection considerably. He held foreigners as hostages and human shields for four months; launched Scud missile attacks on Israel in response to the coalition air raids; paraded obviously beaten-up coalition pilots on television; released oil into the Gulf; looted Kuwait City before the final re-treat. All proved to be invaluable contributions to coalition unity.²⁵¹

In the aftermath of the war, it is easy to overstate the outcome of the coalition simply by considering the number of states that contributed in some way. In fact, once the initial sanctions regime and defensive force in Saudi Arabia had been agreed to, there were no significant increase in the amount of contributions to the coalition. In other words, the US added the necessary forces to meet the large threshold for offensive action.

Game Construction

Military coalition contributions can be explained at least in part by examining the structure of the game involved as well as its underlying incentive structure, as argued in Chapter 1. The invasion of Iraq created a collective security problem that can be described as an assurance problem. The structure of the security problem was a complex mix of pure public, club and private goods. The mixture of goods at stake made contributions a dominant strategy for many states, while contributions co-relate to country-specific benefits (with the possible exception of Germany and Japan). However, even in the cases of

²⁵⁰Cooper et al., 1991, 403

Germany and Japan, contributions beyond their immediate benefit at stake are explained by their adherence to a larger economic and security club arrangement with the United States. In the case of a military coalition, private incentives were sufficient to motivate contributions. The original assurance problem emerged between the United States and Britain. Through communication and mutual trust, the US and Britain forged mutual expectations towards contribution. This backing allowed the US to make overtures to Saudi Arabia and conclude an agreement to build a military coalition. Once the initial coalition was formed, the joint expectations of the other players made contributing to the effort a dominant strategy for those who could reasonably hope to profit from the venture. In the case under study here, there appears to have been a cascading effect whereby each new step forward by the US resulted in an ever growing contribution machine.

The invasion of Iraq by Kuwait gave way to an international outcry against the naked aggression it represented. Not only did the move violate long-held international norms of state sovereignty, it increased dramatically the oil controlled by Iraq, advanced Iraq's borders and changed the regional configuration of power. The invasion put Iraq in control of 20 percent of the global oil reserves and put Iraq's army within arms' reach of another 20 percent located in Saudi Arabia.²⁵² In an energy market already highly cartelized, this concentration of resources became a major source of concern to the United States and other oil importing states. The oil supply crisis of the 1970s was still fresh in the minds of decision makers when Iraq invaded Kuwait. The Carter Doctrine, announced in 1980 to defend US interests in the Persian Gulf was still official US policy.

For the United States, the costs of action included the actual costs of deploying and sustaining such a large military presence at such a distance and the risk that those total costs would not be reimbursed by its allies. While the United States was "requesting" contributions from its allies, it had already committed to defending Saudi Arabia. Despite this risk, the United States could still withdraw; or rather halt its deployment plans, if the risk of non-payment became high or non-payment occurred. Hence, an assurance game with refunds came about. The United States saw an objective worth pursuing, committed

²⁵¹Ibid, 402.

to carry it out and then went abroad looking for support for its policy. In this case, due to the convergence of interests and values at stake, American leadership was both necessary and sufficient to entice others to contribute to the coalition. Moreover, there is evidence that American leaders including President Bush were convinced that American leadership would bring about a coordinated international response that would be greater than the sum of its constituent parts.²⁵³

In an assurance game, "free-riding" or non-contribution is no longer a dominant strategy once a leader emerges and contributes. The pay-off matrix changes for the other players and their best option is to contribute in some way.²⁵⁴ Where private incentives are necessary to change the pay-off structure of the game for other players, it is probable that the subjective valuations of the collective security good are not equal. In this case, the collective security good is not purely public but rather impurely public and restricted to a set of players who stand to benefit from the collective security good.

Throughout the escalation from sanctions, to major military deployment and defence of Saudi Arabia, to the offensive action against Iraqi forces, the US took the lead. This leadership suggests that assurance games were at play at each new phase of the deployment, entrapping those states and clubs with revealed preferences to pay up. Where side-payments were used, the were largely funded by the club of members with the most private incentives related to the collective security good, namely the GCC club and in particular, Saudi Arabia and Kuwait.

Costs

There were many costs associated with the sanctions regime and the eventual war effort. These costs varied for each country and are largely captured in Table 3.2. As such, the costs could be political, economic or financial. Threat can be expressed as a cost, or more specifically a probabilistic risk associated with a catastrophic cost. In general, the threat of regime extinction in the GCC states lead to the formation of the coalition in the

²⁵² Bennett, 1997, 44.

²⁵³ Ibid.

²⁵⁴ Sandler, 2004, 27.

first place. This high cost called for a high level of cooperation to provide a regional collective security good. The economic costs associated with the Iraqi control of Kuwaiti oil were high enough that the US was motivated to act, and was able to entrap other major economies into revealing their preferences and financing the cost of intervention.

The escalating nature of the conflict under American leadership meant that while the benefits remained largely the same, the costs kept increasing: "the costs of an embargo and defensive deployment might be appropriate but those of war would be quite unacceptable."²⁵⁵ Therefore, it is noticeable that military contributions in general did not increase much, since the risk and cost of combat was seen as very costly. As the costs went up, the demand for financial contribution went up dramatically resulting in the announcement of large financial contributions by players with revealed preferences and important security club membership. The demand for financing was higher than the demand for troops since money is perfectly substitutable while military forces are generally not. Although not considered in detail here, the costs of non-contribution were the risk of negative side-payments from the US and allies, and opportunity costs from foregoing the benefits of cooperation. The relatively fixed costs of non-contribution may explain why the multilateral coalition fell apart around the issue of overturning Saddam's regime after the liberation of Kuwai. As the expected costs of war in Iraq increased (ie. An invasion of Iraq) the various coalition partners and the Soviet bloc opposed any escalation of the conflict and sought to terminate the coalition and limit its war aims.²⁵⁶

Benefits

In state decisions to contribute it is the subjective assessment of benefits that drives decision making. As such, states that do not view a collective security benefit in the same way may not be motivated to finance or contribute to its provision. The subjectivity of benefits also affects how dominant providers can use side-payments, threats and club influence to enforce burden-sharing: "Americans, not unnaturally, tend to think of American statecraft as providing international public goods such as peace, order, and

²⁵⁵ Freedman and Karsh, 1993, 225.

security to the world; they tend to think of smaller countries consuming these goods without contributing to them - the classical free rider."²⁵⁷ Therefore, in the strategic interaction between cooperating states it is not only the subjective cost-benefit calculation by individual states, but also the subjective cost-benefit calculation perceived by large providers capable of imposing political concessions on its allies.

Scott Barrett investigates the financing of global public goods, and observes that "the Persian Gulf War benefited neighboring states more than states in other regions, oilimporting states more than oil exporters, and states needing to rely on international law for their security more than states with strong national defenses."²⁵⁸ This observation is reflected in the data, the American administration's view and was largely proportional to the outcome in terms of contribution burdens.

If military action produces joint products, then it is not only the outcome that yields benefits but the participation in the supply of the outcome. For example, influence benefits were perceived by major US allies as joint products of military intervention.

A collective action problem occurred when Iraq invaded Kuwait. Overturning the invasion and re-establishing the status quo ante become a collective security good to many states, specifically the GCC states and the US. The collective security good emerged from the alignment of state interests. According to Lake, "all wanted the Iraqi threat to the region reduced, the monarchy restored in Kuwait, and a stable Iraq in existence to contain the Shiite regime in Iran. States outside the Gulf also wanted to prevent the rise of a radical price maker within OPEC."²⁵⁹

The invasion of Kuwait by Iraq led to a bargaining problem between Iraq and the United States. The Bush administration adopted a win-set with no overlap with the Iraqi dictator. Specifically, two American/GCC objectives conflicted directly with the Iraqi objectives:

 ²⁵⁶ See a speech by Mikhail S. Gorbachev. 9 February, 1991. "The Illogic of Escalation" in *The Gulf War Reader*, eds. M.L. Sifry and C. Cerf., 1991. New York: Random House.
²⁵⁷ Cooper *et al.*, 1991, 409.

1. An unconditional Iraqi withdrawal from Kuwait as a pre-condition to bargaining.

2. The restoration of the Al-Sabah family to the throne in Kuwait as a non-negotiable issue.

In fact, these two shared objectives were the result of a coalition formed between the United States and the GCC states. The GCC states argued to the Americans that allowing the overturning of the royal family would set a dangerous precedent for the other GCC states and would reward Iraqi aggression. In general, it was agreed that any concessions would further embolden and reward Iraq for its invasion of Iraq and create perverse incentives in favour of aggression. On the other hand, Saddam Hussein viewed Kuwait and foreign nationals in Iraq and Kuwait as bargaining chips to achieve his debt reduction, national reconstruction and border dispute aims.

While the coalition was a multilateral effort, the liberation of Kuwait was almost a "purely American project."²⁶⁰

Of the thirty-six members of the coalition deploying forces in the Gulf, nine states contributed only naval vessels; a further seven states contributed only medical units; Canada and Italy contributed naval vessels and aircraft. The contributions were thus appropriate for a naval blockade or tending someone else's wounded, but not for an offensive operation against Iraqi forces. Indeed, only seven states deployed ground troops actually engaged in combat.²⁶¹

The weighted sum technology of the coalition effort explains why the coalition leader preferred financial contributions and contributions which were close to purely substitutable. Clearly, contributions can be made for other reasons, such as to capture influence benefits. Yet the fact that the military effort was in the end a largely American effort financed by other countries shows that weighted sum technology may influence the distribution of contributions across coalition membership.

²⁵⁸ Barrett, 2007, 113.

²⁵⁹ Lake, 1999, 231.

²⁶⁰ Cooper et al., 1991, 407.

²⁶¹ Cooper, 1997.

Leadership: Cause and Effect

"The most important feature of the impending encounter in the Gulf was that its outcome was not in doubt: the coalition could inflict a crippling military defeat on Iraq and eject it from Kuwait."²⁶²

By stating its intentions and deploying its capability, the US was able to effectively make a conditional promise. Leadership was also instrumental in getting more financial concessions from allies: "more than a week after it had begun air strikes against Iraq that the United States firmed up new financial commitments from SA, Kuwait, Japan, and Germany totalling 41 billion. Moreover, the military commitments of other coalition members were relatively unchanged when US forces doubled." By simultaneously committing itself to action while making action conditional on multi-lateral contributions, the US was able to bring potential "free-riders" into burden-sharing arrangement resembling club tolls. Before the ground war commenced, a "formula was devised [by the US] that called for Japan to provide 20 percent of the cost, the US and its allies another 20 percent, and the Gulf states the rest."²⁶³ The financial contributions to the war effort eventually matched this stated goal.²⁶⁴ This result resembles the centralized financing structure of a club. In fact, it operated much like a club of clubs.

Threshold Technology and its Effect on Contribution Decisions

Military planners plan for victory. The deployment doctrine of the United States is to deploy sufficient military forces to overpower the enemy several times over. NATO military doctrine calls for an offensive force should have a 3:1 numerical advantage when on the offense. Hence, when military planners are planning a deployment of troops they must consider the expected size and capabilities of the enemy. Hence, if the military planners have the advantage of time and information, they will likely identify a "minimum required force" before operations can commence. In fact, the Gulf War shows evidence of this. The US military was asked to plan the liberation of Kuwait before the coalition finally

²⁶² Freedman and Karsh, 1993, 285.

²⁶³ Ibid., 358.

²⁶⁴ Barrett, 2007, 115.

came together. If the forces necessary for the operation were not made available, then the operation would likely not go ahead. Under some conditions, reaching a minimum military capability threshold is a necessary condition for coalition operations. That is not to say that military planner, commanders and states cannot make mistakes. There are many examples in history where insufficient forces led to defeat. Yet it is clear that countries with the luxury of choosing whether to join a conflict or not will normally not do so without identifying and providing the necessary forces to achieve victory.²⁶⁵ The reasonable belief in victory is often based on the belief of the superiority of one's own advantages over the enemy.

The clear threshold elements in place in the Persian Gulf War allowed the United States to request allied military contributions and financing. Specific military assets such as basing rights, particularly in the vicinity of Iraq, were necessary for the coalition military plan. These contributions were made by a club of GCC states that had little choice given the clear benefits of containing the Iraqi threat. Without the necessary forces and the forward bases, the threshold would not be met and it is inconceivable that the coalition would have proceeded. However, once the threshold was obviously going to be met, this changed the expectations of many countries who would not risk participating in a losing battle. Once the threshold technology of overwhelming military advantage was secure, we observe that additional states made military contributions knowing that they would not be in vain. "For the United States to deploy sufficient military strength to deter Iraq's continuing aggression or intimidation and to compel it to withdraw from Kuwait required forward land bases in Saudi Arabia or, less attractively, some other Gulf state... Turkey was also important for its air bases."²⁶⁶

At the start of the Gulf crisis [General Colin Powell] urged the President to take heed of what the military considered to the major lesson of Vietnam: do not apply military force in a slow, incremental manner but use it to achieve maximum impact so as to disorientate the enemy and keep him off balance.²⁶⁷

²⁶⁵ See Dan Reiter and Allan C. Stam. 2002. *Democracies at War*. Princeton: Princeton University Press.

²⁶⁶ Lake, 1999, 222.

²⁶⁷ Freedman and Karsh, 1993, 285.

Thresholds not only exist in the aggregation of military capabilities for military intervention, they are perceived to exist in the minds of decision-makers.

Substitutability of Forces & Contributions

The aggregation technology of military coalitions cannot be presumed to abide by perfect substitutability. Evidence from the Persian Gulf War suggests that military forces abide by a weighted sum technology in terms of combat capabilities. Advanced professional armies of industrialized nations and conscript armies from developing countries do not achieve the same effects on the battlefield. "Although forces from each new country added to the total capability of the coalition, additional contributionsespecially from non-NATO countries-degraded the per capita fighting effectiveness of the existing forces."268 In fact, some small countries, for example Bulgaria and Honduras, that offered forces to the coalition were declined, because accommodating small forces logistically was too burdensome.²⁶⁹ According to Bennett, "most of the coalition partners were more trouble than they were worth in terms of actual military effectiveness."270 Moreover, some technical barriers to operational integration existed. For example, Americans could not distinguish easily between Iraqi and Syrian T-62 tanks, a problem that made the Syrians quite understandably reluctant to fight on the American flank.²⁷¹ Using a weighted sum aggregation technology, countries with less developed military capabilities will contribute fewer forces than they otherwise would if they had purely substitutable forces (holding incentive levels equal). The optimal solution from an American perspective was for American forces to do most of the heavy lifting and for allies to foot the bill.

Conclusion

Collective action theory adequately explains the emergence of a multi-lateral coalition to evict Iraq from Kuwait. The outcome was the result of an assurance problem that was overcome through communication, leadership and the cascading effects of

²⁶⁸ Lake, 1999, 225.

²⁶⁹ Ibid.

²⁷⁰ Bennett, 1997, 45.

²⁷¹ Lake, 1999, 225.

threshold technology with refunds. The Sandler hypothesis supported here is shown to be plausible. By examining the threshold, US leadership, club effects and side-payments to non-aligned countries, we note that collective action was made an efficient outcome for many countries.

Cooper *et. al.* argue that it is important to distinguish between "joining" and "staying" in coalitions.²⁷² In other words, the decision to join a coalition makes it hard to leave it. This form of entrapment means that a dominant provider, once contributions are made, has some strategic freedom of action. This is particularly true if the contributions are seen as club dues, where states give nominal contributions as part of their overall club membership responsibilities. These club dues are a *quid pro quo*, but are more directly related to club functions than to a particular collective security good. In the case of military contributions by NATO members, the study of club relationships should examine the total contributions levels of member states in relation to their marginal coalition contributions. If there is a high level of correspondence between overall membership contributions and particular coalition contributions, a club membership fee may be inferred.

The role of alignment in coalition costs is apparent in the outcome. Those states not fully aligned with Washington were bought off with *quid pro quo* side-payments, as was the case with the Soviets, China and Syria. Those states whose security was guaranteed by US power or were fully aligned with Washington would have to help foot the bill, as was the case with the GCC, Germany and Japan, South Korea and, to a lesser extent, smaller NATO countries. As such, the redistribution of cash and contributions were not so much directly *quid pro quo*, but rather membership and "visitation" fees that would sustain the US-led security clubs. States hoping to align themselves more closely with Washington may have seen contributions as joint product.

Influence is also a joint product of military cooperation. The Treaty of Versailles, written by the victors and imposed on the defeated, had redrawn the world map in 1919 in the interests of those attending the Conference and specifically those who had shaped the war's end. "To the victor, the spoils" is not just an empty slogan but a historical reality that

is not lost on the statesmen of the world. Where countries appear to have no benefit in a foreign war, it is precisely this incentive to maintain influence and maintain security and economic links that gets much of the attention by scholars. This motive has been attributed to both Canada and Australia. The other smaller countries, which appear to have less of a stake, were nevertheless motivated to contribute in the form of dues towards a larger stake in a particular security relationship.²⁷³ It is the contribution itself rather than the outcome of the contribution that will determine the expected influence in the outcome.

The role of debt in international relationships and military coalitions may occasionally have a great importance in contribution decisions. France did not commit to offensive action against Iraq until after the war had begun, probably at least in part because it did not want to have to write off billions of dollars in loans. Yet, in some cases, military action may be expressly undertaken for the purposes of recovering unpaid loans. Yet a multilateral military coalition may have difficulty settling the issue of which victor takes what spoils. The role of debt in the formation of military coalitions deserves further study.

²⁷² Cooper et al., 1991.

²⁷³ Lake, 1999.

Chapter 4. Conclusion

This study's main purpose was to revisit the concept of collective action theory within political science applications by applying additional theoretical predictions to a collective security problem. The dynamics of collective action are relevant, perhaps even prevalent. Individual rationality, even at the state level, is prevalent. This rationality can be expected to result in collective irrationality in cases where large groups have to provide pure public goods. However, the case of Persian Gulf War shows evidence that both leadership, the aggregation technology of military coalitions and private incentives changed the shape of the expected outcome in favour of collective action success.

The mathematical application of collective action theory to military coalitions does not appear to be possible without sacrificing specificity and historical context. The large number of causal conditions of varying importance, the problem of uncertainty and risk, and the impracticality of reducing social phenomena to numbers makes its rigorous application very hard. The costs and benefits of international politics defy quantification in many respects. Yet the predictions of the theory seem surprisingly relevant when carefully applied to the problems of collective action in international relations. Where collective action failure is observed, prescriptions are likely to be found in the propositions of collective action theory.

Advancing the study of military coalitions and financial burden-sharing requires new methods of focussed qualitative research. In this respect, fuzzy-set analysis offers a great deal of promise. The outcomes of coalition membership cannot be easily evaluated using traditional variable-oriented methodology. First of all, the meaning of "coalition member" is quite fuzzy. A small Caribbean country with no expeditionary forces and no funds to contribute is nevertheless included under some definitions of "international coalition" by virtue of political statements and diplomatic support. A large military contribution and a token military contribution by different states cannot be considered equivalent outcomes unless we want to abstract the forces that determine a decision to contribute from a decision of how much to contribute. In reality, these decisions are often made simultaneously. Looking for the intersection of multiple causal conditions where 106 threats to state survival, club membership tolls, and the existence of excludable private benefits and joint products will yield important results for the study of coalition outcomes. Testing whether goods are purely public or less pure could be done by using Todd Sandler's test: correlating contributions to incomes versus contributions to benefits proxies. Second, the need for process-tracing is clear. The final outcome of the Persian Gulf War appears to be a total vindication of US strategy. Yet each phase was undertaken with a high degree of uncertainty. The series of decisions leading to the outcome must be examined sequentially with the chain of events elaborated. Contributions to a military coalition can increase, decrease or disappear during the evolution of a crisis.

The outcome under study in this case is state decision to contribute to Gulf War military coalition. The membership in the set of military coalition members is best described as fuzzy. If a country is either in or out of the coalition set, then this dichotomy will ignore the substantial difference in contribution between Denmark (90 soldiers) and Turkey (100,000 troops stationed at the Iraq-Turkey border). If the coalition is examined in purely military contributions, countries such as Germany and Japan who offered significant financial support but did not deploy troops are not counted as in the set of countries contributing. The use of fuzzy-set methods would likely improve the analysis of the conjunction of causal conditions. Probabilistic sufficiency and necessity tests would improve the predictive element of theoretical coalition investigations.

There are certain policy implications for countries looking to determine rational coalition contribution levels. First, the role of substitutability of forces and comparative military advantage must be examined to identify efficient contributions. Second, token contributions of small amounts of troops may be a waste of scarce resources unless they represent a vital capability or a unique specialization. Third, the logic of burden-sharing can cause entrapment where club members share different strategic outlooks on the world. This last point is highly important for middle powers. Not all defection is free-riding. Some countries may not ascribe any value to the good being sought. If so, it would be irrational to pay for nothing. In the nebulous world of expectations and high politics, uncertainty and misperception may cause genuine disagreements between allies about the
benefits of multilateral military action. Consider the 2003 Persian Gulf War as an example. If the US-led coalition had found weapons of mass destruction, or any evidence of its manufacturing, in Iraq, then non-contributor countries could be accused of free-riding. However, if those non-contributors saw no probability of Iraq having such weapons and they in fact did not exist, then to accuse a country of free-riding would be disingenuous at best. Therefore, value is in the eye of the beholder. Perhaps the best way of judging that value, at least in the case of impure, club and private goods, is by looking at the size of the contribution. The case of the 2003 Persian Gulf War should be further studied against the 1991 version to draw out the variations in the outcome of the coalition. Further examination of the decision by the US and allies *not to invade Iraq* in 1991 after the liberation of Kuwait could shed further light on salient features of the military coalition.

The prevalence of collective action problems in social life and international politics is hard to dispute. From questions of global warming, environmental degradation, tariff barriers, border disputes, regional security threats to epidemics, the society of states has both barriers and incentives to cooperation. It appears that the motor of individual rationality can be used to spur collective action success. In particular, the acts of leadership, communication and repeated interactions that can bring about collectively optimal results. Fair cost sharing is important and may be the only way to bring about collective action in many cases.

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